CITY OF MERCER ISLAND

COMMUNITY PLANNING & DEVELOPMENT
9611 SE 36TH STREET | MERCER ISLAND, WA 98040
PHONE: 206.275.7605 | www.mercergov.org

STAFF REPORT

CRITICAL AREA DETERMINATION

Project No.:	CAO19-013
Description:	Request for a critical area determination to average the buffer of a Type 3 watercourse and category IV (4) wetland to replace and expand an existing patio with a new covered patio and stairs. The applicant is proposing to conduct development activity within 60 square feet of the watercourse's buffer, while adding 60 square feet to the buffer elsewhere on the property. In addition, the proposal also includes substantial 2,800sf buffer enhancement on the steep slope.
Applicant / Owner:	Josh Brincko (Josh PS) / Jonathan Lai
Site Address:	7505 92nd Ave SE, Mercer Island, WA 98040; Identified by King County Assessor tax parcel number 257950-0188.
Zoning District:	Single Family Residential (R-9.6)
Staff Contact:	Lauren Anderson, Planner
Exhibits:	1. Development Application, received by the City of Mercer Island on June 25, 2019. 2. Revised Development Plan Set, received by the City of Mercer Island on May 20, 2020. 3. Project Narrative, received by the City of Mercer Island on June 25, 2019 4. Revised Critical Areas Report, received by the City of Mercer Island on July 8, 2020. 5. Peer Review Memorandum prepared by Environmental Science Associates, dated July 30,2020. 6. Revised Bond Quantity Worksheet, received by the City of Mercer Island on July 30, 2020. 7. Topographic and Boundary Line Survey, received by the City of Mercer Island under associated building permit #1906-045 on April 15, 2020.

INTRODUCTION

I. Project Description

The applicant has applied for a Critical Area Determination to average the buffer of a Type 3 watercourse and category 4 wetland to replace an existing patio with a new expanded covered patio and stairs. The City's GIS critical areas map indicates that there is a type 2 watercourse present on site,

however the applicant's Professional Wetland Scientist, Kerrie McArthur at Confluence, and the City's consultant Jessica Redman, Wetland Ecologist at Environmental Science Associate (ESA), found that it is a type 3 watercourse. The proposal involves encroaching 60 square feet into the buffer south of the project for the construction of the patio and stairs, while adding 60 square feet to the buffer east of the project area. The portion of the buffer to be reduced will not be reduced below the minimum width allowed. In addition, a total of 2,800 square feet of buffer enhancement is proposed.

II. Site Description and Context

1. The proposed activity is to occur at 7505 92nd Ave SE, Mercer Island, WA 98040. This site is designated Single Family Residential (zoned R-9.6).

2. Adjacent properties to the north, east, west, and south are also within the R-9.6 zone. Adjacent properties to the north are within the R-9.6 zone. All adjacent properties contain residential uses.

Findings of Fact & Conclusions of Law

III. Application Procedure

1. The application for a Critical Area Determination was received by the City of Mercer Island on June 25, 2019. The application was determined to be complete on July 1, 2019 and a letter of completeness (via email) was sent to the applicant on July 11, 2019.

2. Under MICC 19.15.030, Table A, applications for Critical Area Determinations must undergo Type III review. Type III reviews require notice of application (discussed below). A notice of decision is issued once the project review is complete.

3. The City of Mercer Island provided public notice of application for this Critical Area Determination application, as set forth in MICC 19.15.090. The comment period for the public notice period lasted for 30 days, from July 15, 2019 to August 14, 2019. No public comments were received. The following methods were used for the public notice of application:

    1) A mailing sent to neighboring property owners within 300 feet of the subject parcel.
    2) A sign posted on the subject parcel.
    3) A posting in the City of Mercer Island's weekly permit bulletin.

IV. State Environmental Policy Act (SEPA)

This proposal is categorically exempt from SEPA pursuant to WAC 197-11-800(2)(f).

V. Consistency with the Critical Areas Code

1. The general provisions for Critical Area Determinations are listed in MICC 19.07.020:

    a. Applicability. Any alteration of a critical area or buffer shall meet the requirements of Chapter 19.07 MICC unless an allowed alteration or reasonable use exception applies pursuant to MICC 19.07.030.

Staff Analysis: *The applicant has applied for a critical area determination to average the buffer of a Type 3 watercourse and category 4 wetland. The project meets the buffer averaging requirements of MICC 19.07.070(B)(3) and MICC 19.07.080(C)(3), as discussed in Section V.2 of this staff report below.*

b. Public Notice – Critical Area Determination. A critical area determination requires public notice pursuant to MICC 19.15.100. A decision on a critical area determination may be appealed to the hearing examiner following the appeals process described in MICC 19.15.130.

Staff Analysis: *As discussed in Section III.3 of this staff report above, the City of Mercer Island provided public notice for this project pursuant to MICC 19.15.100.*

c. Critical Area Designation and Mapping. The approximate location and extent of critical areas are shown on the City's critical area maps, as now existing or hereafter amended. These maps are to be used as a reference only. The applicant is responsible for determining the scope, extent and boundaries of any critical areas to the satisfaction of the code official.

Staff Analysis: *The applicant has provided a critical area study (Exhibit 4) and survey (within Exhibit 2) of the site that show the location of the Type 3 watercourse and category 4 wetland and the associated buffers.*

d. Compliance with Other Federal, State or Local Laws. All approvals under the chapter, including critical area determinations and reasonable use exceptions, do not modify an applicant's obligation to comply in all respects with the applicable provisions of any other federal, state, or local law or regulation.

Staff Analysis: *The applicant is responsible for complying with all federal, state, and local regulations. This decision further conditions that the applicant provide documentation to the City should compliance with federal, state, and local regulations change the scope of the proposal.*

2. MICC 19.07.040 – Review and construction requirements.

a. (I) Timing. All alterations or mitigation to critical areas shall be completed prior to the final inspection and occupancy of a project.

Staff Analysis: *This decision conditions that the proposed mitigation to the critical area and its buffer be completed prior to the final inspection of the building permit associated with this project.*

b. (J) Maintenance and Monitoring.
    1. Landscape maintenance and monitoring may be required for up to five years from the date of project completion if the code official determines such condition is necessary to ensure mitigation success and critical area protection.
    2. Where monitoring reveals a significant variance from predicted impacts or a failure of protection measures, the applicant shall be responsible for appropriate corrective action, which may be subject to further monitoring.

Staff Analysis: *This decision conditions that maintenance and monitoring shall be required for the proposed mitigation landscaping, for a term of five years from the date of project completion. MICC 19.01.060(C)(1)(a) states that the city may require an applicant to provide a financial guarantee. However, due to the total project cost (refer to Exhibit 6 Bond Quantity Worksheet) being relatively low, a financial guarantee is not required.*

3. MICC 19.07.050 Critical areas study. When a critical areas study is required under MICC 19.07.030, 19.07.060, 19.07.070, 19.07.080 or 19.07.090, the following documents are required:
   A. Site Survey.
   B. Coversheet and site construction plan.
   C. Mitigation and restoration plan to include the following information:
      1. Location of existing trees and vegetation and proposed removal of same;
      2. Mitigation proposed including location, type, and number of replacement trees and vegetation;
      3. Delineation of critical areas;
      4. In the case of a wildlife habitat conservation area, identification f any known endangered or threatened species on the site;
      5. Proposed grading;
      7. Proposed monitoring plan.

   Staff Analysis: *The critical areas study, site plan, and survey provided by the applicant (Exhibit 2, 4, and 7) includes the items listed above. This criterion is met.*

4. MICC 19.07.070(B)(3) – Averaging of Buffer Widths. The code official may allow the standard buffer width to be averaged if all of the following criteria are met:

   a. The proposal will result in a net improvement of critical area function.

      Staff Analysis: *The critical areas study provided by the applicant (Exhibit 4) indicates that the proposed 2,800 square foot enhancement area will result in an improvement of critical area function. The plantings will also increase water quality and hydrology functions and reduce the potential for erosion from the shoulder of the slope. The peer review memorandum prepared by ESA (Exhibit 5) concurs that the proposal will improve the function of the critical area. This criterion is met.*

   b. The proposal will include replanting of the averaged buffer using native vegetation.

      Staff Analysis: *The critical areas report (Exhibit 4) indicates that the 60 square foot area added to the buffer will be planted with native vegetation. The proposal goes beyond the minimum requirement and will enhance a total of 2,800 square feet of the buffer. The enhancement area includes the removal of invasive species and planting with native species which includes the following: 14 doulas-fir and 14 western red-cedar. This criterion is met.*

   c. The total area contained in the averaged buffers on the development proposal site is not decreased below the total area that would be provided if the maximum width were not averaged.

Staff Analysis: *Figure 4: Proposed Buffer Averaging in Exhibit 4 shows that the buffer is being reduced by 60 square feet south of the project, while 60 square feet is being added to the buffer to the east of the project area. The total area of the buffer will not be reduced below the area of the buffer if it were not averaged, thereby meeting this criterion.*

d. The standard buffer width is not reduced to a width that is less than the minimum buffer width at any location.

Staff Analysis: *Under MICC 19.07.070(B)(1), the standard buffer for a Type 3 watercourse is 35 feet and can be reduced to 25 feet. Under MICC 19.07.080(C)(1), the standard buffer for a Category IV (4) wetland is 35 feet and can be reduced to 25 feet. At its closest point, the proposed development will be taking place approximately 29 feet from the watercourse and wetland, as shown on Exhibit 2 and Exhibit 4. The standard buffer is not proposed to be reduced below the minimum buffer width at any location. This criterion is met.*

e. That portion of the buffer that has been reduced in width shall not contain a steep slope.

Staff Analysis: *As shown on sheet A-1.0 of Exhibit 2 and Figure 4: Proposed Buffer Averaging in Exhibit 4, the proposed portion of the buffer to be reduced does not contain a steep slope. This criterion is met.*

5. MICC 19.07.080(C)(3) – Wetlands.
   c. Averaging of Wetland Buffer Widths. The code official may allow averaging of the standard wetland buffer widths in accordance with the criteria of MICC 19.07.070(B)(3).

Staff Analysis: *The project meets the buffer averaging requirements of MICC 19.07.070(B)(3) and MICC 19.07.080(C)(3), as discussed in Section V.2 of this staff report above.*

CONDITIONS OF APPROVAL

1. The project proposal shall be in substantial conformance with Exhibit 2, Exhibit 4, and all applicable development standards contained within Mercer Island City Code (MICC) Chapter 19.07.

2. The applicant is responsible for documenting any required changes in the project proposal due to conditions imposed by any applicable local, state and federal government agencies.

3. All alterations or mitigation to critical areas shall be completed prior to the final inspection and occupancy of the project.

4. Upon completion of the mitigation plantings, a letter written by a qualified professional detailing compliance with the approved mitigation plan shall be submitted to the City of Mercer Island Community Planning and Development Department. The compliance letter shall be accompanied by a set of as-built drawings depicting the type and location of mitigation plantings. A maintenance and monitoring memo shall be submitted to the City of Mercer Island Community Planning and Development Department annually for a period of five years. Plant survival rates are to meet or exceed those set out in Exhibit 4.

5. A City of Mercer Island Building Permit may be required for construction of this project proposal. The Building Official may require an appropriate performance and maintenance bond in an amount to be determined prior to Building Permit issuance to ensure all required vegetation installation is completed in compliance with applicable code requirements.

6. Construction of this project proposal shall only occur during approved construction hours by the City of Mercer Island and/or as otherwise restricted by the Building Official.

7. Construction or substantial progress toward construction of a development for which a permit has been granted must be undertaken within three years after the approval of the permit or the permit shall terminate. The code official shall determine if substantial progress has been made.

DEVELOPMENT REGULATION COMPLIANCE – DISCLOSURE

1. The applicant is responsible for obtaining any required permits or approvals from the appropriate Local, State, and Federal Agencies. The applicant is responsible for meeting the conditions required by the agencies pursuant to MICC 19.07.020(E).
2. All required permits must be obtained prior to the commencement of construction.

DECISION

Based upon the above noted Findings of Fact and Conclusions of Law, Critical Area Determination application CAO19-013, as depicted in Exhibit 2 and Exhibit 4, is hereby **APPROVED**. This decision is final, unless appealed in writing consistent with adopted appeal procedures, MICC 19.15.130, and all other applicable appeal regulations.

Approved this 10th day of August, 2020

Lauren Anderson

_____

Lauren Anderson
Planner
Community Planning & Development
City of Mercer Island

If you desire to file an appeal, you must submit the appropriate form, available from the department of Community Planning and Development, and file it with the City Clerk within fourteen (14) days from the date after the notice of decision is made available to the public and applicant pursuant to MICC 19.15.120. Upon receipt of a timely complete appeal application and appeal fee, an appeal hearing will be scheduled. To reverse, modify or remand this decision, the appeal hearing body must find that there has been substantial error, the proceedings were materially affected by irregularities in procedure, the decision was unsupported by material and substantial evidence in view of the entire record, or the decision is in conflict with the city's applicable decision criteria.

Please note that the City will provide notice of this decision to the King County Department of Assessment, as required by State Law (RCW 36.70B.130). Pursuant to RCW 84.41.030(1), affected property owners may request a change in

valuation for property tax purposes notwithstanding any program of revaluation by contacting the King County Department of Assessment at (206) 296-7300.

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CITY USE ONLY		
PROJECT#	RECEIPT #	**FEE**

Date Received: **Exhibit 1 - Dev App**

DEVELOPMENT APPLICATION

Received By:

STREET ADDRESS/LOCATION	ZONE
7505 92nd Ave SE	R-9.6
COUNTY ASSESSOR PARCEL #'S	**PARCEL SIZE (SQ. FT.)**
2579500188	

PROPERTY OWNER *(required)*	ADDRESS *(required)*	CELL/OFFICE *(required)*
Jonathan Lai	7505 92nd Ave SE Mercer Island, WA 98040	425-691-7888 E-MAIL *(required)* jonathanl@dclmanagement.com
PROJECT CONTACT NAME	ADDRESS	CELL/OFFICE
S. Joshua Brincko	5406 sw beach drive ter seattle wa 98116	2067089933 E-MAIL josh@josharch.com
TENANT NAME	ADDRESS	CELL PHONE
Owner		E-MAIL

DECLARATION: I HEREBY STATE THAT I AM THE OWNER OF THE SUBJECT PROPERTY OR I HAVE BEEN AUTHORIZED BY THE OWNER(S) OF THE SUBJECT PROPERTY TO REPRESENT THIS APPLICATION, AND THAT THE INFORMATION FURNISHED BY ME IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE.

SIGNATURE

6/13/2019
DATE

PROPOSED APPLICATION(S) AND CLEAR DESCRIPTION OF PROPOSAL (PLEASE USE ADDITIONAL PAPER IF NEEDED)**:**
Alteration of existing porch with addition of roof.

ATTACH RESPONSE TO DECISION CRITERIA IF APPLICABLE

CHECK TYPE OF LAND USE APPROVAL REQUESTED:

APPEALS	DEVIATIONS	SUBDIVISION SHORT PLAT
☐ Building	☐ Changes to Antenna requirements	☐ Short Plat- Two Lots
☐ Code Interpretation	☐ Changes to Open Space	☐ Short Plat- Three Lots
☐ Land use	☐ Critical Areas Setback	☐ Short Plat- Four Lots
☐ Right-of-Way Use	☐ Shoreline	☐ Short Plat- Deviation of Acreage Limitation
CRITICAL AREAS	☐ Seasonal Development Limitation Waiver	☐ Short Plat- Amendment
■ Determination	**ENVIRONMENTAL REVIEW (SEPA)**	☐ Short Plat- Final Plat
☐ Reasonable Use Exception	☐ SEPA Review (checklist)- Minor	**OTHER LAND USE**
DESIGN REVIEW	☐ SEPA review *checklist)- Major	☐ Accessory Dwelling Unit
☐ Pre Design Meeting	☐ Environmental Impact Statement	☐ Code Interpretation Request
☐ Design Review (Code Official)	**SHORELINE MANAGEMENT**	☐ Comprehensive Plan Amendment (CPA)
☐ Design Commission Study Session	☐ Exemption	☐ Conditional Use (CUP)
☐ Design Review- Design Commission-Exterior Alteration	☐ Permit Revision	☐ Lot Line Revision
	☐ Shoreline Variance	☐ Noise Exception
☐ Design Review- Design Commission-New Building	☐ Shoreline Conditional Use Permit	☐ Reclassification of Property (Rezoning)
	☐ Substantial Development Permit	☐ Transportation Concurrency
WIRELESS COMMUNICATION FACILITIES	**SUBDIVISION LONG PLAT**	☐ Zoning Code Text Amendment
☐ Wireless Communications Facilities-6409 Exemption	☐ Long Plat- Preliminary	☐ Planning Services (not associated with a permit or review)
	☐ Long Plat- Alteration	
☐ New Wireless Communication Facility	☐ Long Plat- Final Plat	☐ Request for letter
VARIANCES (Plus Hearing Examiner Fee)		
☐ Variance		

Exhibit 2 - Plan Set

PROJECT DATA

OWNER
LAI
JONATHANL@DCLMANAGEMENT.COM
7505 92ND AVE SE
MERCER ISLAND, WA 98040

ARCHITECT
JOSH PS
5400 SW BEACH DRIVE TER
SEATTLE, WA 98116
SDCI ID: AC58960
CONTACT: S. JOSHUA BRINCKO (206 708 9933)
JOSH@JOSHARCH.COM

STRUCTURAL ENGINEER
SWENSON SAY FAGET
2124 3RD AVE #100
SEATTLE, WA 98121
CONTACT: KARL ROSMAN (206 443 6212)
KROSMAN@SWENSONSAYFAGET.COM

CONTRACTOR
OWNER

GEOTECHNICAL ENGINEER
PANGEO
3213 EASTLAKE AVE E, SUITE B
SEATTLE, WA 98102
CONTACT: SIEW L. TAN, P.E. (206 262 0370)

PROPERTY DATA

PROJECT ADDRESS
7505 92ND AVE SE
MERCER ISLAND, WA 98040

ZONING DESIGNATION
R-9.6

19.02.020.E HEIGHT LIMIT
30' FROM AVERAGE GRADE TO HIGHEST POINT OF ROOF (5' BONUS FOR CHIMNEYS ETC.)

