CRITICAL AREAS REPORT UPDATE

Date: August 24, 2020
To: Eyal Hillel and Amit Erez - Nadlan Group LLC

From: Carl Hadley
Subject: Critical Areas Report Update
439 West Lake Sammamish Pkwy SE, Bellevue, WA

This letter updates the Critical Areas Report (CAR) originally prepared for the Kamoh residence project at 439 West Lake Sammamish Pkwy SE and submitted to the City of Bellevue in 2014[1]. As part of this update project biologists and geotechnical engineers reviewed the previous reports, examined current site plans, and completed site visits.

Proposed Project

The proposed project design is nearly identical to that originally submitted for the 2014 project. Minor changes will not increase the footprint, nor change the footprint outline by more than about a foot in any location.

Existing Conditions

Streams

The stream corridor was revisited during a site visit conducted on August 18, 2020. The review was completed by the same biologist who had completed the work in 2007 and 2014. The site has not changed in any significant way. There are no channel changes other than the usual minor bank erosion in places. The riparian corridor is still reasonably dense although there is a higher incidence of non-native invasive plants now with more Japanese knotweed in places.

Wetlands

The wetlands were redelineated on August 6, 2020 and found to be nearly identical to when last delineated in 2014. The wetlands were rated using the 2014 WADOE Wetland Rating system and found to be Type 4 with a 40-foot buffer requirement. The updated wetland report is attached as Appendix 1.

Steep Slopes

The geotechnical engineer visited the site in early August 2020 and did not observe any obvious evidence of past slope instability. They found the site to be stable in its current configuration and still suitable for construction of the proposed residence. The geotechnical report is attached as Appendix 2.

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[1] Cedarock Consultants, Inc. 2014. Critical Areas Report for Kamoh Residence, 439 West Lake Sammamish Parkway, Bellevue, WA. Consultant Report prepared for Mr. Amrik Kamoh. September 23, 2014.

Wildlife Habitat
Wildlife habitat was reviewed during a site visit conducted on August 18, 2020. All major trees and the very dense understory is still present. The lower slope has a slightly higher incidence of non-native invasive plants although native species are still dominant in most places. There was no significant change in overall wildlife habitat from that described in the original CAR.

Effects on Critical Areas

Streams
The conclusions provided in the original CAR (Section 4.1) were reviewed and found to be still applicable. No changes are needed.

Wetlands
The proposed single-family home will not encroach on the wetland or wetland buffer.

Steep Slopes
Based on the lack of any changes observed, and overall general stability of the site, the geotech engineers concluded that proposed construction will not adversely impact the overall stability of the subject site and surrounding properties, provided that the proposed project is properly constructed per the approved plans.

Wildlife Habitat
The conclusions provided in the original CAR (Section 4.4) were reviewed and found to be still applicable. No changes are needed.

Mitigation

Expected environmental effects are essentially the same as described in the 2014 CAR. No changes to the mitigation plan described in that report are proposed.

Appendices

Wetland Report – Sewall Wetland Consulting. August 21, 2020
Geotechnical Report Update – PanGEO Inc. August 13, 2020

Wetland Report

Sewall Wetland Consulting. August 21, 2020

Sewall Wetland Consulting, Inc.
PO Box 880
Fall City, WA 98024
Phone: 253-859-0515

August 21, 2020

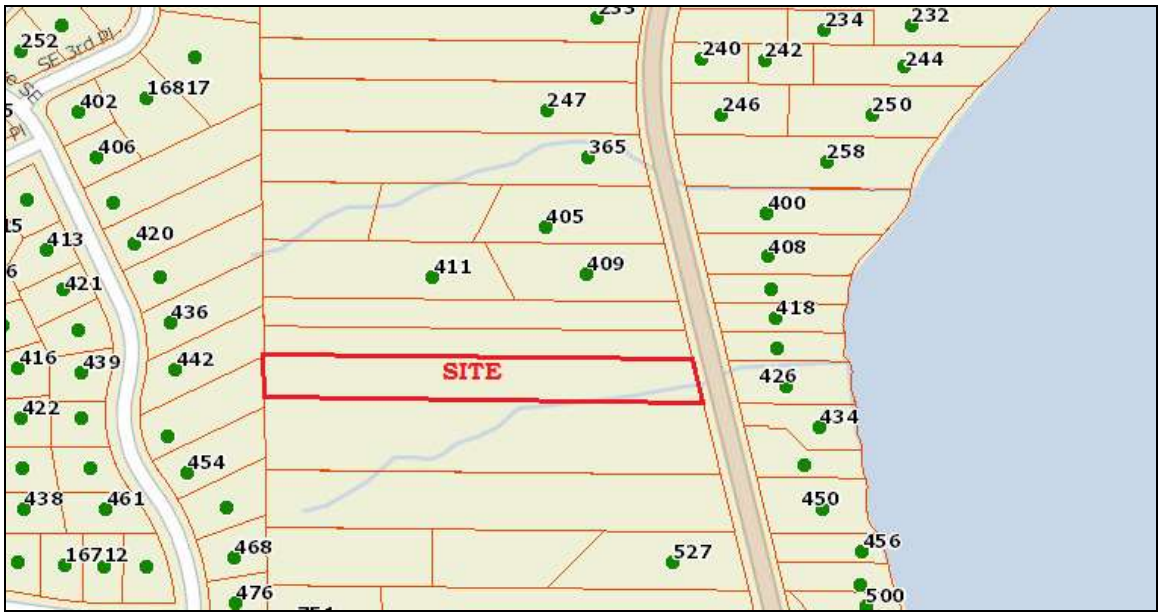
Eyal Hillel
Nadlan Group, LLC
17203 34th Street NE
Redmond, Washington 98052

RE: Critical Area Report – Parcel #3625059169
King County, Washington
SWC Job #20-145

Dear Eyel,

This report describes our observations of jurisdictional wetlands and buffers on or within 200' the area north Parcel #3625059169 located off West Lake Sammamish Parkway SE in the city of Bellevue, Washington (the "site").

The rectangular shaped 1.27 acre forested is located within the SW ¼ of Section 36, Township 25 North, Range 5 East of the W.M.



Above: Vicinity map of the site.

METHODOLOGY

Ed Sewall of Sewall Wetland Consulting, Inc. inspected the site on August 6, 2020. The site was reviewed using methodology described in the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory, 1987), and the *Western Mountains, Valleys and Coast region Supplement* (Version 2.0) dated June 24, 2010, as required by the US Army Corps of Engineers and City of Bellevue. Soil colors were identified using the 1990 Edited and Revised Edition of the *Munsell Soil Color Charts* (Kollmorgen Instruments Corp. 1990).

Above: iMap aerial photograph of the site

OBSERVATIONS

Existing Site Documentation.

Prior to visiting the site, a review of several natural resource inventory maps was conducted. Resources reviewed included a previous critical area study by Resource Analysis and Management, the National Wetland Inventory Map and the NRCS Soil Survey online mapping and Data and the King County iMap website with wetland and stream layers activated.

Resource Analysis and Management Study September 14, 2014

This study identified two small Category 4 slope wetlands in close proximity near the center of the site along the south property line as well as a small stream along the southeast part of the site.

King County iMap

The King County iMap website with wetland and stream layers activated portrays no wetlands on the site. A small stream is depicted crossing the southeast corner of the site (*see image Page 1 & 2 of this report*).

Soil Survey

According to the NRCS Soil Mapper, the site is mapped primarily as moderately well drained Alderwood Gravelly Sandy Loam and somewhat excessively drained Everett soils.

Above: USDA Soil Survey Map of the site

National Wetlands Inventory (NWI)

According to the NWI map for the site, there no wetlands on the site. An excavated pond (PUBh) is depicted to the north of the site. This was not observed and appears to be a mapping error.

Above: National Wetlands Inventory Map of the site.

Field observations

Uplands

The site consists of a forested east facing hillside with a small stream (covered by the Cedar Rock Consulting report) which flows to the east towards West Lake Sammamish Parkway and eventually Lake Sammamish.

The site is vegetated with an overstory mix of large western red cedar, big leaf maple, douglas fir and western hemlock. The understory consists of a mix of salmonberry, vine maple, devils club and sword fern.