*FENCES MAX 72" HIGH (50" LATTICE ALLOWED UP TO 90")

SETBACKS
FRONT: 20'
NORTH SIDE: 7.5'
SOUTH SIDE: 13.43'
REAR: 25'

LOT AREA
11447 SF

ASSESSOR'S TAX NUMBER
257950-0188

LEGAL DESCRIPTION
FLOODS LAKE SIDE TRS LOT "1" MERCER ISLAND SHORT PLAT NO 95-0521 REC NO 9602019001 SD SHORT PLAT DAF - POR OF LOT 2 BLK 5 OF FLOODS LAKE SIDE TRS - AKA LOT 4 OF THE SULLIVAN SEGREGATION APPROVED SUBD 03-22-63 OF CITY OF MERCER ISLAND REC NO 8903100404
PLAT BLOCK: 5
PLAT LOT: 2

ENERGY DATA

PRESCRIPTIVE OPTION (ENERGY CREDIT 1A)

INSULATION VALUES

SLAB PERIMETER (FIRST 24")	R-10
BELOW GRADE WALLS (EXTERIOR)	R-10
BELOW GRADE WALLS (INTERIOR)	R-21
ABOVE GRADE WALLS	R-21
FLOORS	R-30
ATTICS W/ 1" CLEAR VENT SPACE	R-49
ADV FRAMED ATTICS W/ 1" CLEAR	R-38
VAULTED JOISTS/RAFTERS	R-38
FENESTRATION	U-0.28
OVERHEAD GLAZING	U-0.50

*ALL NEW FENESTRATION TO BE NFRC CERTIFIED

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CONSTRUCTION DATA

SCOPE OF WORK
REPLACE EXISTING DECK WITH PAVERS; ADD PATIO AND EXTERIOR KITCHENETTE

AREA SUMMARY

19.02.020.D.1.b MAX GROSS FLOOR AREA
(40%) 11,447 = 4578.8 SF MAX ALLOWED
=4,500 SF EXISTING
*STAIRCASE FROM FLOOR ONE TO TWO IS ONLY COUNTED ONCE

CONDITIONED SPACE

LOWER LEVEL	660 SQ FT
MAIN LEVEL	1940 SQ FT
UPPER LEVEL	1560 SQ FT
TOTAL	4160 SQ FT

UNCONDITIONED SPACE

LOWER LEVEL	630 SQ FT
TOTAL	630 SQ FT

SEE SHEET A1.0a FOR HARDSCAPE AND LOT COVERAGE

VENTILATION DATA

SYSTEM DESIGN

THIS SYSTEM IS DESIGN/BUILD (IRC CH. 15)

SYSTEM CRITERIA

MINIMUM OF .35 AIR EXCHANGES PER HOUR FOR ALL HABITABLE ROOMS.
MAXIMUM OF .50 AIR EXCHANGES PER HOUR FOR ALL HABITABLE ROOMS.

SYSTEM COMPONENTS

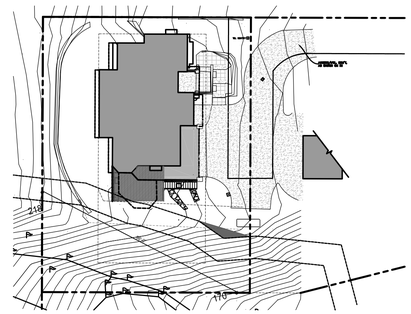
TIMER
INTAKE GRILL & DUCTING (FROM EXTERIOR)
MOTORIZED DAMPER
ELECTRIC AIR TEMPERING UNIT
INTAKE BLOWER
DISTRIBUTION DUCTING (HABITABLE ROOMS)
DISTRIBUTION GRILLS (HABITABLE ROOMS)
ELECTRIC EXHAUST FAN
EXHAUST DUCTING
EXHAUST PORT WITH BACK DRAFT DAMPER

SYSTEM FUNCTION

INTAKE BLOWER, AIR TEMPERING UNIT, AND EXHAUST FAN TO BE CONNECTED TO TIMER FOR SYNCHRONIZED, INTERMITTENT USE THROUGHOUT EACH DAY. FRESH AIR FROM THE EXTERIOR IS PULLED THROUGH AIR TEMPERING UNIT, THEN DISTRIBUTED THROUGH DUCTING TO ALL HABITABLE ROOMS. A BALANCED QUANTITY OF AIR IS SIMULTANEOUSLY EVACUATED FROM THE INTERIOR W/ THE EXHAUST FAN DUCTED TO EXT

AVG GRADE CALC:
WEIGHTED MIDPOINT SUM = 3850.9+3336.48+862.4+1921.38+1466.86+7713.02+5048.68+863.52 +1211.74+820.4+2665.73+1259.4+6371.84+1676.8+2515.2+2478+817.6= 44,879.95
TOTAL LENGTH = 19.4+16.8+4+9.3+7.1+39.3+24.7+4.2+5.9+4+12.7+6+30.4+8+12+12+4 = 219.8
WEIGHTED SUM/LENGTH =44879.95/219.8 = 204,19' AVERAGE GRADE

1 VICINITY MAP
NOT TO SCALE



48/98 = 48.9 DEGREE SLOPE

3 SLOPE DIAGRAM/CALC
SCALE: 1/32" = 1'-0"

19.02.020.C.1.c.i (b)
17% OF 123.09' WIDTH = 20.93' MIN TOTAL OF SIDE YARDS

19.02.020.C.1.c.iii (a), (2) 7.5' MIN SIDE

NO BUFFERS REQUIRED IN GEOLOGIC HAZARD ZONE, BUT PROFESSIONAL REVIEW REQUIRED

PROPERTY OWNER MUST SIGN AND NOTARIZE A HOLD HARMLESS AGREEMENT PER MERCER ISLAND CITY CODE 19.01.060 FOR GEOLOGIC HAZARD AREA

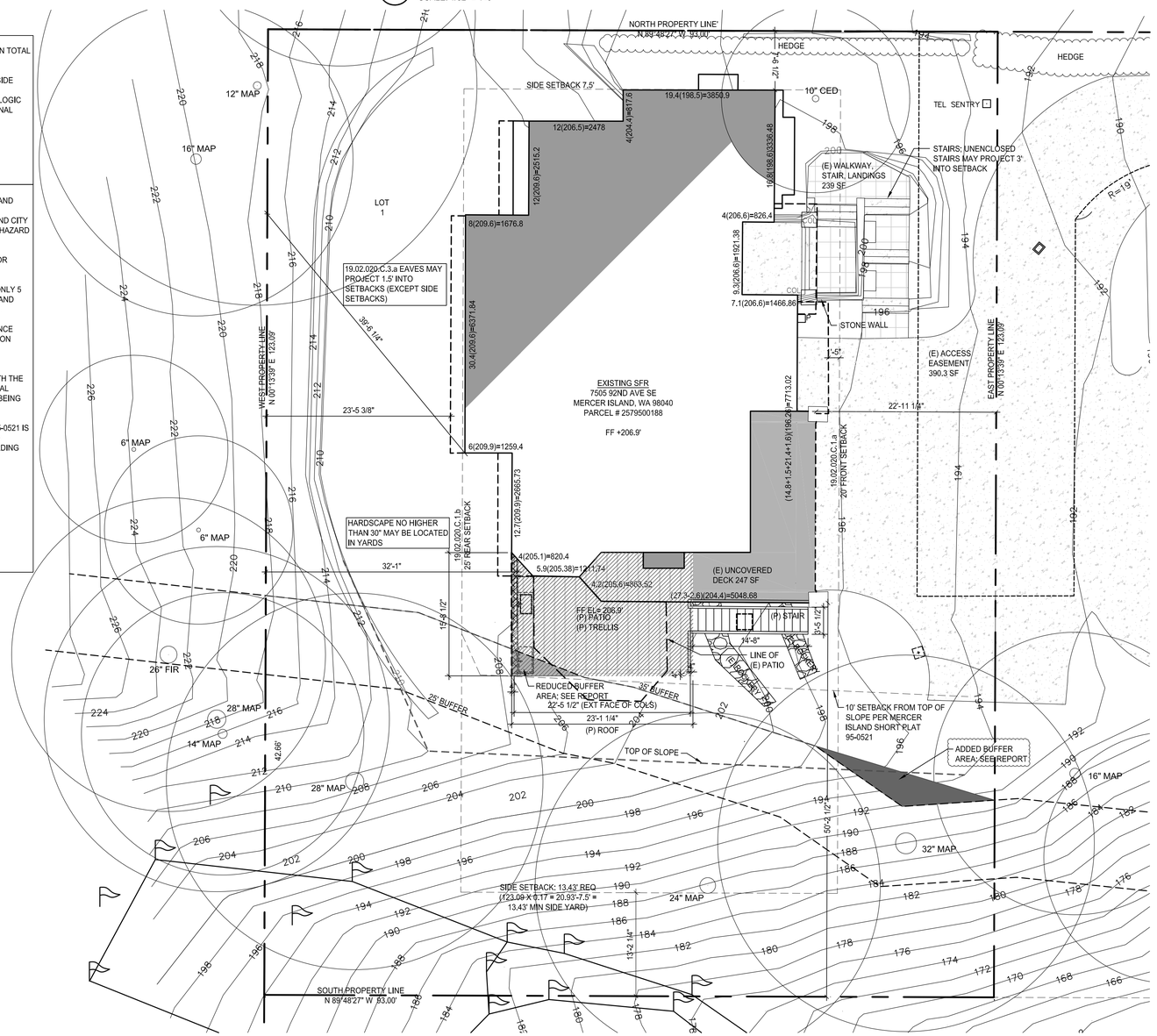
SEE GEOTECHNICAL REPORT FOR STATEMENT OF RISK

SEPA REVIEW NOT REQ SINCE ONLY 5 CUBIC YARDS OF CUT AND FILL AND WORK OUTSIDE WATERCOURSE

ARBORIST REPORT NOT REQ SINCE DEVELOPMENT HAS NO IMPACT ON TREES OR ROOT ZONE

THERE ARE NO LAND USE APPLICATIONS ASSOCIATED WITH THE PROJECT OTHER THAN A CRITICAL AREA DETERMINATION THAT IS BEING PROCESSED CONCURRENTLY

MERCER ISLAND SHORT PLAT 95-0521 IS APPLICABLE TO THE PROPOSED PROJECT (KING COUNTY RECORDING #9602019001)



2 SITE PLAN (TO BE VERIFIED IN FIELD)
SCALE: 1/8" = 1'-0"

JOSH
ARTISAN + ARCHITECT
206 708 9933 JoshArch.COM

9388 REGISTERED ARCHITECT
S. JOSHUA BRINCKO
STATE OF WASHINGTON

DESIGN	SJB
DRAWN	CEC
CHECKED	SJB
DATE	[2019-0114 DESIGN]
	[2019-0621 PERMIT]
	[2020-0211 REV 1]
	[2020-0413 REV 2]
3	[2020-0428 REV 3]

LAI
7505 92ND AVE SE
MERCER ISLAND WA 98040

PERMIT

SITE PLAN
PROJECT INFORMATION

PLAN NORTH

A1.0

ARTISAN + ARCHITECT

Project Narrative

Lai Patio
Sent: 2019-0625

City of Mercer Island
Community Planning & Development
9611 SE 36th St
Mercer Island, WA 98040
(206) 275-7605

To Whom It May Concern:

The goal of the project at 7505 92nd Ave SE is to replace existing deck with pavers, add patio with stair and exterior kitchenette. Critical area report and mitigation plan has been included in submittal. Arborist report not required since development has no impact on tress or root zone. Per previous reviewer: SEPA review is not required since only 5 cubic yards of cut and fill is proposed and the work is outside watercourse.

Respectfully,

Josh

S. Joshua Brincko
Principal Architect, Josh PS
WA Architect #9388, NCIDQ Cert #025775

Exhibit 4- Critical Areas Study

CONFLUENCE
ENVIRONMENTAL COMPANY

7511 92nd Avenue SE
REVISED CRITICAL AREAS STUDY AND MITIGATION PLAN

Prepared for:

Mr. Dexter Lai
July 8, 2020

146 N Canal St, Suite 111 • Seattle, WA 98103 • www.confenv.com

7511 92nd Avenue SE
REVISED CRITICAL AREAS STUDY AND MITIGATION PLAN

Prepared for:

Mr. Dexter Lai
7505 92nd Avenue SE
Mercer Island, WA 98040

Authored by:

Kerrie McArthur, PWS, and Suzanne Vieira, WPIT
Confluence Environmental Company

July 8, 2020

This report should be cited as:

Confluence (Confluence Environmental Company). 2020. 7511 92nd Avenue SE revised critical areas study and mitigation plan. Prepared for Dexter Lai, Mercer Island, Washington, by Confluence, Seattle, Washington.

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TABLES

FIGURES

APPENDICES

1.0 INTRODUCTION

On March 1 and March 15, 2019, Confluence Environmental Company (Confluence) conducted site visits at 7511 92nd Avenue SE (tax parcel 2579500190) (Figure 1). The purpose of the site visits was to determine the presence and extent of critical areas on and adjacent to the property. The effort focused on wetlands and streams. Critical areas such as erosion hazard areas, steep slopes, and landslide hazard areas were not evaluated in this study. This report discusses the results of the site visits.

The study parcel is located on Mercer Island, which is within Lake Washington, and is therefore subject to the City of Mercer Island (City) jurisdiction. The site is located within Water Resource Inventory Area 8 for the Cedar-Sammamish Watershed. The study parcel and surrounding parcels are currently zoned Residential (R-9.6) and developed with single-family residences.

Although the majority of the critical area delineations occurred on the study parcel, the 3 adjacent parcels to the north and northwest (tax parcel numbers 8566100140, 8566100150, and 2579500188) were also assessed where stream and wetland features overlapped the parcel boundaries. Permission to access these parcels was given per the property owners and/or the project applicant.

The development project that has triggered this critical area review will occur on parcel 2579500188 (the project parcel).

Figure 1. Project Parcel, Study Parcel, and Vicinity Map

2.0 METHODS

Confluence conducted both a wetland delineation and an ordinary high water mark (OHWM) delineation on the property. This section describes the methods used to identify the presence or absence of wetlands and delineate the OHWM.

2.1 Desktop Analysis

Confluence evaluated the parcel for the presence of critical areas using available GIS databases. The following databases were reviewed:

- City of Mercer Island GIS (City of Mercer Island 2019),
- King County iMap (King County 2019),
- U.S. Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) (USFWS 1981),
- National Resources Conservation Service (NRCS) Soil Survey (NRCS 2019a),
- Washington Department of Fish and Wildlife (WDFW) SalmonScape (WDFW 2019a),
- WDFW Priority Habitat and Species (WDFW 2019b), and
- Washington Department of Natural Resources (DNR) Forest Practices Application Mapping Tool (DNR 2019).

Results of the GIS database searches are in Appendix A.

2.2 Wetlands

2.2.1 Wetland Identification and Delineation

Confluence used the methods described by the U.S. Army Corps of Engineers (Corps) in the Corps of Engineers Wetland Delineation Manual (Corps 1987) and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Regional Supplement; Corps 2010) to delineate wetland boundaries. The Corps usually requires that the following 3 characteristics be present for an area to be identified as a wetland: (1) hydrophytic vegetation, (2) hydric soil, and (3) wetland hydrology. Each criterion has a number of indicators by which it can be determined to satisfy the standard. The indicators were established so that if an area was wetland, sufficient indicators would be observed at any time of the year, including the driest months. Since "normal circumstances," as defined by the Corps (1987), exist on the site, all 3 criteria must be present for an area to be determined a wetland. Wetland delineation data forms are in Appendix B.

The wetland boundary was determined by changes in vegetation, hydrology, and hydric soil indicators and topographic differences that indicated the shift from wetland to upland. The perimeter of the wetland was delineated with the strategic hanging of flags. The locations of the

wetland flags were recorded using a differential GPS with sub-meter accuracy and by a licensed surveyor.

The PLANTS Database (NRCS 2019b) was used for scientific names and the 2016 National Wetland Plant List (Lichvar et al. 2016) was used to determine the wetland indicator status of plants.

2.2.2 Wetland Rating

Confluence determined wetland ratings using the Washington State Wetland Rating System for Western Washington (Hruby 2004) to assess the resource value of the wetlands identified on the site. This rating system is based on the wetland functions and values, sensitivity to disturbance, rarity, and irreplaceability.

Wetland rating forms are in Appendix C.

2.3 Ordinary High Water Mark Delineation

The Washington State Code defines the OHWM as "on all lakes, streams, and tidal water is that mark that will be found by examining the bed and banks and ascertaining where the presence and action of waters are so common and usual, and so long continued in all ordinary years, as to mark upon the soil a character distinct from that of the abutting upland, in respect to vegetation as that condition exists on June 1, 1971, as it may naturally change thereafter, or as it may change thereafter in accordance with permits issued by a local government or the department" (RCW 90.58.030).

Washington State Department of Ecology (Ecology) has published a guide (Anderson et al. 2016) to interpret the code and provide guidance for field OHWM determinations. Confluence used this guidance to determine the OHWM of an unnamed stream in the vicinity of the property.

Confluence identified discrete locations on the right (south) and left (north) bank of the stream to delineate the OHWM. Locations were chosen based on presence of field indicators of OHWM identified in Anderson et al. (2016) and shape of the channel. The location of the OHWMs were marked with pin flags within the development area and all OHWM locations within the study area were recorded using a differential GPS with sub-meter accuracy and by a licensed surveyor.

3.0 RESULTS

This section describes the results of the critical areas study.

3.1 General Site Description

The study parcel (no. 2579500190) is approximately 24,035 square feet (SF) in size and contains a 4,130 SF single-family residence and driveway. The parcel contains landscaped vegetation, including small patches of lawn and ornamental vegetation. The northern parcel line is dominated by native big leaf maple (*Acer macrophyllum*) and invasive Himalayan blackberry (*Rubus armeniacus*). The northern and northwestern parcel boundaries are steep slopes, and the adjacent parcels along the northwestern parcel boundaries are also dominated by Himalayan blackberry. The steep slope area appears to be an old landscape scar, exposing soils that at one time were deeper than surface soils.

Available GIS databases were searched for the documented presence of wetlands, hydric soils, streams, lakes, or species listed under the Endangered Species Act as threatened or endangered ("listed species"). Results of the GIS databases searched are in Appendix A. In summary, there is a watercourse located on and adjacent to the study parcel. The City of Mercer Island GIS has identified an unnamed Type 2 stream that flows across the northern portion of the study parcel (City of Mercer Island 2019). This unnamed stream converges with a second unnamed tributary at the southeastern portion of the parcel before flowing off-site (City of Mercer Island 2019). No wetland or stream critical areas are mapped on the study parcel by the County's GIS portal (King County 2019), the National Wetland Inventory (USFWS 2019), or the Forest Practices Application Mapping Tool for water types (DNR 2019). No salmonids or other priority species are listed as occurring in or near the unnamed stream (WDFW 2019a, b).

The majority of soils mapped on the site include Kitsap silt loam with a very small portion of Alderwood gravelly sandy loam (NRCS 2019a). Kitsap silt loam is a moderately well-drained soil with 15% to 30% slopes at the study parcel. Alderwood gravelly sandy loam occurs only at the northwest corner of the study parcel. This soil is also moderately well drained.

Photographs of the site are in Appendix D.

3.2 Test Plots

During the site visit, 3 test plots were established in both uplands and wetlands. Test plots are shown in Figure 2. The locations of the test plots were based on the presence of visual wetland indicators, such as wetland vegetation or evidence of standing water, or were chosen to represent vegetative communities on the property. Test plot summaries are detailed below. Appendix B provides the wetland determination data sheets recorded in the field.