Soil pits excavated within the upland portions of the site were found to be similar to the Alderwood soil series with B-horizon soil chromas of 10YR 3/4 Soils throughout the upland portion of the site were dry during the time of our field investigation.

Wetlands

Two small, slope wetlands in very close proximity were observed and roughly matched those delineated in the 2014 study by Resource Analysis and Management. These slope type seep wetlands are scrub-shrub in character and were reflagged with flags A1-A10 and B1-B3.

Both wetland connect to the small stream just to the south of the site and seep water into this channel. The overall size of the complex is approximately 2,700sf.

Vegetation noted in this wetland area included salmonberry, vine maple, lady fern, and skunk cabbage.

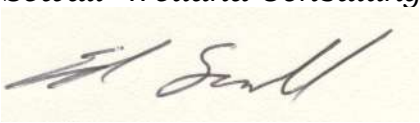
Soil pits excavated within the wetland revealed a mix of gravelly sandy soils with a color of 2.5Y 3/2 with common, medium distinct redoximorphic concentrations, and in some areas a thin layer of sapric organic matter on the surface.

According to the United States Fish and Wildlife Service (USFWS) wetland classification method (Cowardin et al. 1979), the wetland areas on-site that would be classified as PSS1E.

Using the 2014 WADOE Wetland Rating system and rating the wetlands as slope type wetland, this wetland complex scored a total of 15 points with 4 for habitat. This indicates a Category IV wetland. According to BMC Chapter 20.25H.095.D.1.a, Category IV wetlands >2,500sf in size have a 40' buffer measured from the wetland edge. This buffer would not encroach on the proposed single family home.

If you have any questions in regards to this report or need additional information, please feel free to contact me at (253) 859-0515 or at esewall@sewallwc.com .

Sincerely,
Sewall Wetland Consulting, Inc.



Ed Sewall
Senior Wetlands Ecologist PWS #212

Attached: Data sheets/rating forms

REFERENCES

Cowardin, L., V. Carter, F. Golet, and E. LaRoe. 1979. Classification of Wetlands and Deepwater Habitats of the United States. U.S. Fish and Wildlife Service, FWS/OBS-79-31, Washington, D. C.

Environmental Laboratory. 1987. Corps of Engineers Wetlands Delineation Manual, Technical Report Y-87-1. U. S. Army Corps of Engineers Waterways Experiment Station, Vicksburg, Mississippi.

Muller-Dombois, D. and H. Ellenberg. 1974. Aims and Methods of Vegetation Ecology. John Wiley & Sons, Inc. New York, New York.

Munsell Color. 1988. Munsell Soil Color Charts. Kollmorgen Instruments Corp., Baltimore, Maryland.

National Technical Committee for Hydric Soils. 1991. Hydric Soils of the United States. USDA Misc. Publ. No. 1491.

Reed, P., Jr. 1988. National List of Plant Species that Occur in Wetlands: Northwest (Region 9). 1988. U. S. Fish and Wildlife Service, Inland Freshwater Ecology Section, St. Petersburg, Florida.

Reed, P.B. Jr. 1993. 1993 Supplement to the list of plant species that occur in wetlands: Northwest (Region 9). USFWS supplement to Biol. Rpt. 88(26.9) May 1988.

USDA NRCS & National Technical Committee for Hydric Soils, September 1995. Field Indicators of Hydric Soils in the United States - Version 2.1

SW 1/4, SEC.36, TWN.25N, RGE. 5E, W.M.

CONCEPTUAL MITIGATION PLAN

KAMOH RESIDENCE

439 West Lake Sammamish Parkway SE

TEMPORARY DISTURBANCE RESTORATION AREA:

= TEMPORARY DISTURBANCE RESTORATION AREA

TEMPORARY DISTURBANCE RESTORATION AREA NOTES:

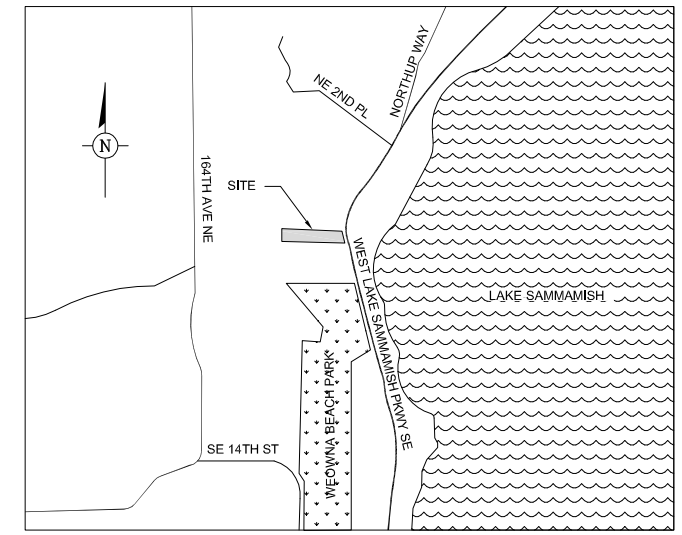
1. AREA TO BE RESTORED TO PREDEVELOPED CONDITIONS.
2. THE CONDITION OF THE AREAS OF TEMPORARY DISTURBANCE EXISTING PRIOR TO UNDERTAKING ANY DEVELOPMENT ACTIVITY SHALL BE DOCUMENTED WITH THE FINAL LANDSCAPE PLAN.

LARGE WOODY DEBRIS SPECIFICATIONS

LOG SPECIFICATIONS	#LOGS
LOG & ROOTWAD (>12" DBH; 10'-15' LENGTH WITH ROOTBALL)	34%
LOG (8" - 12" DBH; 10' - 15' LENGTH W/O ROOTBALL)	33%
LOG (4" - 8" DBH, > 6' LENGTH W/O ROOTBALL)	33%

LARGE WOODY DEBRIS NOTES

1. LOGS AND ROOTWADS SHALL CONSIST OF PARTS OF TREES ACTUALLY REMOVED FROM THE PROPERTY.
2. LIMBS SHALL BE MAINTAINED ON STEMS TO GREATEST EXTENT PRACTICAL.
3. ROOT WADS SHALL HAVE RELATIVELY EVEN SPREAD OF ROOTS WITH MINIMUM ROOTBALL DIAMETER OF FOUR FEET. EXCESS DIRT SHALL BE SHAKEN OFF PRIOR TO PLACEMENT.
4. ALL LOGS SHALL BE PLACED BY EQUIPMENT OPERATING OUTSIDE OF THE ORDINARY HIGH WATER.
5. LOGS SHALL BE PLACED AT WATERS EDGE AT AND BELOW ORDINARY HIGH WATER MARK.
6. EXACT LOG PLACEMENT AND GROUPING SIZE SHALL BE FIELD ADJUSTED BY A BIOLOGIST REPRESENTING WDFW OR THE APPLICANT DURING PLACEMENT.
7. LOGS SHALL NOT BE ANCHORED BUT SHALL BE PLACED TO PROVIDE NATURAL RESISTANCE TO MOVEMENT.



PLANTING SCHEDULE

= RIPARIAN ENHANCEMENT AREA

SPECIES	SIZE	FINAL BUFFER DENSITY	FINAL COUNT
TREES WESTERN RED CEDAR (THUJA PLICATA) WESTERN HEMLOCK (TSUGA HETEROPHYLLA) DOUGLAS FIR (PSEUDOTSUGA MENZIESII)	MINIMUM 4FT TO 6FT HEIGHT	0.01 TREES / SQ.FT.	MINIMUM 12 TREES (3:1 REPLANT RATIO), FINAL COUNT T.B.D.
LARGER SHRUBS (RED-OSIER DOGWOOD, VINE MAPLE, SALMON BERRY, NOOTKA ROSE, HAZELNUT)	2 GALLON	0.05 PLANTS / SQ.FT.	T.B.D.
SMALLER SHRUBS (SWORD FERN, SALAL, SNOWBERRY, OREGON GRAPE, DEER FERN)	1 GALLON	0.05 PLANTS / SQ.FT.	T.B.D.