Figure 2. Location of Test Plots and Critical Area Boundaries

Test Plot 1 (TP-1) was located at the northeastern corner of parcel no. 8566100140 at the base of the steep slope in an area dominated by invasive Himalayan blackberry. Vegetation within TP-1 passed the Dominance Test and therefore meets the wetland vegetation criterion. Soil in the top layer (0-3 inches) was a brown (7.5YR 4/2) silty clay loam with no redox features. The second layer (3-12 inches) contained grayish brown (10YR 5/2) silty clay loam with 40% yellowish brown (10YR 5/6) redox concentrations in the matrix. The soils therefore met the hydric soil indicator for depleted matrix (F3) and the hydric soil criterion was met. The primary wetland hydrology indicators of saturation (A3) and oxidized rhizospheres along living roots (C3) were observed; therefore, the wetland hydrology criterion was met. Since TP-1 met all 3 criteria, the area represented by TP-1 is a wetland identified as Wetland A.

TP-2 was located along the northeastern property line of parcel no. 8566100140, slightly to the west of TP-1. TP-2 occurs on the steep slope in the center of the Himalayan blackberry thicket. Vegetation within TP-2 passed the Dominance Test and therefore meets the wetland vegetation criterion. However, it is important to note that there was only 1 species present, Himalayan blackberry, which is an invasive species that thrives in disturbed wetland and upland areas. Soil in the top layer (0-10 inches) was a grayish brown (10YR 5/2) silty clay loam with 15% yellowish brown (10YR 5/6) redox concentrations in the matrix. The soils therefore met the hydric soil indicator for depleted matrix (F3) and the hydric soil criterion was met. No primary or secondary wetland hydrology indicators were observed; thus, the wetland hydrology criterion was not met. The presence of hydric soils without hydrology indicators on the landslide scar indicates that the hydric soil indicators are relic. Since TP-2 did not meet the wetland hydrology criteria and because the vegetation was marginal, this test plot is considered upland and represents a transition zone on the up-slope side of the wetland.

TP-3 was located at the southeastern portion of parcel no. 8566100150 within a Himalayan blackberry thicket on the side of a steep slope. This test plot occurs to the north of TP-1 and TP-2. Vegetation within TP-3 did not pass the Dominance Test or the Prevalence Index due to the presence of big leaf maple, and therefore TP-3 did not meet wetland vegetation criterion. Soil in the top layer (0-12 inches) was a dark grayish brown (10YR 4/2) loam with gravel and without redox concentrations. The soils did not meet any hydric soil indicator, and therefore the hydric soil criterion was not met. No primary or secondary wetland hydrology indicators were observed, and so the wetland hydrology criterion was not met. Since TP-3 did not meet any of the wetland criteria, the area represented by TP-3 is not a wetland. TP-3 represents the transitional zone to the north of the wetland.

3.3 Wetlands

TP-1 represented the area that met all 3 wetland criteria on the property. The on-site wetland is described in detail below, summarized in Table 1, and shown in Figure 2. There were no other wetlands identified in GIS databases within 300 feet of the study parcel.

Table 1. Wetland Summary

Wetland Name	Cowardin Classification[1]	Size	Wetland Rating				
			Hydrologic	Water Quality	Habitat	Total	Category
Wetland A	PSS3D	856 SF	6	4	3	13	IV

[1] FGDC 2013

3.3.1 *Wetland A*

Wetland A is located on the steep slope area at the property corners of 8566100140, 8566100150, 2579500188, and 2579500190 (see Figure 2). TP-1, described above, represents Wetland A. According to the Cowardin classification system (FGDC 2013), Wetland A is a palustrine scrub-shrub wetland. Wetland A is dominated by Himalayan blackberry. As Wetland A is a slope wetland, it occurs within a distinct topographic steep slope area. The upper, western portion of the wetland begins approximately 15 feet east of the shoulder of the slope, and the northern and southern boundaries of the wetland are contained by 2 terraces that rise up on either side of the wetland. The toe of the wetland occurs at another topographic break where the ground levels out, and the unnamed stream channel begins (see Figure 2). Although there was no standing water on the slope wetland, the distinct topography, soil saturation, and vegetative shifts to non-hydrophytic vegetations (e.g., sword fern [*Polystichum munitum*] and big leaf maple) were used to determine the wetland boundary. According to the 2004 Wetland Rating System (Hruby 2004), Wetland A was rated as a Category IV wetland, with a hydrology score of 6, water quality score of 4, and habitat score of 3.

3.3.2 *Off-Site Wetlands*

Although Wetland A extends partially off-site, the entire wetland was delineated per the permissions granted by the project applicant and landowners. No other known wetlands are mapped within 300 feet of the study site or Wetland A.

3.4 Watercourses

An unnamed stream (i.e., watercourse) was identified on the study parcel and the parcel immediately to the north of the study parcel (parcels no. 2579500188 and 2579500190). Although several of the online sources listed in Section 2.1 did not have this unnamed stream mapped, it was identified on the City of Mercer Island GIS Portal (City of Mercer Island 2019). The unnamed stream runs from west to east along the northern boundary of the study parcel, is conveyed through a culvert under the driveway of the study parcel, and turns sharply south (see Figure 2). While only this portion of the unnamed stream was delineated, the stream may then continue to flow south or southeast into a ditch to the east of the study site, before being conveyed into Lake Washington. There are no salmonids or priority fish, wildlife, or habitats listed within or adjacent to the study site (WDFW 2019a, b). The unnamed stream appears to

originate at the toe of the slope of Wetland A, and most likely conveys a spring or seep that also produces the wetland. During the site visit the OHWM was delineated.

Within the study site and adjacent parcel, the channel of the unnamed stream is mostly exposed cobbles and gravels. The stream banks were largely not armored, although some boulders were placed along the culvert inlet and outlet under the driveway to provide structural protection. Black landscaping fabric was also evident on both banks. This fabric may play a part in controlling streambed erosion. The primary indicators used to delineate the OHWM included the top of bank and darker stains on fixed objects such as boulders and landscaping fabric. As the vegetation was largely landscaped along the stream channel, plant species were not used as indicators of OHWM.

This stream is defined as a Type 2 stream according to the City of Mercer Island GIS Portal (City of Mercer Island 2019). A Type 2 stream is described as a watercourse with year-round flow and not used by fish, according to MICC 19.07.070A.2. However, anecdotal evidence provided by the property owner and the Project surveyors indicated that the stream does dry up and ceases to flow in the summer months. Additionally, during the surveyors' site visit to record the location of wetland and OHWM flagging, the surveyors observed a dry streambed (see photographs 10, 14, and 15 in Appendix D). Photo 10 is shown on page D-7. Photo 10 was taken on March 4, 2020 and shows the dry streambed on the adjacent property between the OHWM flag series 3 and 4. Photo 14 is shown on page D-10. Photo 14 was taken on March 4, 2020 and shows the dry streambed on the subject property between the OHWM flag series 1 and 2. Because the dry streambed is hard to see on Photo 14 because of the shadows, Photo 15 was created. Photo 15 is a cropped and zoomed in image of Photo 14 of the dry streambed.

The rainfall for month of February 2019 was 4.62 inches (Weather Underground 2020). This is 1.12 inches above the average precipitation of 3.50 inches (Seattle Weather Blog 2020). Despite wetter than normal conditions during the month prior to the site visits, the stream channel was dry during the March 4, 2019 site visit by the surveyor. Given the size and level of flow (i.e., low to no flow) during the March 2019 site visits, despite the wetter than normal precipitation during the month prior to the site visit, this stream appears highly dependent on precipitation and not ground water. Since the stream channel has been documented to go dry, this is not a Type 2, perennial stream. As described by the City of Mercer Island in MICC Section 19.07.070A.3., a Type 3 watercourse has intermittent or seasonal flow and is not used by fish. Thus, the unnamed stream meets the MICC definition of a Type 3 stream.

4.0 REGULATORY IMPLICATIONS

According to the Mercer Island City Code (MICC), the following standard buffers apply:

- Wetland A is a Category IV wetland; thus, the standard buffer of 35 feet applies to this wetland.

- The unnamed stream, a Type 3 stream, has a standard buffer of 35 feet.

Figure 3 shows Wetland A, the unnamed stream, and their buffers including the standard 35-foot buffer (shown in blue) and the reduced 25-foot buffer (shown in green) as they encroach into the project parcel. Development within these buffers or within the critical areas themselves requires compliance with MICC Chapter 19.07, specifically Sections 19.07.070.B.3 and 19.07.080C.3.

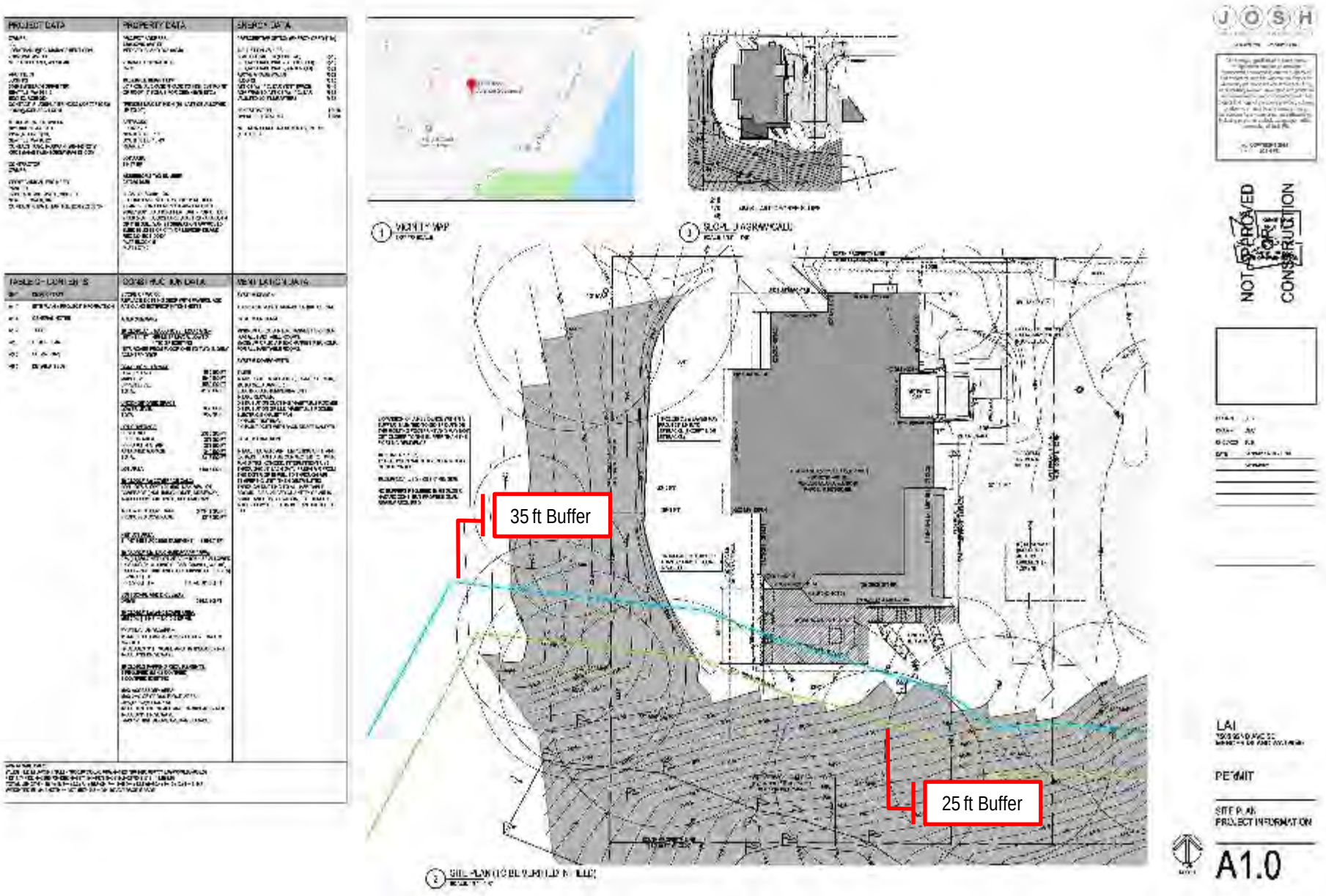

Figure 3. Critical Area Boundaries and Standard Buffers

5.0 PROPOSED DEVELOPMENT

The proposed project includes the construction of a patio and staircase on the southern face of the existing single-family house and deck, including 372 SF of new construction. Figure 3 shows the existing structures and proposed construction in relation to the wetland and stream critical areas. Figure 3 also shows the standard 35-foot buffer and reduced 25-foot buffer. Due to the location of the on-site critical areas, the proposed development would encroach into the standard 35-foot buffer.

6.0 IMPACTS TO CRITICAL AREAS

The proposed development would not directly impact either Wetland A or the unnamed stream. However, the footprint of the proposed patio does expand into the standard 35-foot buffer, and therefore permanent impacts to the standard buffer would occur as a result of the project.

To avoid impacts to the wetland buffer to the maximum extent, the project proposes a critical areas buffer averaging mitigation strategy. The standard buffer width will be reduced from 35 feet to a minimum width of 29 feet, which is greater than the minimum allowable buffer distance 25 feet required by MICC 19.07.070B.1 and 19.07.080C.1 (Figure 3). Reducing the buffer to allow for the proposed patio footprint would result in a reduction of approximately 60 SF of buffer adjacent to the patio extension. To mitigate for this reduction, 60 SF of buffer area will be added to the east of the project area. Using buffer averaging, as allowed under MICC 19.07.070B.3 and 19.07.080C.3, results in no permanent impacts to the wetland buffer from the proposed development. Details on the proposed mitigation are in Section 7.0.

7.0 PROPOSED MITIGATION PLAN

As stated above, the proposed development would reduce the buffer to 29 feet at the greatest extent of reduction. The reduced portion of the critical areas buffer does not contain a steep slope, as required by MICC 19.07.0703(e). The total area to be reduced would include a triangular area of approximately 60 SF. Mitigation for the 60 SF reduction area would occur at a ratio of 1:1 through buffer averaging (see Figure 4).

The scientific literature recognizes that buffers provide important functions that protect wetlands (Sheldon et al 2005). These functions are generally categorized as hydrology, water quality, and habitat functions. However, impervious surfaces in buffers provide no functions, and lawn provides very little habitat function and little to no hydrology or water quality functions. Therefore, reducing the buffer from 35 feet to 29 feet would not decrease existing habitat functions of the buffer, since habitat functions do not exist or are of very low quality within the reduced buffer area.

7.1 Compliance with MICC

As stated above, according to MICC 19.07.070 and 19.07.080, buffer averaging is allowed as long as certain conditions are met. These conditions are presented below, followed by how the project complies with the condition.

a. The proposal will result in a net improvement of critical area function.

As stated above, the reduced buffer area would be impervious surfaces, which provides no function. The proposed buffer increase area is vegetated and within the tree canopy of mature deciduous trees. By reducing the amount of impervious surface within the buffer area, there is a net improvement of function. Thus, this condition is met.

b. The proposal will include replanting of the averaged buffer using native vegetation.

This mitigation proposes to enhance approximately 2,800 SF of the buffer upslope of the critical areas (Wetland A and the unnamed stream) (Figure 4). See Section 7.2, below for more details. Thus, this condition is met.

c. The total area contained in the averaged buffers on the development proposal site is not decreased below the total area that would be provided if the maximum width were not averaged.

The buffer will be reduced by 60 SF adjacent to the project area and increased by 60 SF to the east. Thus, this condition is met.

d. The standard buffer width is not reduced to a width that is less than the minimum buffer width at any location.

According to MICC 19.07.080.C.1, the minimum buffer width is 25 feet. The proposed buffer averaging will have a minimum buffer width of 29 feet. Thus, this condition is met.

e. That portion of the buffer that has been reduced in width shall not contain a steep slope.

The portion of buffer proposed for reduction is not within a steep slope. Thus, this condition is met.

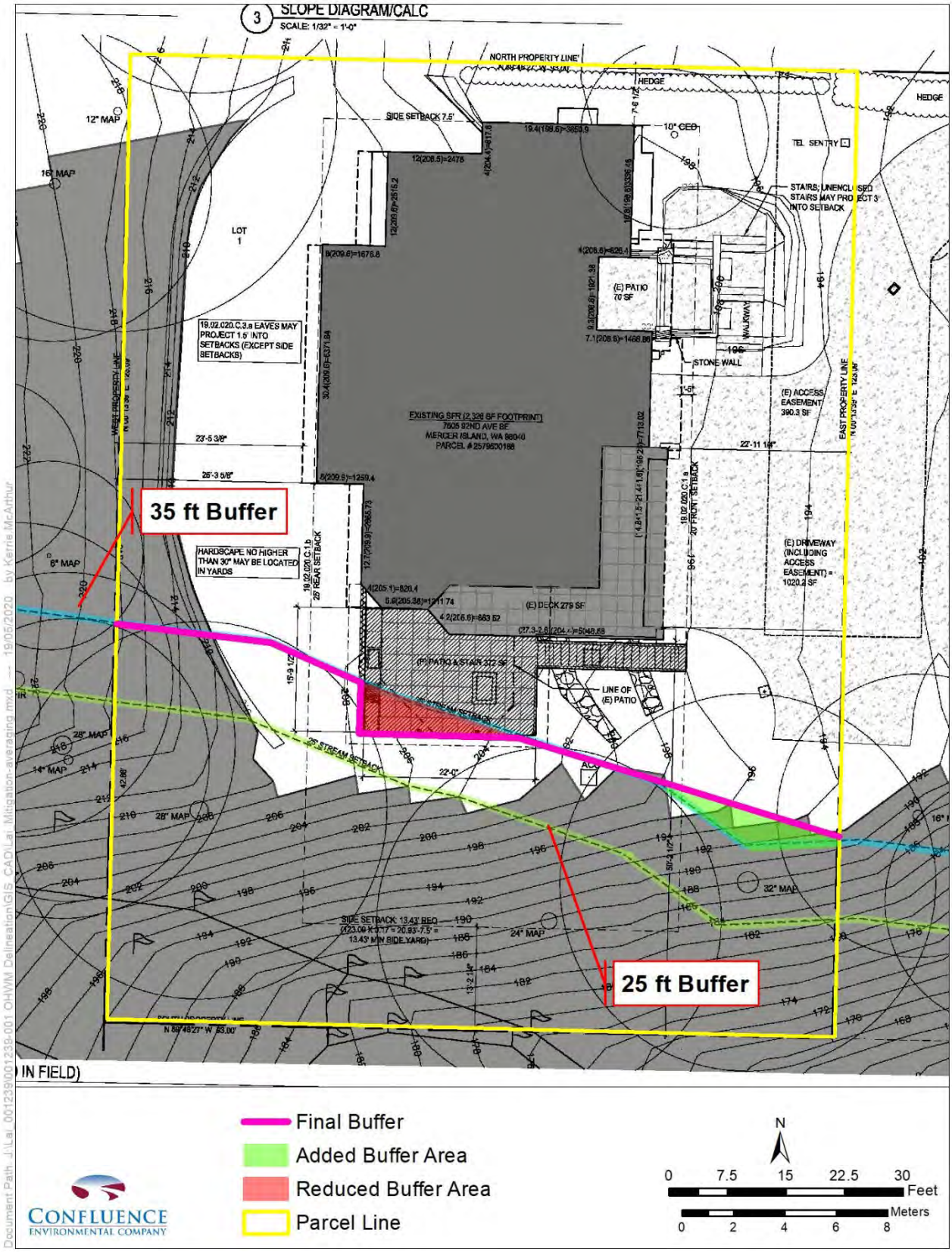

Figure 4. Proposed Buffer Averaging

7.2 Buffer Enhancement Plan

This mitigation proposes to enhance approximately 2,800 SF of the buffer on the steep slope of the critical areas (Wetland A and the unnamed stream) within the averaged buffer area (Figure 5). By enhancing the buffer, buffer functions are expected to increase. The plantings will not only increase habitat functions, but they will also increase water quality and hydrology functions and reduce the potential for erosion from the shoulder of the slope. Enhancement actions will include removing invasive species, if present, and planting native species. Table 2 summarizes the mitigation planting scheme.