PLANTING NOTES

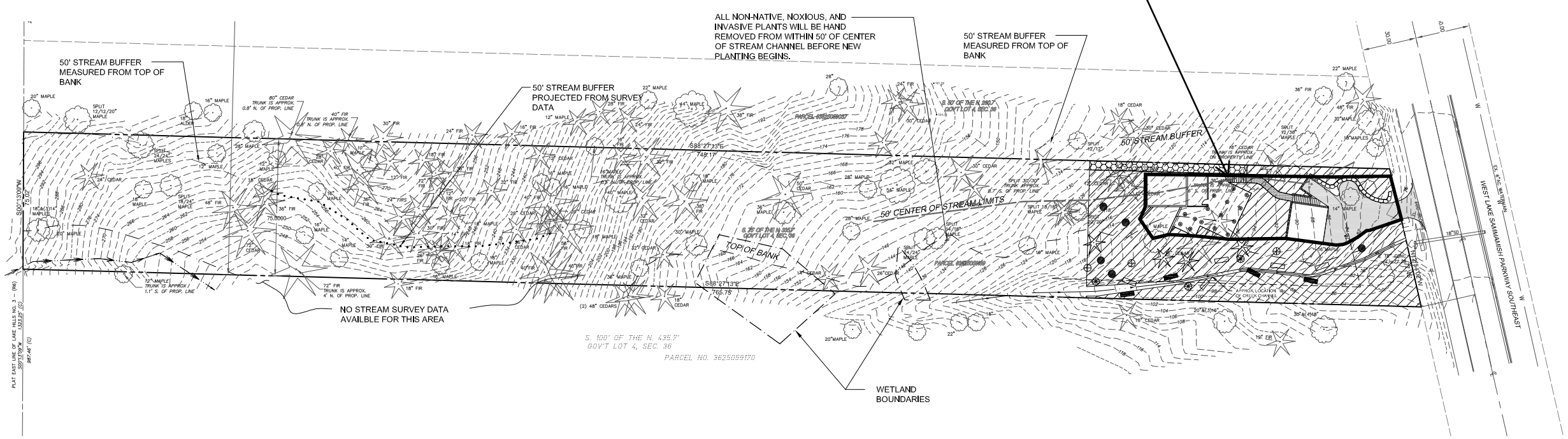
1. PRIOR TO PLANTING, THE SITE SHALL BE SURVEYED AND FINAL COUNT AND SPECIES DETERMINED TO MEET SPECIFIC SITE GROWING CONDITIONS.
2. MINIMUM FINAL BUFFER DENSITY WILL INCLUDE EXISTING PLANTS PLUS THOSE TO BE ADDED.

GRAPHIC SCALE

40 0 20 40

SCALE IN FEET

CONCEPTUAL HOUSE LAYOUT - FINAL HOUSE DESIGN WILL NOT EXCEED BOUNDS SHOWN HERE



wet A/B

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

Project/Site: Nadlin City/County: Bellevue Sampling Date: 8-6-20

Applicant/Owner: State: WA Sampling Point: DP#1

Investigator(s): El Sendl Section, Township, Range:

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

Subregion (LRR): Lat: Long: Datum:

Soil Map Unit Name: NWI classification:

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

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

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

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

Hydrophytic Vegetation Present?	Yes ✓	No ___
Hydric Soil Present?	Yes ✓	No ___
Wetland Hydrology Present?	Yes ✓	No ___

Is the Sampled Area within a Wetland? Yes ✓ No ___

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ___)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	___ = Total Cover		
Sapling/Shrub Stratum (Plot size: ___)			
1. Rubus spectabilis	40		FAC
2.			
3.			
4.			
5.			
	___ = Total Cover		
Herb Stratum (Plot size: ___)			
1. Athyrium Filix Femina	30		FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	___ = Total Cover		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
	___ = Total Cover		

% Bare Ground in Herb Stratum ___

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = ___

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Yes ✓ No ___

Remarks:

SOIL

Sampling Point: DP#1

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
6	10YR 3/2						fsm	
16	2.5Y 3/2		common med dist.				gsL	

[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)
- ___ 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:

upland near wet A/B

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

Project/Site: Nadland City/County: Bellevue Sampling Date: 8-6-20

Applicant/Owner: State: WA Sampling Point: DP #2

Investigator(s): Ed Sewell Section, Township, Range:

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

Subregion (LRR): Lat: Long: Datum:

Soil Map Unit Name: NWI classification:

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

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

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ___)	Absolute % Cover	Dominant Species?	Indicator Status
1. Thuja plicata	60		FAC
2.			
3.			
4.			
	___ = Total Cover		
Sapling/Shrub Stratum (Plot size: ___)			
1. Rubus spectabilis	30		FAC
2.			
3.			
4.			
5.			
	___ = Total Cover		
Herb Stratum (Plot size: ___)			
1. Polystichum munitum	20		upl
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	___ = Total Cover		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
	___ = Total Cover		

% Bare Ground in Herb Stratum ___

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 66 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ___

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Wetland Non-Vascular Plants[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No ___

Remarks:

SOIL

Sampling Point: DP#2

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
2"	dv FF							
14	10YR 3/3						SL	

[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)
- ___ 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:

No indicators

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 indicators

Wetland name or number ____

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Nadlow A/B Date of site visit: 8-6-20

Rated by Ed Sewall Trained by Ecology? ✓Yes ___No Date of training____

HGM Class used for rating Slope Wetland has multiple HGM classes?___Y ✓N

NOTE: Form is not complete without the figures requested *(figures can be combined).*

Source of base aerial photo/map _____

OVERALL WETLAND CATEGORY IV (based on functions ✓ or special characteristics___)

1. Category of wetland based on FUNCTIONS

_____Category I – Total score = 23 - 27

_____Category II – Total score = 20 - 22

_____Category III – Total score = 16 - 19

✓ Category IV – Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
	Circle the appropriate ratings			
Site Potential	H M (L)	H (M) L	H M (L)	
Landscape Potential	H M (L)	H M (L)	H (M) L	
Value	(H) M L	(H) M L	H M (L)	TOTAL
Score Based on Ratings	5	6	4	15

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

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

2. Category based on SPECIAL CHARACTERISTICS of wetland

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

Wetland name or number A/B

Maps and figures required to answer questions correctly for Western Washington

Depressional Wetlands

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

Riverine Wetlands

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

Lake Fringe Wetlands

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

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Plant cover of **dense** trees, shrubs, and herbaceous plants	S 1.3	
Plant cover of **dense, rigid** trees, shrubs, and herbaceous plants *(can be added to figure above)*	S 4.1	
Boundary of 150 ft buffer (can be added to another figure)	S 2.1, S 5.1	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	

Wetland name or number ____

HGM Classification of Wetlands in Western Washington

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Wetland name or number A/B

NO – go to 6 **YES** – The wetland class is **Riverine**
NOTE: The Riverine unit can contain depressions that are filled with water when the river is not flooding

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

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

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

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

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

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

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

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

Wetland name or number ____

SLOPE WETLANDS

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

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

Rating of Site Potential If score is: ___12 = H ___6-11 = M ✓ 0-5 = L — *Record the rating on the first page*

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

Rating of Landscape Potential If score is: ___1-2 = M ✓ 0 = L — *Record the rating on the first page*

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

Rating of Value If score is: ✓ 2-4 = H ___1 = M ___0 = L — *Record the rating on the first page*

Wetland name or number A/B

SLOPE WETLANDS

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

S 4.0. Does the site have the potential to reduce flooding and stream erosion?	
S 4.1. Characteristics of plants that reduce the velocity of surface flows during storms: Choose the points appropriate for the description that best fits conditions in the wetland. *Stems of plants should be thick enough (usually > 1/8 in), or dense enough, to remain erect during surface flows.* Dense, uncut, **rigid** plants cover > 90% of the area of the wetland — points = 1 All other conditions — points = 0	1

Rating of Site Potential If score is: ✓ 1 = M ___0 = L — *Record the rating on the first page*

S 5.0. Does the landscape have the potential to support the hydrologic functions of the site?	
S 5.1. Is more than 25% of the area within 150 ft upslope of wetland in land uses or cover that generate excess surface runoff? Yes = 1 No = 0	0

Rating of Landscape Potential If score is: ___1 = M ✓ 0 = L — *Record the rating on the first page*

S 6.0. Are the hydrologic functions provided by the site valuable to society?	
S 6.1. Distance to the nearest areas downstream that have flooding problems: The sub-basin immediately down-gradient of site has flooding problems that result in damage to human or natural resources (e.g., houses or salmon redds) — points = 2 Surface flooding problems are in a sub-basin farther down-gradient — points = 1 No flooding problems anywhere downstream — points = 0	1
S 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan? Yes = 2 No = 0	2
Total for S 6 — Add the points in the boxes above	3