Table 2. Planting Scheme

Common Name	Scientific Name	Container Size	Spacing	Quantity[1]
Douglas-Fir	*Pseudotsuga menziesii*	5 gallon	10 ft OC	14
Western Red-Cedar	*Thuja plicata*	5 gallon	10 ft OC	14

OC – On Center
[1] Quantity based on 2,800 SF of enhancement area

The existing steep slope consists of a very dense Himalayan blackberry thicket, with the on-site tree canopy almost entirely composed of deciduous species. While the Himalayan blackberry is a non-native species, it is providing slope stability by its binding of soils in their roots. Removing the Himalayan blackberry and replanting with immature native plants in its entirety has the potential to create unstable slopes. Therefore, the proposed enhancement is to plant only conifers within the steep slope buffer. The conifers will grow above the Himalayan blackberry, eventually shading out much of the Himalayan blackberry, while maintaining slope stability as the conifer's roots grow and bind the soil in their roots, thus taking the place of the bioengineering function that the Himalayan blackberry provided. The addition of Douglas-fir and western red-cedar will also provide enhanced habitat options for wildlife, as these species provide species diversity compared to the existing conditions and provides the basis of forest conversion from a deciduous forested community to a coniferous forested community.

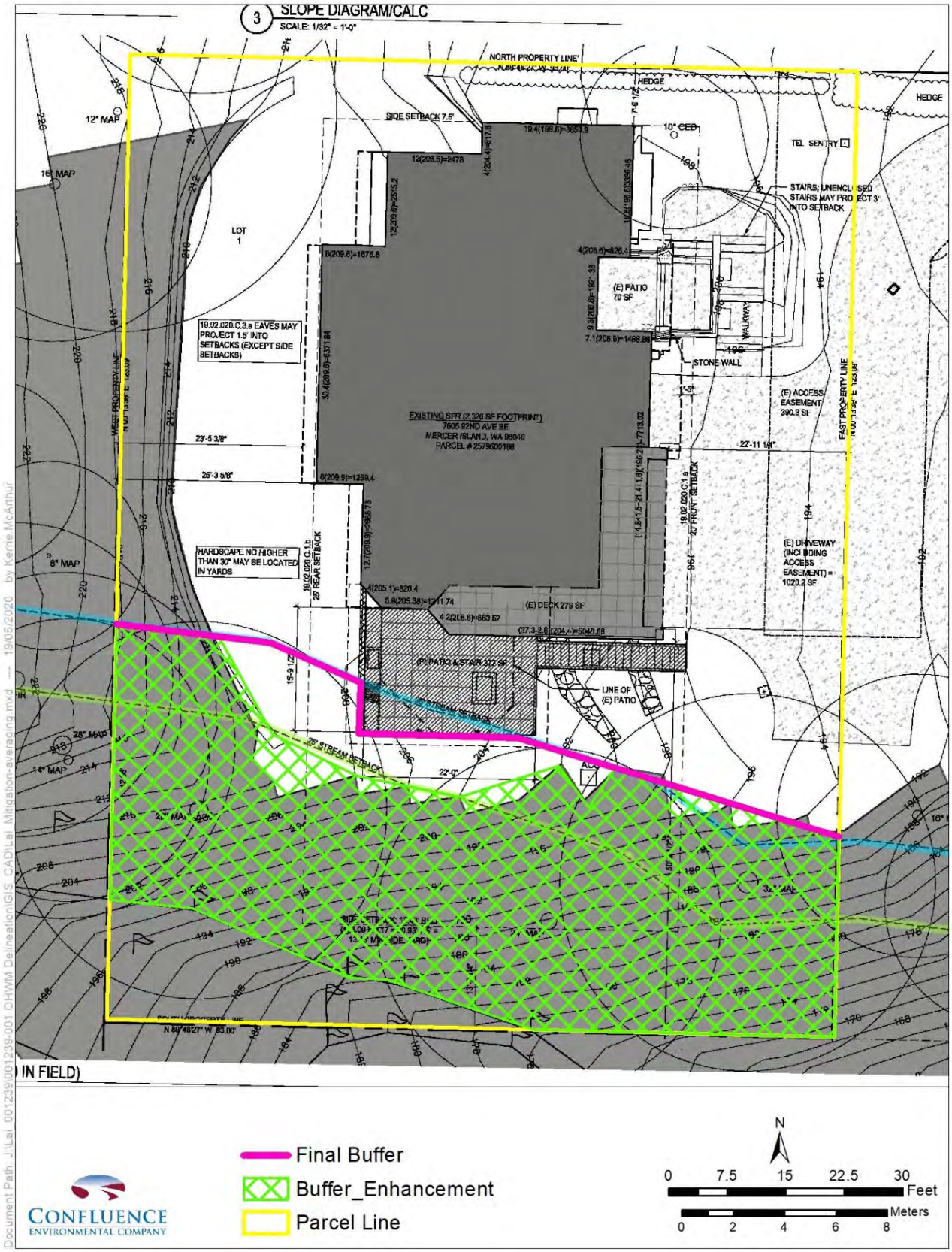

Figure 5. Buffer Enhancement Area

8.0 MITIGATION GOALS, OBJECTIVES, AND PERFORMANCE STANDARDS

8.1 Goals and Objectives

The goal of this mitigation plan is to enhance 60 SF of critical areas buffer for a Category IV wetland and Type 3 watercourse. The objective is that the mitigation area will be dominated with healthy, native plants.

8.2 Performance Standards

The following performance stands are to be monitored to document that the goals and objectives of the mitigation plan are being met. Table 3 summarizes the performance standards.

Table 3. Performance Standards

Performance Standard	Success Criteria				
	Year 1	Year 2	Year 3	Year 4	Year 5
Percent Survival	100%	100%	100%	100%	100%

Due to an existing canopy of native deciduous trees, percent cover of native species is not included as a performance standard for this mitigation.

8.2.1 Performance Standard – Percent Survival

Planted vegetation and natural recruits will be monitored for survival for 5 years (Years 1, 2, 3, 4 and Year 5). Monitoring will occur during the growing season after deciduous plants have flowered or leafed-out for easier identification. Table 3 shows the success criteria for plant survival for each year of monitoring.

High mortality could result from improper installation, diseased or infested plants, inadequate watering, or extreme weather. If more than 25% of new plantings die in a single year, the cause of the high losses will be investigated and corrected before dead plants are replaced. Dead plant material will only be removed after that year's scheduled monitoring. If less than 80% of the total plants installed have survived during the Year 5 monitoring, additional plants will be installed to bring the planting schedule back into original specifications and yearly monitoring will continue for two additional years.

9.0 MONITORING PLAN

A monitoring period of 5 years is proposed to ensure that plantings survive and establish successfully. Data collected in Year 0 will provide the baseline for the success criteria for Years 1, 2, 3, 4, and 5 monitoring. Should the ecologist determine that any portion of the mitigation area needs to be replanted, a survey will be conducted after the replanting has been completed.

This survey will then become the baseline for other monitoring surveys. For example, if survival success criterion is not met in Year 2 and the ecologist determines that additional trees or shrubs need to be planted, a survey will be conducted after the addition of new plants. This survey will then provide the baseline for remaining monitoring events.

9.1 Plant Survival

Because of the small size of the mitigation area, all installed plants will be counted during each monitoring period. The number of living plants will be divided by the number of plants installed to determine the percent survival.

9.2 Photo Documentation

Photos of the mitigation area will be taken during each monitoring event to provide visual documentation of the mitigation area. Permanent photo points will be established at the north-western and eastern mitigation site boundaries to document the site over time. At each of the photo points, a fixed-lens digital camera will be used to take photographs looking at the interior of the enhancement site.

9.3 Frequency

Monitoring will occur during the growing season after deciduous plants have flowered or leafed-out. The Year 0 monitoring event will occur within 30 days after trees and shrubs have been installed. Each of the monitoring events will occur within 30 days of the calendar date of the Year 0 monitoring.

9.4 Reporting

For each monitoring event, the ecologist will prepare a report. One copy of each report will be provided to the City of Mercer Island Community Planning and Development Department. The following will be included in each report:

- data tables;
- species lists;
- date of survey;
- a narrative description of methods and contingency measures taken;
- identified planted and naturally recruited trees and shrubs;
- interpretation of results; and
- color photos.

9.4.1 Year 0 Report (As Built)

The Year 0 report will be submitted within 30 days after construction is completed. In addition to the general reporting requirements stated above, the following will be included in the Year 0 report:

- actual planting density (container size, average offset);
- description of any changes from the original design; and
- planting schedule.

9.4.2 Yearly Reports

The first yearly report is due within 1 year after the City's acceptance of the as-built report. All yearly reports will be submitted within 30 days of conducting the monitoring survey.

10.0 MAINTENANCE PLAN

Maintenance activities in the mitigation area will change throughout the duration of the monitoring and maintenance period. These activities will be concentrated immediately after installation and continue through the first and second year's post-installation as the vegetation survives and grows. If permits are received in time, installation will occur by fall of 2020.

10.1 Watering

Watering may be necessary depending on the date of planting and the amount of rainfall that year. If installation occurs before May 1, the plants will receive at least 1.5 inches of water (or equivalent of rainfall) twice per month during the spring of the first season and once per week during the summer months. Watering will be more crucial if installation occurs after May 1, because the plants will not have a chance to establish themselves during the rainy season. Biweekly watering (or rainfall equivalent) will be provided if plantings occur after May 1. Monitoring of rainfall and/or soil moisture will be used to determine the need for watering during the summer and early fall period. Watering will be less critical if planting occurs in the fall. Watering may be necessary during the summers of 2021, 2022, and 2023 to assist survival and establishment of plantings. Watering will be accomplished using a temporary irrigation system or the homeowner's garden hose.

10.2 Weeding

Weeding around installed vegetation will be important during the summer of the first year to ensure establishment and prevent stress to the plants from competition for resources. In the first growing season following installation, weeding will occur once monthly through August. All invasive species will be removed.

Weeding will also occur during the early and intermediate growing season of the second year after planting. The frequency can be gauged by necessity but should occur at least twice during

the spring (ideally May and June), and then once more during the summer months (August or September). This weeding will also occur in the final year during establishment of the mitigation site. In other words, if planting occurs in the spring of 2021, the intensive weeding will occur during the summer of 2021 and the reduced intensity maintenance will occur in 2022 and 2023.

No weed whacking will be allowed around plantings. Weeding will be done using simple hand tools (e.g., rakes and hoes). No herbicide will be allowed. Removal of the highly invasive species such as Himalayan blackberry, English ivy (*Hedera helix*), and reed canarygrass (*Phalaris arundinacea*) is especially important in the Northwest, and emphasis should be given to their removal to prevent invasion into the planted areas. Other native but weedy species such as horsetail (*Equisetum* spp.) may need to be weeded around installed plants to ensure installed plants are not choked out by the native, weedy species.

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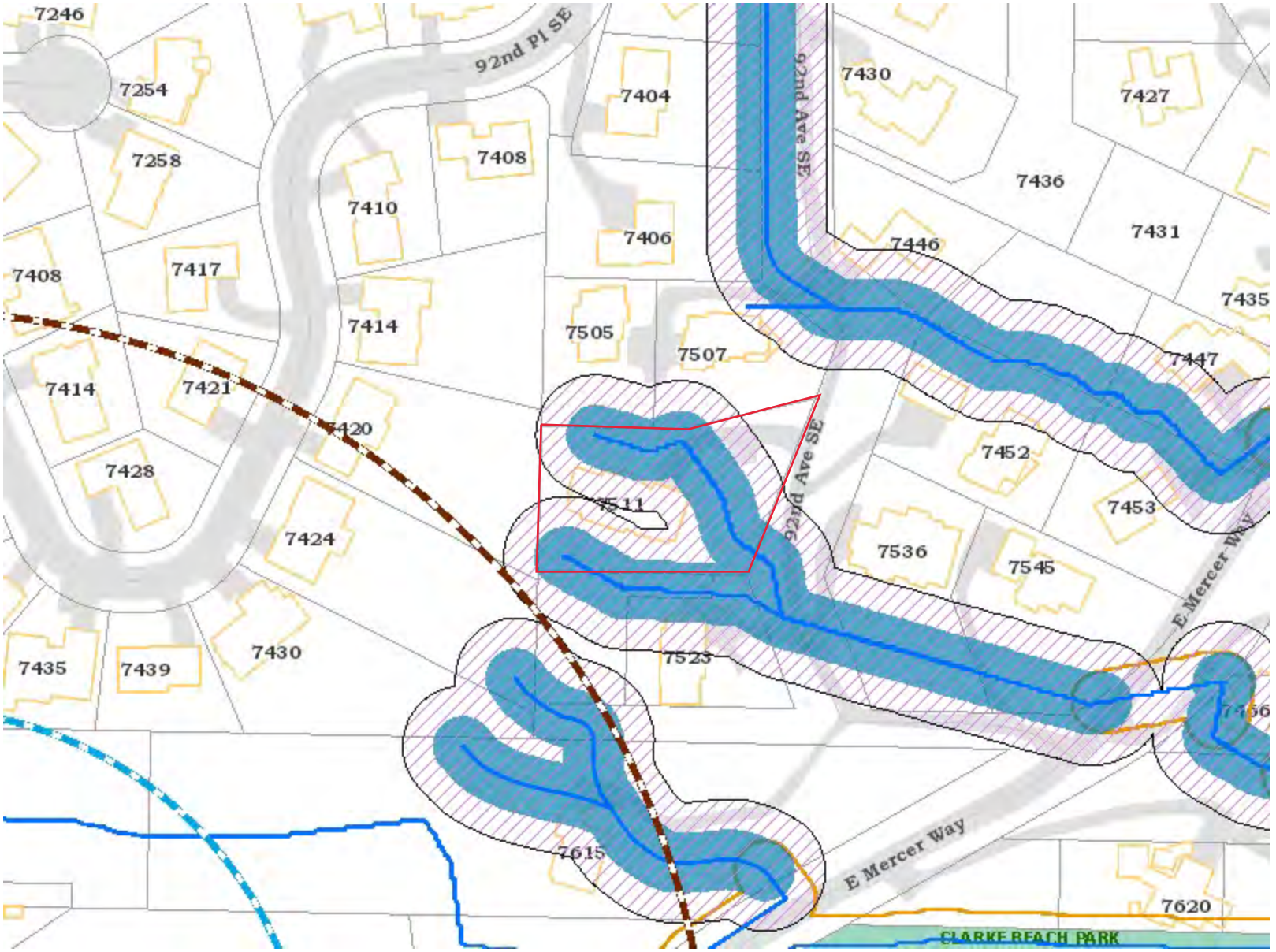
WSDOT (Washington State Department of Transportation). 1997. Construction site erosion and spill control certification course. Document no. M 3008.00. Prepared by David S. Jenkins, Environmental Affairs Office, Water Quality Program, Olympia, Washington.

Appendix A
GIS Database Search Results

92nd Avenue Southeast



Legend

- King County Highway
- Water
- Eagle Nest
- Eagle Nest Buffers
  - 330 Ft
  - 660 Ft
- Watercourse
  - 1-Potential Fish Use
  - 2-Perennial
  - 3-Seasonal
- Type 1 Standard 75 ft Buffer
- Type 2 Standard 50 ft Buffer
- Type 3 Standard 35 ft Buffer
- Type 1 Minimum 37 ft Buffer
- Type 2 Minimum 25 ft Buffer
- Type 3 Minimum 25 ft Buffer
- Piped WaterCourses 25 ft Buff
- Address
- Building
- Parcel
- Docks
- Parks
- Street
- Paved Road
- Paved Driveway
- Paved Parking Area

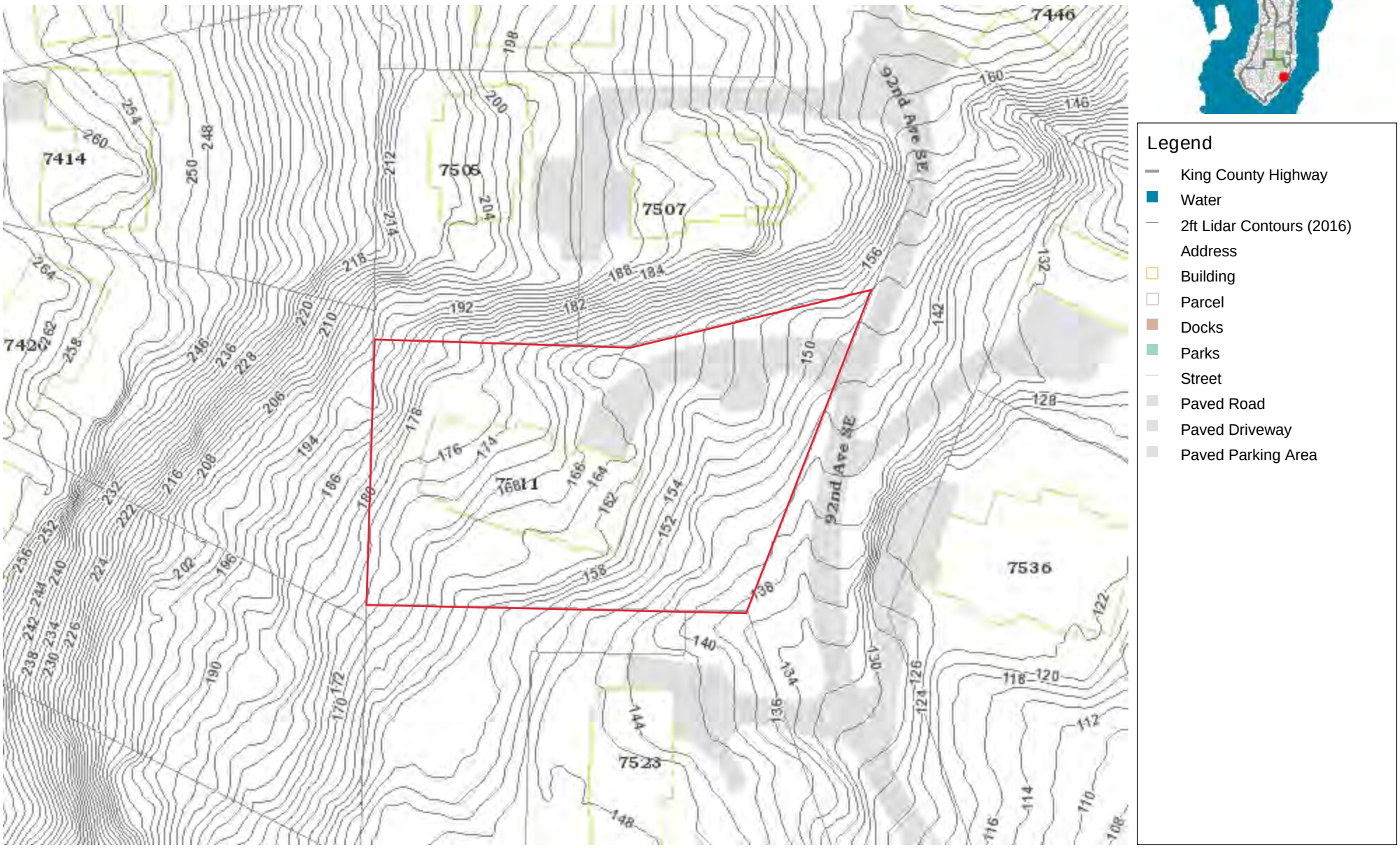
0 126 251 Feet

1 inch = 251.129192666667 feet

Map Printed: March 4, 2019

Notes

92nd Avenue Southeast Topo



Legend

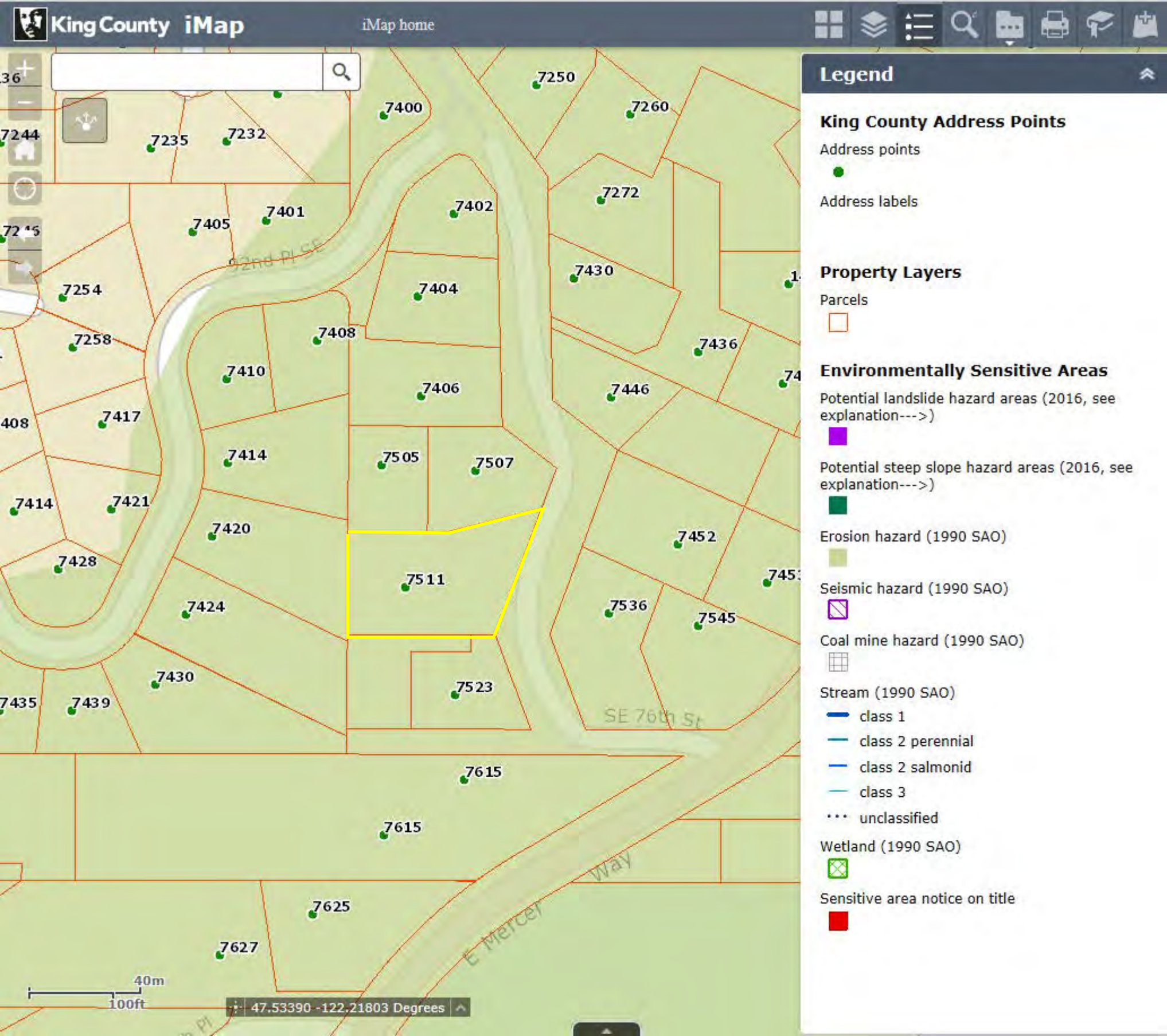
- King County Highway
- Water
- 2ft Lidar Contours (2016)
- Address
- Building
- Parcel
- Docks
- Parks
- Street
- Paved Road
- Paved Driveway
- Paved Parking Area

0 61 122 Feet

1 inch = 122.2784705 feet

Map Printed: March 4, 2019

Notes


King County iMap
iMap home
Legend
King County Address Points
Address points
Address labels
Property Layers
Parcels
Environmentally Sensitive Areas
Potential landslide hazard areas (2016, see explanation--->)
Potential steep slope hazard areas (2016, see explanation--->)
Erosion hazard (1990 SAO)
Seismic hazard (1990 SAO)
Coal mine hazard (1990 SAO)
Stream (1990 SAO)
class 1
class 2 perennial
class 2 salmonid
class 3
unclassified
Wetland (1990 SAO)
Sensitive area notice on title
7250
7400
7260
7244
7235
7232
7272
7402
7405
7401
7430
7404
7254
7408
7258
7436
7410
7406
7446
7417
7414
7505
7507
7414
7421
7420
7452
7428
7511
7424
7536
7545
7430
7523
7435
7439
7615
7615
7625
7627
SE 76th St
E Mercer Way
40m
100ft
47.53390 -122.21803 Degrees

U.S. Fish and Wildlife Service
National Wetlands Inventory

92nd Avenue Southeast

March 4, 2019

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

Custom Soil Resource Report
Soil Map

Map Scale: 1:1,610 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 20 40 80 120

Feet: 0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 10N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: King County Area, Washington
Survey Area Data: Version 14, Sep 10, 2018

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Aug 31, 2013—Oct 6, 2013

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
AgB	Alderwood gravelly sandy loam, 0 to 8 percent slopes	4.6	34.7%
KpD	Kitsap silt loam, 15 to 30 percent slopes	8.7	65.3%
Totals for Area of Interest		**13.4**	**100.0%**

Map Unit Descriptions

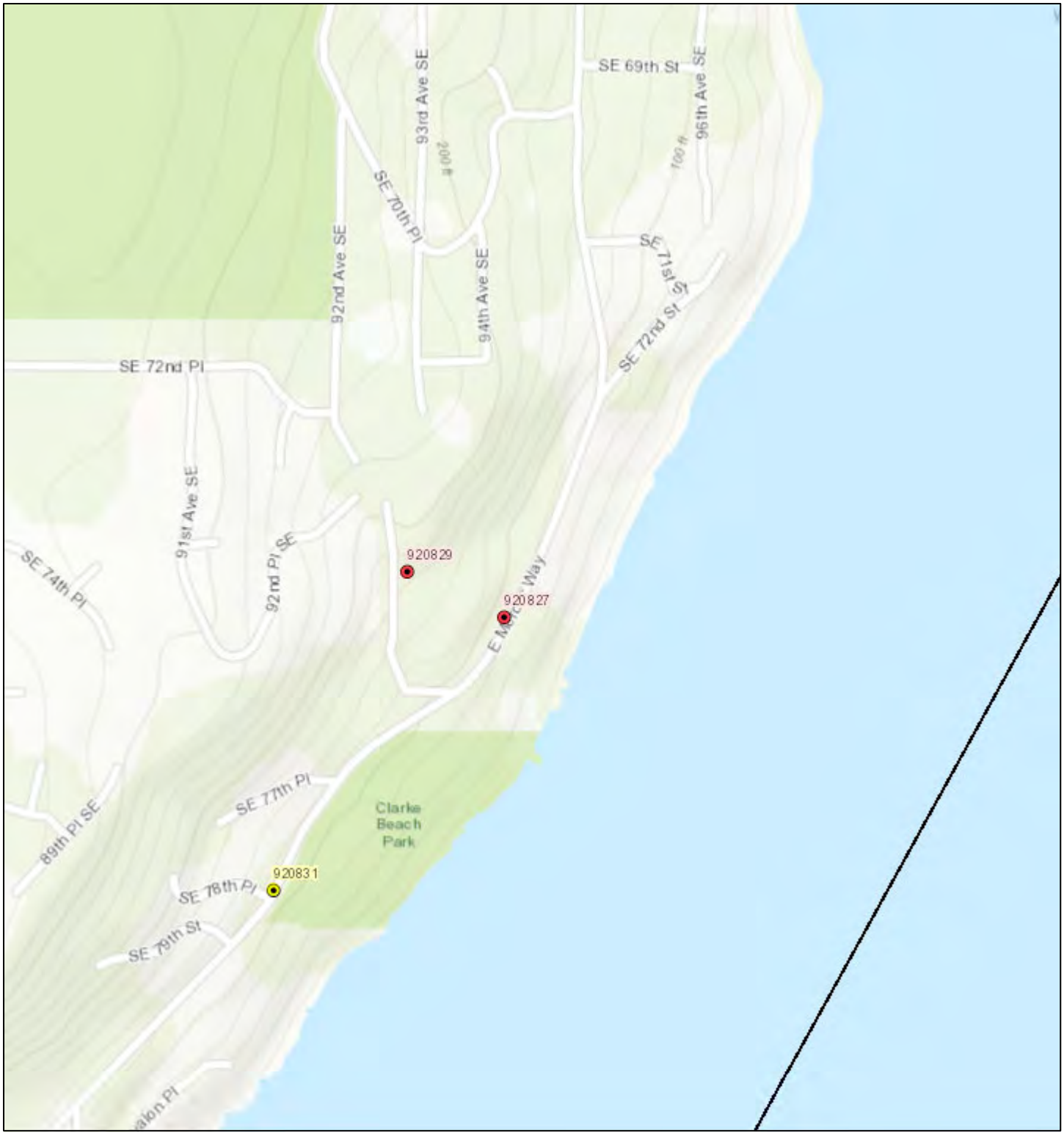
The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however,

92nd Avenue Southeast



March 4, 2019

1:9,028

0 0.075 0.15 0.3 mi

0 0.1 0.2 0.4 km

All SalmonScape Species

Culverts

- Total Blockage
- Total Blockage, Fishway Present
- Partial Blockage
- Partial Blockage, Fishway Present
- Unknown Blockage
- Unknown Blockage, Fishway Present

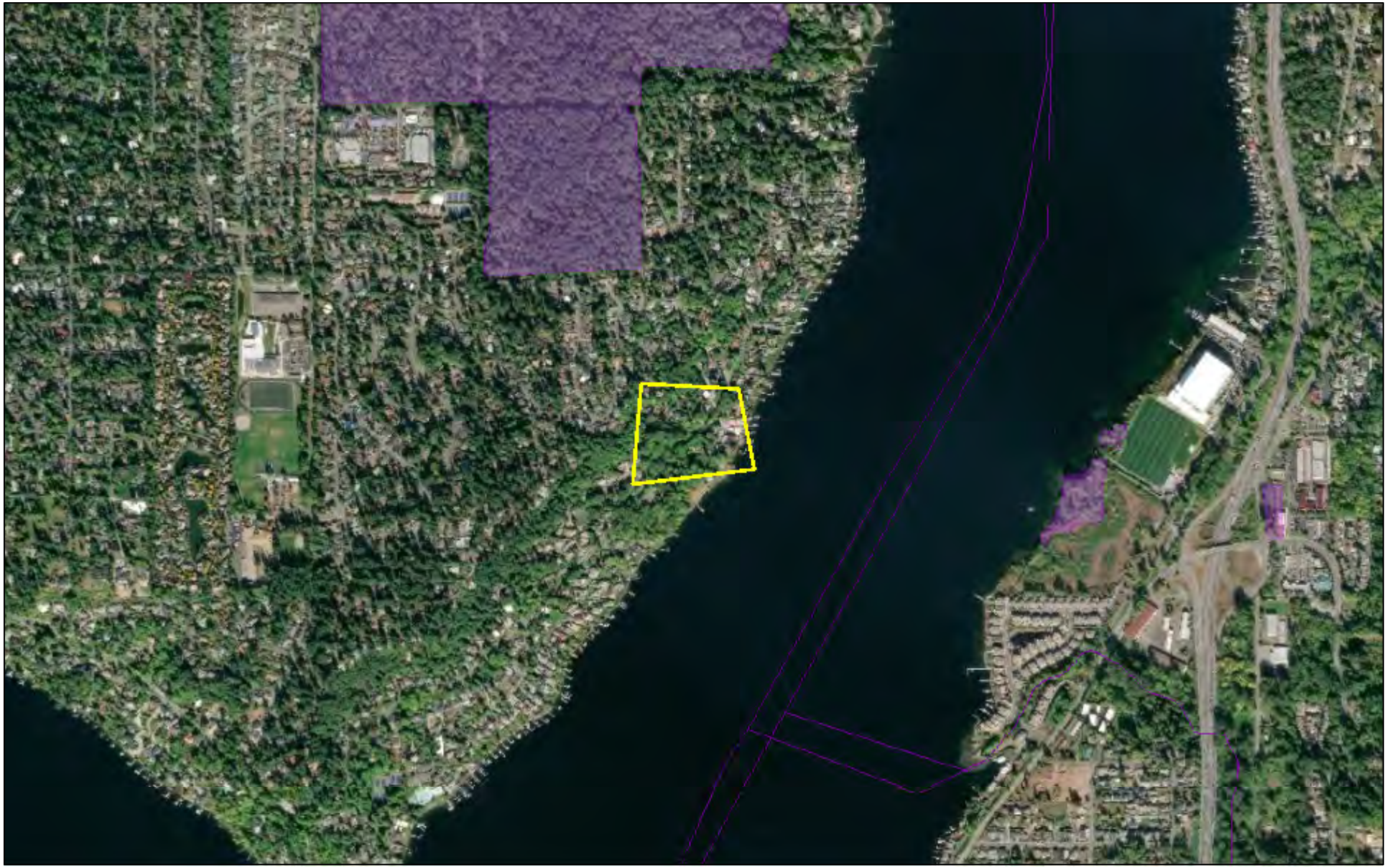
WASHINGTON DEPARTMENT OF FISH AND WILDLIFE
PRIORITY HABITATS AND SPECIES REPORT

SOURCE DATASET: PHSPlusPublic
REPORT DATE: 03/04/2019 12.10

Query ID: P190304120940

Common Name	Site Name	Priority Area	Accuracy	Federal Status	Sensitive Data	Source Entity
Scientific Name	Source Dataset	Occurrence Type		State Status	Resolution	Geometry Type
	Source Record	More Information (URL)		PHS Listing Status		
Notes	Source Date	Mgmt Recommendations				

WDFW Test Map



March 4, 2019

PHS Report Clip Area

PT

LN

POLY

AS MAPPED

SECTION

QTR-TWP

TOWNSHIP

1:19,842

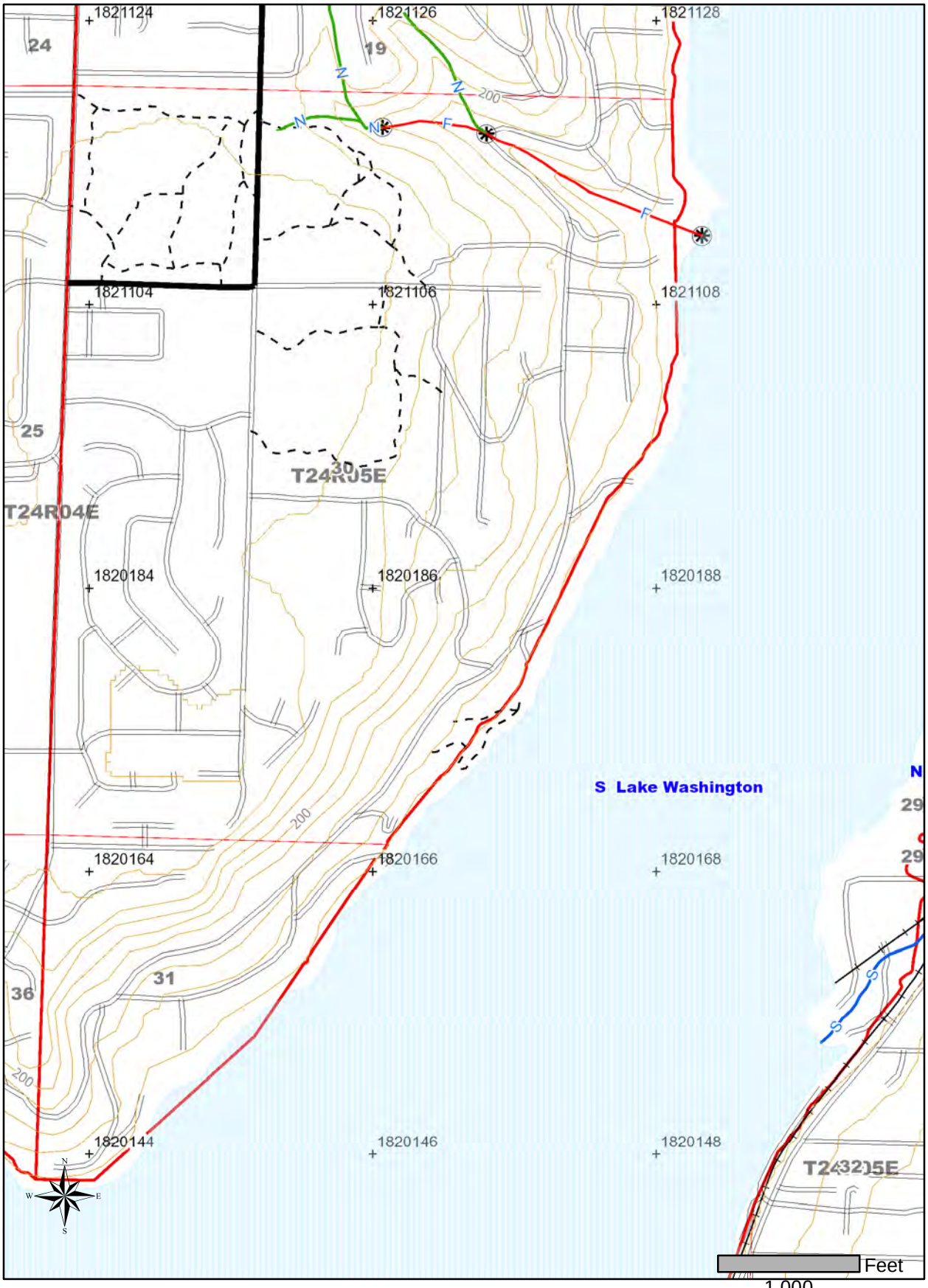
0 0.15 0.3 0.6 mi

0 0.275 0.55 1.1 km

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Forest Practices Activity Map--92nd Ave SE

Application #:



Please use the legend from the FPA Instruction or provide a list of symbols used.

Date: 3/4/2019 Time: 12:11:35 PM

NAD 83 Scale: 1:12,000

Contour Interval: 40 Feet

Appendix B
Wetland Delineation Data Forms

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

Project/Site: Lai Residence City/County: Mercer Island / King Sampling Date: 3/15/19

Applicant/Owner: Lai State: WA Sampling Point: TP1

Investigator(s): KAM / SRV Section, Township, Range: 30S, T24N, R05E

Landform (hillslope, terrace, etc.): Slope / Terraces Local relief (concave, convex, none): none / slope Slope (%): >30%

Subregion (LRR): A Lat: 47.535534 Long: -122.216389 Datum: _____

Soil Map Unit Name: Kitsap Silt loam NWI classification: None

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

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____

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

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

Hydrophytic Vegetation Present?	Yes ✓ No ____	**Is the Sampled Area within a Wetland?** Yes ✓ No ____
Hydric Soil Present?	Yes ✓ No ____	
Wetland Hydrology Present?	Yes ✓ No ____	

Remarks: Slope wetland in Him. Blackberry thicket Fieldwork following an especially cold, wet February. sunny weather

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 10')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 10')			
1. Him. Blackberry	100	✓	FAC
2.			
3.			
4.			
5.			
	100 = Total Cover		
Herb Stratum (Plot size: 10')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	0 = Total Cover		
Woody Vine Stratum (Plot size: 10')			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks:

SOIL

Sampling Point: TP-1

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-3	7.5 YR 4/2	100					Si My clay loam	
3-12	10YR 5/2	100	10YR 5/6	40	C	M	Si My clay loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ____ No ____ Depth (inches): ____

Water Table Present? Yes ____ No ____ Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes ☑ No ____ Depth (inches): 0

Wetland Hydrology Present? Yes ☑ No ☐

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

Remarks:

Sat. soils w/in 2 ft of pit

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

Project/Site: Lai Residence City/County: Mercer Island/King Sampling Date: 3/15/17
Applicant/Owner: Dexter Lai State: WA Sampling Point: TP2
Investigator(s): KAM/SRV Section, Township, Range: 30S, T24N, R05E
Landform (hillslope, terrace, etc.): terraces Local relief (concave, convex, none): none Slope (%): 15-30
Subregion (LRR): A Lat: 47.535534 Long: -122.216389 Datum:
Soil Map Unit Name: Kitsap silt loam NWI classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No ✓ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ✓	No ____	**Is the Sampled Area within a Wetland?** Yes ____ No ✓
Hydric Soil Present?	Yes ✓	No ____	
Wetland Hydrology Present?	Yes ____	No ✓	

Remarks: Fieldwork following especially cold, wet February. Transition zone

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 10')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 10')			
1. ALNRU	100	✓	FAC
2.			
3.			
4.			
5.			
	100 = Total Cover		
Herb Stratum (Plot size: 10')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	0 = Total Cover		
Woody Vine Stratum (Plot size: 10')			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 1 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

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

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

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks:
Sword fern present @ ~ 1.5' elevation higher

SOIL

Sampling Point: TP-2

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 5/2	85	10YR 5/6	15	C	M	silty clay loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✓

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

Remarks:

No observed hydrology

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

Project/Site: Lai Residence City/County: City of Mercer Island / King Sampling Date: 2/15/19

Applicant/Owner: Dexter Lai State: WA Sampling Point: TP-3

Investigator(s): KAM / SRV Section, Township, Range: 30S, T24N, R05E

Landform (hillslope, terrace, etc.): Terraces Local relief (concave, convex, none): none Slope (%): 15-30

Subregion (LRR): A Lat: 47.535534 Long: -122.216389 Datum:

Soil Map Unit Name: Kitsap silt loam NWI classification: None

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

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____

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

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

Hydrophytic Vegetation Present?	Yes ✓	No ____	**Is the Sampled Area within a Wetland?** Yes ____ No ✓
Hydric Soil Present?	Yes ____	No ✓	
Wetland Hydrology Present?	Yes ____	No ✓	

Remarks: Fieldwork following an especially cold, wet February

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 10')	Absolute % Cover	Dominant Species?	Indicator Status
1. B.L. maple	100	✓	FACU
2.			
3.			
4.			
	____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 10')			
1. H. Blackberry	100		FAC
2.			
3.			
4.			
5.			
	100 = Total Cover		
Herb Stratum (Plot size: 10')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	0 = Total Cover		
Woody Vine Stratum (Plot size: 10')			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species 0	x 1 = 0
FACW species 0	x 2 = 0
FAC species 100	x 3 = 300
FACU species 100	x 4 = 400
UPL species 0	x 5 = 0
Column Totals: 200 (A)	700 (B)

Prevalence Index = B/A = 700/200 =

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Yes ____ No ✓

Remarks:

SOIL

Sampling Point: TP-3

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR4/2	100					loam w/ gravel	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✓

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

Remarks:

Appendix C
Wetland Rating Forms

Wetland name or number A

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

Name of wetland (if known): Wetland A Date of site visit: 3/15/19

Rated by Suzanne Vieira, WPIT Trained by Ecology? Yes X No___ Date of training 10/2018

SEC: 30 TWNSHP: 24N RNGE: 05E Is S/T/R in Appendix D? Yes___ No X

Map of wetland unit: Figure 1 **Estimated size** 856.5 ft²

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland

I___ II___ III___ IV X

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

Score for Water Quality Functions	4
Score for Hydrologic Functions	6
Score for Habitat Functions	3
TOTAL score for Functions	13

Category based on SPECIAL CHARACTERISTICS of wetland

I___ II___ Does not Apply X

Final Category (choose the "highest" category from above) IV

Summary of basic information about the wetland unit

Wetland Unit has Special Characteristics		Wetland HGM Class used for Rating	
Estuarine		**Depressional**	
Natural Heritage Wetland		**Riverine**	
Bog		**Lake-fringe**	
Mature Forest		**Slope**	✓
Old Growth Forest		**Flats**	
Coastal Lagoon		**Freshwater Tidal**	
Interdunal			
None of the above	X	Check if unit has multiple HGM classes present	

Wetland name or number A

Does the wetland unit being rated meet any of the criteria below?

If you answer YES to any of the questions below you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

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

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

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

Wetland name or number A

Classification of Wetland Units in Western Washington

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

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

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

If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)? **YES – Freshwater Tidal Fringe NO – Saltwater Tidal Fringe (Estuarine)**

*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is rated as an **Estuarine** wetland.* Wetlands that were called estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p.).

2. The entire wetland unit is flat and precipitation is 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 both** of the following criteria?

___The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) at least 20 acres (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**?

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 <3ft diameter and less than 1 foot deep).*

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

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 two years.

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

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

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

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

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

Wetland name or number A

	Slope Wetlands WATER QUALITY FUNCTIONS - Indicators that the wetland unit functions to improve water quality	Points (only 1 score per box)
S	**S 1. Does the wetland unit have the potential to improve water quality?**	*(see p.64)*
S	S 1.1 Characteristics of average slope of unit: Slope is1% or less *(a 1% slope has a 1 foot vertical drop in elevation for every 100 ft horizontal distance)* points = 3 Slope is 1% - 2% points = 2 Slope is 2% - 5% points = 1 Slope is greater than 5% points = 0	0
S	S 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic *(use NRCS definitions)* YES = 3 points NO = 0 points	0
S	S 1.3 Characteristics of the vegetation in the wetland that trap sediments and pollutants: *Choose the points appropriate for the description that best fits the vegetation in the wetland. Dense vegetation means you have trouble seeing the soil surface (>75% cover), and uncut means not grazed or mowed and plants are higher than 6 inches.* Dense, uncut, herbaceous vegetation > 90% of the wetland area points = 6 Dense, uncut, herbaceous vegetation > 1/2 of area points = 3 Dense, woody, vegetation > ½ of area points = 2 Dense, uncut, herbaceous vegetation > 1/4 of area points = 1 Does not meet any of the criteria above for vegetation points = 0 Aerial photo or map with vegetation polygons	Figure 1 ← 2
S	**Total for S 1** *Add the points in the boxes above*	2
S	**S 2. Does the wetland unit have the opportunity to improve water quality?** Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland. *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.* — Grazing in the wetland or within 150ft — Untreated stormwater discharges to wetland — Tilled fields, logging, or orchards within 150 feet of wetland ✓ Residential, urban areas, or golf courses are within 150 ft upslope of wetland — Other **YES** multiplier is **2** **NO** multiplier is **1**	*(see p.67)* multiplier 2
S	**TOTAL - Water Quality Functions** Multiply the score from S1 by S2 ***Add score to table on p. 1***	4

Comments

Wetland name or number A

		Points (only 1 score per box)
S	**Slope Wetlands** HYDROLOGIC FUNCTIONS - Indicators that the wetland unit functions to reduce flooding and stream erosion	
	S 3. Does the wetland unit have the potential to reduce flooding and stream erosion?	*(see p.68)*
S	S 3.1 Characteristics of vegetation that reduce the velocity of surface flows during storms. *Choose the points appropriate for the description that best fit conditions in the wetland. (stems of plants should be thick enough (usually > 1/8in), or dense enough, to remain erect during surface flows)* Dense, uncut, **rigid** vegetation covers > 90% of the area of the wetland. (points = 6) Dense, uncut, **rigid** vegetation > 1/2 area of wetland points = 3 Dense, uncut, **rigid** vegetation > 1/4 area points = 1 More than 1/4 of area is grazed, mowed, tilled or vegetation is not rigid points = 0	6
S	S 3.2 Characteristics of slope wetland that holds back small amounts of flood flows: The slope wetland has small surface depressions that can retain water over at least 10% of its area. YES points = 2 (NO) points = 0	0
S	*Add the points in the boxes above*	6
S	**S 4. Does the wetland have the opportunity to reduce flooding and erosion?** *(see p. 70)* Is the wetland in a landscape position where the reduction in water velocity it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows? *Note which of the following conditions apply.* — Wetland has surface runoff that drains to a river or stream that has flooding problems — Other _____ *(Answer NO if the major source of water is controlled by a reservoir (e.g. wetland is a seep that is on the downstream side of a dam)* **YES** multiplier is **2** (**NO**) multiplier is **1**	multiplier 1
S	**TOTAL - Hydrologic Functions** Multiply the score from S 3 by S 4 ***Add score to table on p. 1***	6

Comments

Wetland name or number A

These questions apply to wetlands of all HGM classes. HABITAT FUNCTIONS - Indicators that unit functions to provide important habitat	**Points** (only 1 score per box)
H 1. Does the wetland unit have the potential to provide habitat for many species?	
H 1.1 Vegetation structure *(see p. 72)* *Check the types of vegetation classes present (as defined by Cowardin)- Size threshold for each class is ¼ acre or more than 10% of the area if unit is smaller than 2.5 acres.* ___Aquatic bed ___Emergent plants ✓ Scrub/shrub (areas where shrubs have >30% cover) ___Forested (areas where trees have >30% cover) *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 *Add the number of vegetation structures that qualify. If you have:* 4 structures or more points = 4 3 structures points = 2 2 structures points = 1 1 structure (points = 0) Map of Cowardin vegetation classes	Figure 1 ← 0
H 1.2. Hydroperiods *(see p. 73)* *Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ acre 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 — (point = 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** Map of hydroperiods	Figure 1 ← 1
H 1.3. Richness of Plant Species *(see p. 75)* Count the number of plant species in the wetland that cover at least 10 ft^2. (*different patches of the same species can be combined to meet the size threshold)* *You do not have to name the species.* *Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle* If you counted: > 19 species points = 2 *List species below if you want to:* 5 - 19 species points = 1 (< 5 species) points = 0 Himalayan blackberry Sword fern Red alder	0

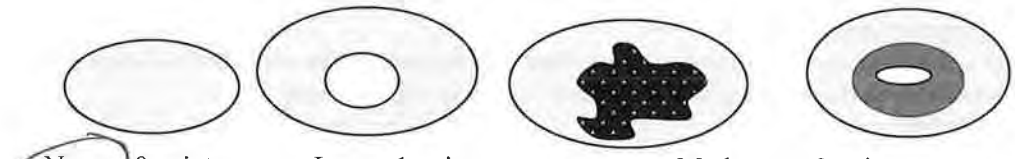
Total for page 1

Wetland name or number A

H 1.4. Interspersion of habitats *(see p. 76)*

Decide from the diagrams below whether interspersion between Cowardin vegetation classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.

Figure 1 ←



None = 0 points Low = 1 point Moderate = 2 points

0

High = 3 points [riparian braided channels]

NOTE: If you have four or more classes or three vegetation classes and open water the rating is always "high". Use map of Cowardin vegetation classes

H 1.5. Special Habitat Features: *(see p. 77)*

Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.

____Large, downed, woody debris within the wetland (>4in. diameter and 6 ft long).

____Standing snags (diameter at the bottom > 4 inches) in the wetland

____Undercut banks are present for at least 6.6 ft (2m) and/or overhanging vegetation extends at least 3.3 ft (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft (10m)

____Stable steep banks of fine material that might be used by beaver or muskrat for denning (>30degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet turned grey/brown)*

____At least ¼ acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated. *(structures for egg-laying by amphibians)*

____ Invasive plants cover less than 25% of the wetland area in each stratum of plants

NOTE: The 20% stated in early printings of the manual on page 78 is an error.

0

H 1. TOTAL Score - potential for providing habitat

Add the scores from H1.1, H1.2, H1.3, H1.4, H1.5

1

Comments

Wetland name or number A

H 2. Does the wetland unit have the opportunity to provide habitat for many species?	
H 2.1 Buffers *(see p. 80)* *Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed."* — 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% of circumference. No structures are within the undisturbed part of buffer. (relatively undisturbed also means no-grazing, no landscaping, no daily human use) **Points = 5** — 100 m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference. **Points = 4** — 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference. **Points = 4** — 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference, . **Points = 3** — 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference. **Points = 3** **If buffer does not meet any of the criteria above** — No paved areas (except paved trails) or buildings within 25 m (80ft) of wetland > 95% circumference. Light to moderate grazing, or lawns are OK. **Points = 2** — No paved areas or buildings within 50m of wetland for >50% circumference. Light to moderate grazing, or lawns are OK. **Points = 2** — Heavy grazing in buffer. **Points = 1** — Vegetated buffers are <2m wide (6.6ft) for more than 95% of the circumference (e.g. tilled fields, paving, basalt bedrock extend to edge of wetland **Points = 0.** ✓ — Buffer does not meet any of the criteria above. **Points = 1** Aerial photo showing buffers	Figure 1 ← 1
H 2.2 Corridors and Connections *(see p. 81)* H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft wide, has at least 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? (*dams in riparian corridors, heavily used gravel roads, paved roads, are considered breaks in the corridor*). YES = **4 points** (*go to H 2.3*) NO = go to H 2.2.2 H 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 50ft wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? **OR** a **Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? YES = **2 points** (*go to H 2.3*) NO = H 2.2.3 H 2.2.3 Is the wetland: within 5 mi (8km) of a brackish or salt water estuary OR within 3 mi of a large field or pasture (>40 acres) OR within 1 mi of a lake greater than 20 acres? YES = **1 point** NO = **0 points**	1

Total for page 2

Wetland name or number A

H 2.3 Near or adjacent to other priority habitats listed by WDFW ***(see new and complete descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report http://wdfw.wa.gov/hab/phslist.htm)***

Which of the following priority habitats are within 330ft (100m) of the wetland unit? *NOTE: the connections do not have to be relatively undisturbed.*

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

____**Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report p. 152*).

____**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 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age. (Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 100%; crown cover may be less that 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:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158*).

____**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*).

____**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: pp. 167-169 and glossary in Appendix A).*

____**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 7.6 m (25 ft) high and occurring below 5000 ft.

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

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

If wetland has **3 or more** priority habitats = **4 points**
If wetland has **2** priority habitats = **3 points**
If wetland has **1** priority habitat = **1 point**
No habitats = 0 points

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4)

0

Wetland name or number A

H 2.4 Wetland Landscape *(choose the **one** description of the landscape around the wetland that best fits)* ***(see p. 84)*** There are at least 3 other wetlands within ½ mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development. points = 5 The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within ½ mile points = 5 There are at least 3 other wetlands within ½ mile, BUT the connections between them are disturbed points = 3 The wetland is Lake-fringe on a lake **with** disturbance and there are 3 other lake-fringe wetland within ½ mile points = 3 There is at least 1 wetland within ½ mile. points = 2 There are no wetlands within ½ mile. points = 0	0
H 2. TOTAL Score - opportunity for providing habitat *Add the scores from H2.1,H2.2, H2.3, H2.4*	2
TOTAL for H 1 from page 14	1
Total Score for Habitat Functions – add the points for H 1, H 2 and record the result on p. 1	3

Wetland name or number A

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

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

Wetland Type *Check off any criteria that apply to the wetland. Circle the Category when the appropriate criteria are met.*	**Category**
SC 1.0 Estuarine wetlands *(see p. 86)* Does the wetland unit 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 ✓	
SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? YES = Category I NO go to SC 1.2	**Cat. I**
SC 1.2 Is the wetland unit at least 1 acre in size and meets at least two of the following three conditions? YES = Category I NO = Category II — The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. If the non-native *Spartina* spp. are the only species that cover more than 10% of the wetland, then the wetland should be given a dual rating (I/II). The area of Spartina would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category I. Do not, however, exclude the area of Spartina in determining the size threshold of 1 acre. — 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 2 of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.	**Cat. I** **Cat. II** **Dual rating I/II**

Wetland name or number A

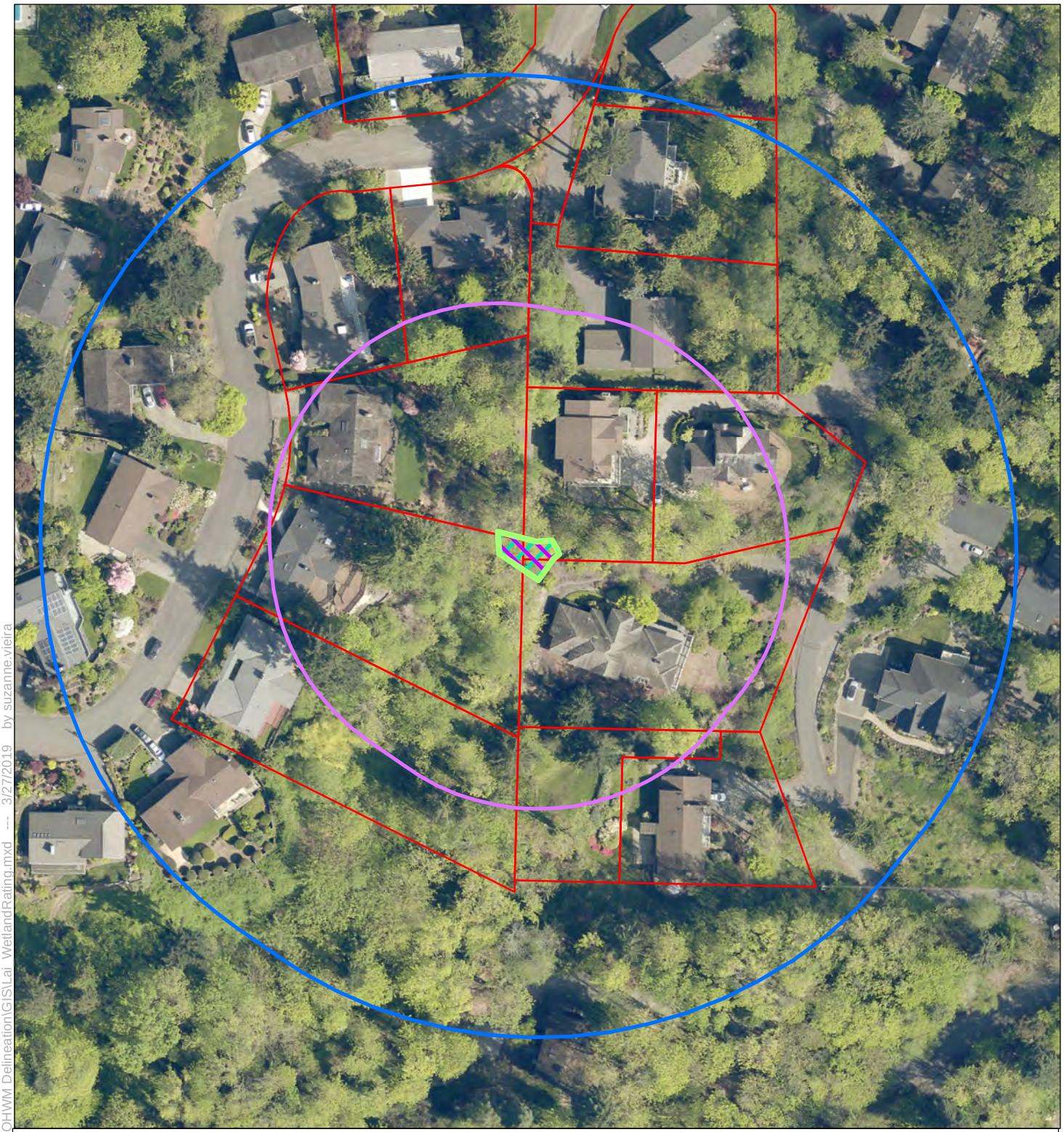
SC 2.0 Natural Heritage Wetlands *(see p. 87)* Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species. SC 2.1 Is the wetland unit being rated in a Section/Township/Range that contains a Natural Heritage wetland? *(this question is used to screen out most sites before you need to contact WNHP/DNR)* S/T/R information from Appendix D ___ or accessed from WNHP/DNR web site ___ YES____ – contact WNHP/DNR (see p. 79) and go to SC 2.2 NO ✓ SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as or as a site with state threatened or endangered plant species? YES = Category I NO ✓ not a Heritage Wetland	**Cat. I**
SC 3.0 Bogs *(see p. 87)* Does the wetland unit (**or any part of the unit**) meet both the criteria for soils and vegetation in bogs? *Use the key below to identify if the wetland is a bog.* ***If you answer yes you will still need to rate the wetland based on its functions.*** 1. Does the unit have organic soil horizons (i.e. layers of organic soil), either peats or mucks, that compose 16 inches or more of the first 32 inches of the soil profile? (See Appendix B for a field key to identify organic soils)? Yes - go to Q. 3 No - go to Q. 2 2. Does the unit have organic soils, either peats or mucks that are less than 16 inches deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on a lake or pond? Yes - go to Q. 3 No - Is not a bog for purpose of rating 3. Does the unit have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the "bog" species listed in Table 3 as a significant component of the vegetation (more than 30% of the total shrub and herbaceous cover consists of species in Table 3)? Yes – Is a bog for purpose of rating No - go to Q. 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" deep. If the pH is less than 5.0 and the "bog" plant species in Table 3 are present, the wetland is a bog. *1.* Is the unit forested (> 30% cover) with sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemann's spruce, or western white pine, WITH any of the species (or combination of species) on the bog species plant list in Table 3 as a significant component of the ground cover *(> 30% coverage of the total shrub/herbaceous cover)?* 2. YES = Category I No___ Is not a bog for purpose of rating	**Cat. I**

Wetland name or number A

SC 4.0 Forested Wetlands *(see p. 90)* Does the wetland unit have at least 1 acre of forest that meet one of these criteria for the Department of Fish and Wildlife's forests as priority habitats? *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/acre (20 trees/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm) or more. NOTE: The criterion for dbh is based on measurements for upland forests. Two-hundred year old trees in wetlands will often have a smaller dbh because their growth rates are often slower. The DFW criterion is and "OR" so old-growth forests do not necessarily have to have trees of this diameter. — **Mature forests**: (west of the Cascade Crest) Stands where the largest trees are 80 – 200 years old OR have average diameters (dbh) exceeding 21 inches (53cm); crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth. YES = Category I NO X not a forested wetland with special characteristics	**Cat. I**
SC 5.0 Wetlands in Coastal Lagoons *(see p. 91)* 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 surface 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 X not a wetland in a coastal lagoon SC 5.1 Does the wetland meets 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 invasive plant species (see list of invasive species on p. 74). — 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 acre (4350 square feet) YES = Category I NO = Category II	**Cat. I** **Cat. II**

Wetland name or number A

SC 6.0 Interdunal Wetlands *(see p. 93)* Is the wetland unit west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? YES - go to SC 6.1 NO X not an interdunal wetland for rating ***If you answer yes you will still need to rate the wetland based on its 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 SC 6.1 Is the wetland one acre or larger, or is it in a mosaic of wetlands that is once acre or larger? YES = Category II NO – go to SC 6.2 SC 6.2 Is the unit between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre? YES = Category III	**Cat. II** **Cat. III**
Category of wetland based on Special Characteristics *Choose the "highest" rating if wetland falls into several categories, and record on p. 1.* If you answered NO for all types enter "Not Applicable" on p.1	



Delineated Wetland Boundary
Hydroperiod--Saturated Only
Dense, Woody Vegetation (PSS3D)
Wetland Buffer--50m
Wetland Buffer--100m
Parcels

N

0 40 80 120 160 Feet

0 10 20 30 40 Meters

Document Path: J:\Laj_001239\001239-001-QHWM Delineation\GIS\Laj_WetlandRating.mxd --- 3/27/2019 by suzanne.vieira

Appendix D
Site Photographs

Photo 1—Steep slope to north of stream channel.

Photo 2—Steep slope to west of stream channel. This slope is the location of Wetland A. Note the dense Himalayan blackberry cover.

Photo 3—View of the headwaters of the off-site portion of the stream channel, facing east-northeast.

Photo 4—Wetland A, looking upslope and westward. Red arrows indicate the location of test plots (TP) and wetland boundary flags.

Photo 5—OHWM flags OHLB0 and OHHRB0. This image shows the headwaters of the stream channel where the wetland outlets, looking northwest.

Photo 6—Non-hydric soils at TP-2.

Photo 7—Location of TP-1 on blackberry-covered steep slope to north of stream headwaters.

P

Photo 8—Delineated OHWM, facing east. Red arrows show location of visible pin flags.

Photo 9—Delineated OHWM, facing east. Red arrows indicate the location of visible pin flags.

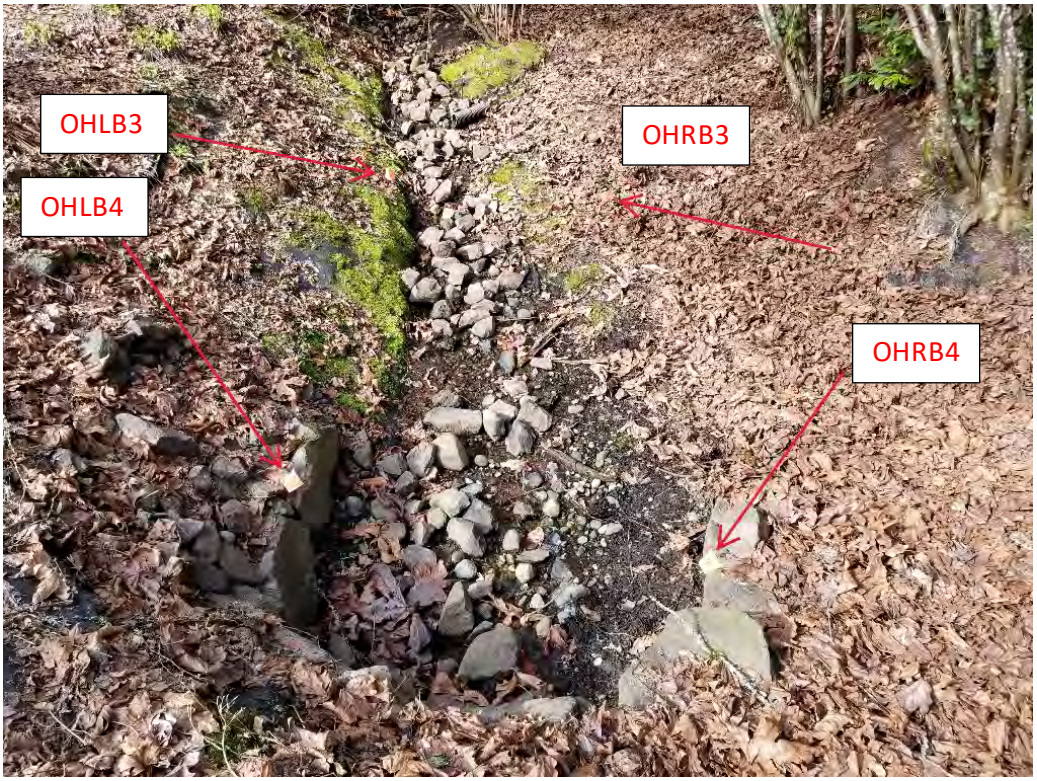


Photo 10—Delineated OHWM, facing west. Red arrows show location of visible pin flags. Note dry stream channel. (Photo taken March 4, 2020)

Photo 11—Driveway to 7511 92nd Avenue Southeast. The stream channel is conveyed under this driveway by a culvert.

Photo 12—Delineated OHWM below the driveway, facing north.
Red arrows show location of pin flags.

Photo 13—Stream channel below the extent of delineation, facing southeast.

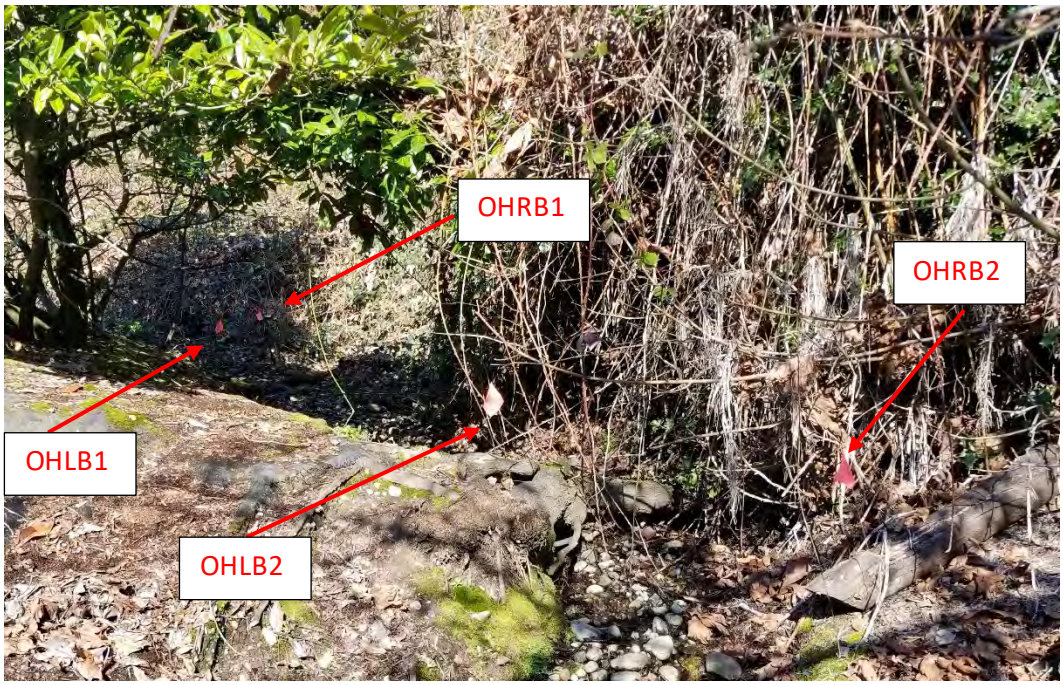


Photo 14—Delineated OHWM, facing west. Red arrows show location of visible pin flags. Note dry stream channel. Photo taken March 4, 2019.

Photo 15—Cropped image of Photo 14 of dry stream channel between OHLB2 and OHLB1 flags. Photo taken March 4, 2019.

CONFLUENCE
ENVIRONMENTAL COMPANY

ESA

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Exhibit 5- ESA Memo

memorandum

date	July 30, 2020
to	Lauren Anderson, City of Mercer Island, Planner
from	Jessica Redman, Wetland Ecologist
subject	7511 92nd Avenue Patio Extension – Critical Areas Review

At the request of the City of Mercer Island (City), ESA reviewed the *Revised Critical Areas Study and Mitigation Plan* (hereinafter referred to as the Revised Plan), prepared by Confluence Environmental Company (dated July 8, 2020) for the property located at 7511 92nd Avenue SE in the City of Mercer Island (King County Parcel Number 2579500190). The property currently contains a single residential development. The applicant has submitted a formal application for development of a patio and a staircase on the south side of the existing single-family house. The purpose of this review is to determine if the proposed project complies with Mercer Island City Code (MICC) Chapter 19.07 – *Environment*. The City recently updated its critical areas ordinance (CAO), which was approved and took effect on July 29, 2019. However, this project was vested under a previous version of the City's CAO, and referenced throughout this memorandum.

In addition to the Revised Plan, ESA reviewed the Civil Plans (Sheet A1.0) prepared by JOSH Artisan + Architect (revised July 13, 2020). A site visit was also conducted by ESA biologist Jessica Redman and City planner Lauren Anderson on June 17, 2020.

Report Summary

According to the Revised Plan, one wetland (Wetland A) and one stream are located onsite and were delineated by Confluence Environmental on March 1st and March 15th, 2019. Wetland A is a palustrine scrub-shrub (PSS) slope wetland. Wetland A is dominated by Himalayan blackberry and extends partially offsite to the adjacent parcels located to the south, southwest, and west. Wetland A is a Category IV wetland, which requires a standard 35-foot buffer (MICC 19.07.080.C).

The onsite watercourse, is an unnamed stream that is defined as a Type 2 watercourse by the City's Information and Geographic Services (IGS). Per MICC 19.07.070, Type 2 watercourses are defined as watercourses with year-round flow that are not used by fish and are allotted a standard buffer of 50 feet. However, according to the Revised Plan, this watercourse has been mistyped by the City, and instead is a Type 3 watercourse. Per MICC 19.07.070, Type 3 watercourses are defined as watercourses with intermittent, or seasonal, flow and are allotted a standard buffer of 35 feet. According to the Revised Plan,

low streamflow was present during the March 1, 2019 site visit. However, the Revised Plan states that the stream runs dry during the summer based on anecdotal evidence provided by the property owner. Additionally, based on photographs provided by the project surveyors and included in the Revised Plan, the stream was dry during a March 4, 2019 visit to the site. Furthermore, the Revised Plan states that rainfall in the area was higher than normal during February 2019, the month before the delineation and the survey visits; and therefore, because the stream exhibited low to no flows in March, the stream is likely highly dependent on precipitation and not groundwater.

To accommodate development of the project, the applicant proposes to reduce the buffer of Wetland A by 60 SF on its northern side, near the proposed patio extension. To compensate for the reduced buffer, an additional 60 SF of buffer will be added to the northern side of the stream buffer in the eastern portion of the parcel. According to the Revised Plan, the proposed buffer averaging meets all the required criteria for stream and wetland buffer averaging per MICC 19.07.070 and MICC 19.07.080, respectively. Additionally, the Revised Plan includes the enhancement of 2,800 SF of the buffer upslope of the wetland and stream through the planting of fourteen 5-gallon Douglas fir and fourteen 5-gallon western red cedar. The slope is currently dominated by a dense Himalayan blackberry thicket. However, the blackberry thicket is currently providing slope stability and therefore, cannot be removed before installing the proposed buffer enhancement plantings. Instead, the project proposes to plant the trees within the blackberry, with the goal of the trees growing above the blackberry and shading it. The installed trees will also provide slope stability as their roots grow. The Revised Plan also includes a 5-year monitoring plan that ensures 100 percent plant survival for the first five years after installation. The proposed buffer averaging, along with the proposed buffer enhancement, would result in an overall net increase of wetland and watercourse ecological function.

Review Findings

Based on the site visit and the document review, we have the following comments and recommendations:

- ESA generally agrees with the boundary of Wetland A and the unnamed stream. The majority of the wetland and OHWM flags were observed in the field. The wetland occurs in the northwest corner of the parcel and is a sloped feature that exhibits PSS vegetative cover, dominated by Himalayan blackberry. The unnamed stream was observed originating at the toe of the slope of Wetland A, within the project parcel, and flowed northwest to southeast through the parcel to the south. The stream was then observed to flow under a driveway on the parcel to the south, through a vegetated area, and into a ditch to the east of the parcel.

- ESA agrees that Wetland A is a Category IV wetland, warranting a 35-foot buffer per MICC 19.07.080.C

- ESA agrees that the unnamed stream has been mistyped by the City's IGIS, and is in fact a Type 3 (seasonal) watercourse. During the June 17, 2020 site visit, some stream flow (approximately 1 to 2 inches) was visible. However, according to the National Weather Service, rainfall in the region during the month of June, 2020 was recorded as being 0.71 inch higher than normal with a total rainfall of 2.28 inches (NOAA. 2020). Furthermore, the applicant has provided photos in the Revised CAR showing a dry streambed, taken in March 2020, three months prior to ESA's site visit. This evidence leads us to agree that the observed flow during the June 17, 2020 site visit

was the result of unusually high precipitation and not groundwater. Therefore, ESA agrees that the onsite portion of the stream is a Type 3 watercourse, warranting a 35-foot buffer per MICC 19.07.070.B.

- As mentioned above, during the June 17, 2020 site visit, the unnamed stream was observed to flow through a vegetated area on the parcel to the south of the project parcel. This vegetated area was dominated by small-fruited bulrush (a common obligate wetland plant) and visibly saturated soils. This portion of the stream was at a much lower gradient than the upstream reach and could possibly be influenced by groundwater. If groundwater is the primary hydrologic source to the downstream portion of the stream, this area may be a Type 2 (perennial) watercourse. ESA recommends that flow conditions are investigated during the review of any future development applications occurring downstream.

- ESA agrees that the proposed Project has met all the requirements for buffer averaging per MICC 19.07.070.3 and MICC 19.07.080.3. The applicant has proposed a combination of wetland and stream buffer averaging by reducing the wetland buffer and increasing the adjacent stream buffer. However, due to the large area of the onsite buffer proposed for enhancement post-construction, ESA agrees the project will result in an ecological lift through the reduction of invasive species and installation of native trees. Therefore, the proposed buffer averaging will not result in a net loss of buffer function or area.

In conclusion, ESA believed the proposed project, enhancement plan, and monitoring plan, has met all the requirements of MICC Chapter 19.07 – *Environment*.

References:

NOAA (National Oceanic and Atmospheric Administration). 2020. National Weather Service Forecast Office, Seattle, WA. Available at: https://w2.weather.gov/climate/index.php?wfo=sew. Accessed July 2020.

Exhibit 6- BQW

King County

Department of Permitting
Environmental Review
35030 SE Douglas Str, Suite 210
Snoqualmie, WA 98065-9266
206-296-6600 TTY Relay: 711

Critical Areas Mitigation
Bond Quantity Worksheet

C24 09/09/2015
ls-wks-sensareaBQ.xls
ls-wks-sensareaBQ.pdf

Project Name: Lai Patio
Date: 2019-0625
Prepared by:

Project Number: 1906-045
Project Description: replace existing deck with pavers, add patio, exterior kitchenette and stair (see CAR by Geotech for Mitigation Plan details)

Location: 7505 92nd Avde SE
Applicant: Josh Brincko
Phone: 206 708 9933

PLANT MATERIALS (includes labor cost for plant installation)

Type	Unit Price	Unit	Quantity	Description	Cost
PLANTS: Potted, 4" diameter, medium	$5.00	Each			$ -
PLANTS: Container, 1 gallon, medium soil	$11.50	1 Each	~~5~~	~~salmonberry x3, blck twinberry x2~~	$ ~~57.50~~ -
PLANTS: Container, 2 gallon, medium soil	$20.00	Each	14	14	$ ~~180.00~~ -
PLANTS: Container, 5 gallon, medium soil	$36.00	1 Each	~~3~~ 28	doug fir x1, westrn red cedar x~~1~~	$ 1008.00 -
PLANTS: Seeding, by hand	$0.50	SY			$ -
PLANTS: Slips (willow, red-osier)	$2.00	Each			$ -
PLANTS: Stakes (willow)	$2.00	Each			$ -
PLANTS: Stakes (willow)	$2.00	Each			$ -
PLANTS: Flats/plugs	$2.00	Each			$ -
				TOTAL	$ 1008.00 ~~237.5~~ -

INSTALLATION COSTS (LABOR, EQUIPMENT, & OVERHEAD)

Type	Unit Price	Unit			Cost
Compost, vegetable, delivered and spread	$37.88	CY			$ -
Decompacting till/hardpan, medium, to 6" depth	$1.57	CY			$ -
Decompacting till/hardpan, medium, to 12" depth	$1.57	CY			$ -
Hydroseeding	$0.51	SY			$ -
Labor, general (landscaping other than plant installation)	$40.00	HR			$ -
Labor, general (construction)	$40.00	HR	~~560~~ 8		$ ~~22400~~ 320 -
Labor: Consultant, supervising	$55.00	HR	~~280~~ 8		$ ~~15400~~ 440 -
Labor: Consultant, on-site re-design	$95.00	HR			$ -
Rental of decompacting machinery & operator	$70.00	HR			$ -
Sand, coarse builder's, delivered and spread	$42.00	CY			$ -
Staking material (set per tree)	$7.00	Each			$ -
Surveying, line & grade	$250.00	HR			$ -
Surveying, topographical	$250.00	HR			$ -
Watering, 1" of water, 50' soaker hose	$3.62	MSF			$ -
Irrigation - temporary	$3,000.00	Acre			$ -
Irrigation - buried	$4,500.00	Acre			$ -
Tilling topsoil, disk harrow, 20hp tractor, 4"-6" deep	$1.02	SY			$ -
				TOTAL	$ ~~37800~~ 760 -

HABITAT STRUCTURES*

ITEMS	Unit Cost	Unit			Cost
Fascines (willow)	$ 2.00	Each			$ -
Logs, (cedar), w/ root wads, 16"-24" diam., 30' long	$1,000.00	Each			$ -
Logs (cedar) w/o root wads, 16"-24" diam., 30'	$400.00	Each			$ -
Logs, w/o root wads, 16"-24" diam., 30' long	$245.00	Each			$ -
Logs w/ root wads, 16"-24" diam., 30' long	$460.00	Each			$ -
Rocks, one-man	$60.00	Each			$ -
Rocks, two-man	$120.00	Each			$ -
Root wads	$163.00	Each			$ -
Spawning gravel, type A	$22.00	CY			$ -
Weir - log	$1,500.00	Each			$ -
Weir - adjustable	$2,000.00	Each			$ -
Woody debris, large	$163.00	Each			$ -
Snags - anchored	$400.00	Each			$ -
Snags - on site	$50.00	Each			$ -
Snags - imported	$800.00	Each			$ -
* All costs include delivery and installation				TOTAL	$ -

EROSION CONTROL

ITEMS	Unit Cost	Unit			Cost
Backfill and Compaction-embankment	$ 4.89	CY	~~5~~		$ ~~24.45~~ -
Crushed surfacing, 1 1/4" minus	$30.00	CY			$ -
Ditching	$7.03	CY			$ -
Excavation, bulk	$4.00	CY	~~5~~		$ ~~0~~ -
Fence, silt	$1.60	LF			$ -
Jute Mesh	$1.26	SY			$ -
Mulch, by hand, straw, 2" deep	$1.27	SY			$ -
Mulch, by hand, wood chips, 2" deep	$3.25	SY			$ -
Mulch, by machine, straw, 1" deep	$0.32	SY			$ -
Piping, temporary, CPP, 6"	$9.30	LF			$ -
Piping, temporary, CPP, 8"	$14.00	LF			$ -
Piping, temporary, CPP, 12"	$18.00	LF			$ -
Plastic covering, 6mm thick, sandbagged	$2.00	SY			$ -
Rip Rap, machine placed, slopes	$33.98	CY			$ -
Rock Constr. Entrance 100'x15'x1'	$3,000.00	Each			$ -
Rock Constr. Entrance 50'x15'x1'	$1,500.00	Each			$ -
Sediment pond riser assembly	$1,695.11	Each			$ -
Sediment trap, 5' high berm	$15.57	LF			$ -
Sediment trap, 5' high berm w/spillway incl. riprap	$59.60	LF			$ -
Sodding, 1" deep, level ground	$5.24	SY			$ -
Sodding, 1" deep, sloped ground	$6.48	SY			$ -
Straw bales, place and remove	$600.00	TON			$ -
Hauling and disposal	$20.00	CY	~~5~~		$ ~~100~~ -
Topsoil, delivered and spread	$35.73	CY	0.5		$ -
				TOTAL	$ ~~133.45~~ 17.87 -

GENERAL ITEMS

ITEMS	Unit Cost	Unit			Cost
Fencing, chain link, 6' high	$18.89	LF			$ -
Fencing, chain link, corner posts	$111.17	Each			$ -
Fencing, chain link, gate	$277.63	Each			$ -
Fencing, split rail, 3' high (2-rail)	$10.54	LF			$ -
Fencing, temporary (NGPE)	$1.20	LF	~~80~~		$ ~~96.00~~ -
Signs, sensitive area boundary (inc. backing, post, install)	$28.50	Each	1		$ 28.50 -
				TOTAL	$ ~~124~~ 28.50 -

OTHER

				(Construction Cost Subtotal)	$ 1814.37 ~~38,294.95~~ -
ITEMS	Percentage of Construction Cost	Unit			Cost
Mobilization	10%	1			$ ~~3,829.5~~ 181.44
Contingency	30%	1			$ ~~11,488.5~~ 544.31
				TOTAL	$ ~~53,613~~ 2540.12 -

MAINTENANCE AND MONITORING

NOTE: Projects with multiple permit requirements may be required to have longer monitoring and maintenance terms. This will be evaluated on a case-by-case basis for development applications. Monitoring and maintance ranges may be assessed anywhere from 5 to 10 years.

Maintenance, annual (by owner or consultant)					
Less than 1,000 sq.ft. and buffer mitigation only	$ 1.08	SF	60	(3 X SF total for 3 annual events; Includes monitoring)	$ ~~194.4~~ -
Less than 1,000 sq.ft. with wetland or aquatic area mitigation	$ 1.35	SF		(3 X SF total for 3 annual events; Includes monitoring)	$ -
Larger than 1,000 sq. ft. but less than 5,000 sq.ft. of buffer mitigation	$ 180.00	EACH	1	(4hr @$45/hr)	$ 180 -
Larger than 1,000 sq. ft. but less than 5,000 sq.ft. of wetland or aquatic area mitigation	$ 270.00	EACH		(6hr @$45/hr)	$ -
Larger than 5,000 sq.ft. but < 1 acre -buffer mitigation only	$ 360.00	EACH		(8 hrs @ 45/hr)	$ -
Larger than 5,000 sq.ft. but < 1 acre with wetland or aquatic area mitigation	$ 450.00	EACH		(10 hrs @ $45/hr)	$ -
Larger than 1 acre but < 5 acres - buffer and / or wetland or aquatic area mitigation	$ 1,600.00	DAY		(WEC crew)	$ -
Larger than 5 acres - buffer and / or wetland or aquatic area mitigation	$ 2,000.00	DAY		(1.25 X WEC crew)	$ -
Monitoring, annual (by owner or consultant)					
Larger than 1,000 sq.ft. but less than 5,000 wetland or buffer mitigation	$ 720.00	EACH		(8 hrs @ 90/hr)	$ -
Larger than 5,000 sq.ft. but < 1 acre with wetland or aquatic area impacts	$ 900.00	EACH		(10 hrs @ $90/hr)	$ -
Larger than 1 acre but < 5 acres - buffer and / or wetland or aquatic area impacts	$ 1,440.00	DAY		(16 hrs @ $90/hr)	$ -
Larger than5 acres - buffer and / or wetland or aquatic area impacts	$ 2,160.00	DAY		(24 hrs @ $90/hr)	$ -
				TOTAL	$ 194.4 -

Total	~~$2,754.52~~ ~~$53,807.4~~

2720.12

Note from applicant: This is not including building materials and accounts for the deck/patio project, stair and mitigation. Total project estimated cost on permit app list $60,000

TOPOGRAPHIC & BOUNDARY SURVEY

Exhibit 7 - Survey

LEGAL DESCRIPTION

(PER STATUTORY WARRANTY DEED RECORDING# 199712231848)

LOT 1, MERCER ISLAND SHORT PLAT NUMBER 95-0521, RECORDED UNDER RECORDING NUMBER 9602019001, IN KING COUNTY, WASHINGTON, SAID SHORT PLAT DESCRIBED AS FOLLOWS:

LOT 4 OF THE SULLIVAN SEGREGATION APPROVED MARCH 22, 1963 BY THE CITY OF MERCER ISLAND, RECORDED UNDER RECORDING NUMBER 8903100404, IN KING COUNTY, WASHINGTON;

TOGETHER WITH AN EASEMENT FOR PRIVATE ROAD AND UTILITY EASEMENT, AS DELINEATED ON THE FACE OF THE SHORT PLAT.

SITUATE IN THE COUNTY OF KING, STATE OF WASHINGTON.

BASIS OF BEARINGS

HELD BEARING OF N 89°56'57" W ALONG MONUMETED S.E. 76TH ST. AS SHOWN HEREON AND AS SHOWN ON R2, AND AS REFERENCED ON R1

REFERENCES

R1. MERCER ISLAND SHORT PLAT NO 95-0521, VOL. 107, PG. 186. RECORDS OF KING COUNTY, WASHINGTON.
R1. RECORD OF SURVEY, VOL. 75, PG. 106. RECORDS OF KING COUNTY, WASHINGTON.

VERTICAL DATUM

NAVD88 PER GPS OBSERVATIONS

SURVEYOR'S NOTES

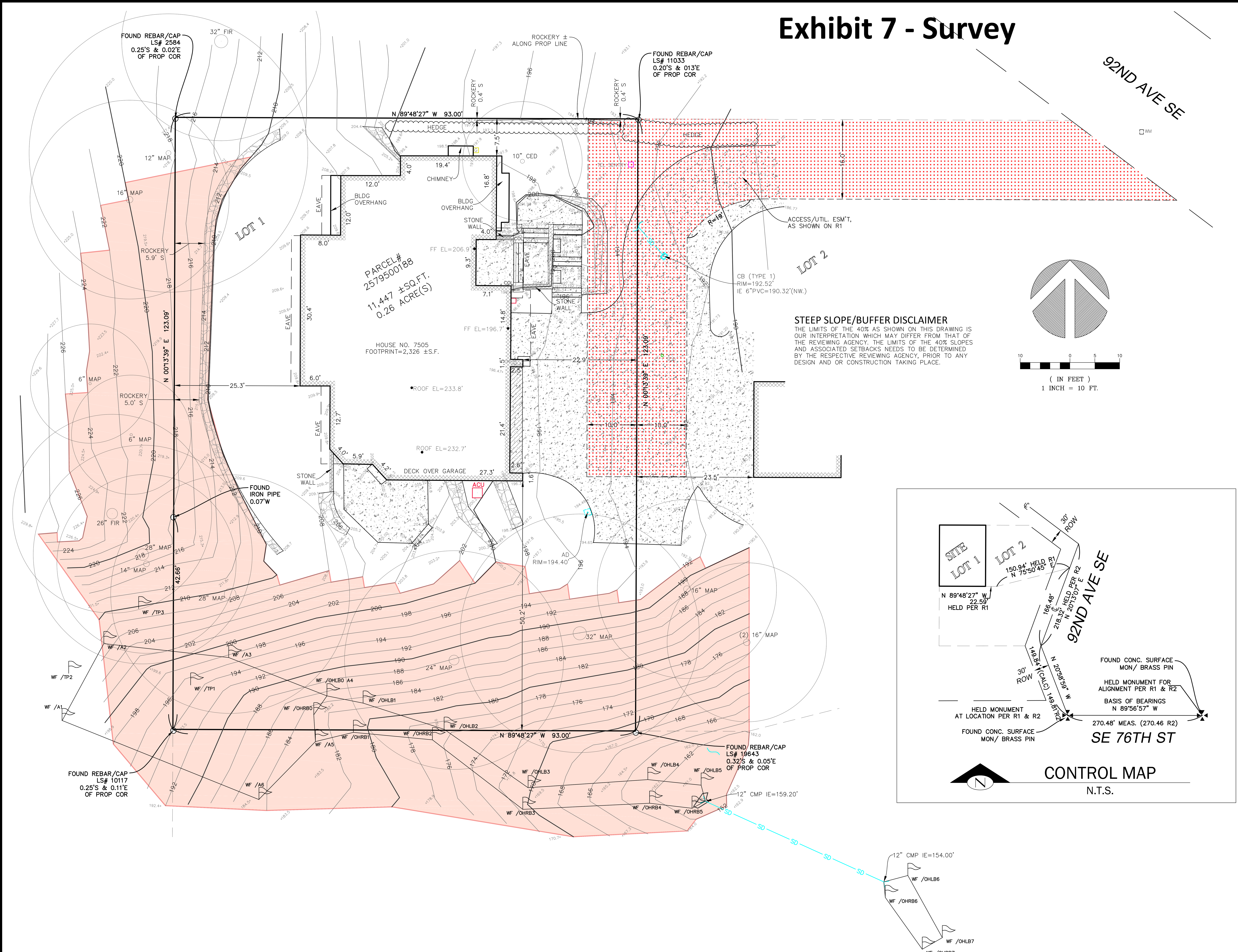
1. THE TOPOGRAPHIC SURVEY SHOWN HEREON WAS PERFORMED IN JUNE OF 2018 & APRIL OF 2019. THE FIELD DATA WAS COLLECTED AND RECORDED ON MAGNETIC MEDIA THROUGH AN ELECTRONIC THEODOLITE. THE DATA FILE IS ARCHIVED ON DISC OR CD. WRITTEN FIELD NOTES MAY NOT EXIST. CONTOURS ARE SHOWN FOR CONVENIENCE ONLY. DESIGN SHOULD RELY ON SPOT ELEVATIONS.
2. ALL MONUMENTS SHOWN HEREON WERE LOCATED DURING THE COURSE OF THIS SURVEY UNLESS OTHERWISE NOTED.
3. BURIED UTILITIES SHOWN BASED ON RECORDS FURNISHED BY OTHERS AND VERIFIED WHERE POSSIBLE IN THE FIELD. TERRANE ASSUMES NO LIABILITY FOR THE ACCURACY OF THOSE RECORDS OR ACCEPT RESPONSIBILITY FOR UNDERGROUND LINES WHICH ARE NOT MADE PUBLIC RECORD. FOR THE FINAL LOCATION OF EXISTING UTILITIES IN AREAS CRITICAL TO DESIGN CONTACT THE UTILITY OWNER/AGENCY. AS ALWAYS, CALL 1-800-424-5555 BEFORE CONSTRUCTION.
4. SUBJECT PROPERTY TAX PARCEL NO. 257950-0188
5. SUBJECT PROPERTY AREA PER THIS SURVEY IS 11,447 ±S.F. (0.26 ACRES)
6. THIS SURVEY WAS PERFORMED WITHOUT THE BENEFIT OF A TITLE REPORT. EASEMENTS AND OTHER ENCUMBRANCES MAY EXIST THAT ARE NOT SHOWN HEREON.
7. FIELD DATA FOR THIS SURVEY WAS OBTAINED BY DIRECT FIELD MEASUREMENTS WITH A CALIBRATED ELECTRONIC 5-SECOND TOTAL STATION AND/OR SURVEY GRADE GPS OBSERVATIONS. ALL ANGULAR AND LINEAR RELATIONSHIPS ARE ACCURATE AND MEET THE STANDARDS SET BY WAC 332-130-090.

LEGEND

ACU	AC UNIT	G	GAS METER
	AREA DRAIN		HEDGE FOLIAGE LINE
	BUILDING		INLET (TYPE 1)
	CENTERLINE ROW		MONUMENT (SURFACE, FOUND)
CO	CLEANOUT	P	POWER METER
COL	COLUMN		REBAR/IRON PIPE AS NOTED (FOUND)
	CULVERT PIPE		ROCKERY
	CONCRETE SURFACE	SD	STORM DRAIN LINE
	RETAINING WALL	TEL SENTRY	TELEPHONE SENTRY
	DECK	WM	WATER METER
	UTILITY EASEMENT	SIZE TYPE	TREE (AS NOTED)
WF	WETLAND FLAG		STEEP SLOPE AREA

VICINITY MAP

N.T.S.



TOPOGRAPHIC & BOUNDARY SURVEY
NW 1/4 OF SE 1/4 SEC 30, TWP. 24 N., RGE 05 E., W.M.
PARCEL NO. 257950188

LAI RESIDENCE
7505 92ND AVE SE
MERCER ISLAND, WA 98040

measure success

Terrane
10801 Main Street, Suite 102, Bellevue, WA 98004
phone 425.458.4488 support@terrane.net
www.terrane.net

JOB NUMBER:	181046
DATE:	07/04/18
DRAFTED BY:	IDV-MD
CHECKED BY:	EJG/TMM
SCALE:	1" = 10'

REVISION HISTORY

4/22/19	ADDED WETLAND INFO

SHEET NUMBER

1 OF 1