Rating of Value If score is: ✓ 2-4 = H ___1 = M ___0 = L — *Record the rating on the first page*

NOTES and FIELD OBSERVATIONS:

Wetland name or number ____

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

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

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

___Aquatic bed	4 structures or more: points = 4
___Emergent	3 structures: points = 2
✓ Scrub-shrub (areas where shrubs have > 30% cover)	2 structures: points = 1
___Forested (areas where trees have > 30% cover)	1 structure: points = 0

If the unit has a Forested class, check if:

___The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon

0

H 1.2. Hydroperiods

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

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

1

H 1.3. Richness of plant species

Count the number of plant species in the wetland that cover at least 10 ft^2.

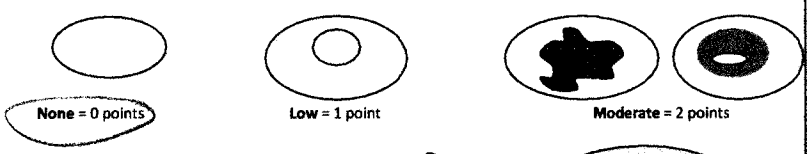
Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle***

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

1

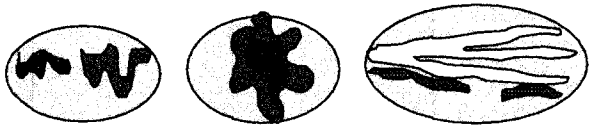
H 1.4. Interspersion of habitats

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



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

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



0

Wetland name or number A/B

H 1.5. Special habitat features:

Check the habitat features that are present in the wetland. *The number of checks is the number of points.*

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

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

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

H 2.1. Accessible habitat (include *only habitat that directly abuts wetland unit*).

Calculate: 8 % undisturbed habitat 4 + [(% moderate and low intensity land uses)/2] 2 = 10 %

If total accessible habitat is:	
> $^1/_3$ (33.3%) of 1 km Polygon	points = 3
20-33% of 1 km Polygon	points = 2
10-19% of 1 km Polygon	points = 1
< 10% of 1 km Polygon	points = 0

1

H 2.2. Undisturbed habitat in 1 km Polygon around the wetland.

Calculate: 38 % undisturbed habitat 0 + [(% moderate and low intensity land uses)/2] ___ = 38 %

Undisturbed habitat > 50% of Polygon	points = 3
Undisturbed habitat 10-50% and in 1-3 patches	points = 2
Undisturbed habitat 10-50% and > 3 patches	points = 1
Undisturbed habitat < 10% of 1 km Polygon	points = 0

2

H 2.3. Land use intensity in 1 km Polygon: If

> 50% of 1 km Polygon is high intensity land use	points = (- 2)
≤ 50% of 1 km Polygon is high intensity	points = 0

-2

Total for H 2 — Add the points in the boxes above: 1

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

H 3.0. Is the habitat provided by the site valuable to society?

H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose only the highest score that applies to the wetland being rated.*

Site meets ANY of the following criteria: points = 2

— It has 3 or more priority habitats within 100 m (see next page)
— It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists)
— It is mapped as a location for an individual WDFW priority species
— It is a Wetland of High Conservation Value as determined by the Department of Natural Resources
— It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan

Site has 1 or 2 priority habitats (listed on next page) within 100 m points = 1

Site does not meet any of the criteria above points = 0

0

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

Wetland name or number ____

WDFW Priority Habitats

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Wetland name or number A/B

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

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

Wetland name or number A/B

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

https://fortress.wa.gov/ecy/waterqualityatlas/map.aspx?CustomMap=y&RT=0&Layers=23,29&Filters=n,n,n,n

iMap | Water Quality Atlas Map Pa...

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Navigation Tools:

Pan | Zoom In | Zoom Out | Zoom Full | Zoom Last | Zoom Next

Miscellaneous Tools:

Identify | Print Map | Share Map | Clear Graphics

Spatial Filter Tools:

Box Filter | Polygon Filter | Buffer Point | Buffer Feature

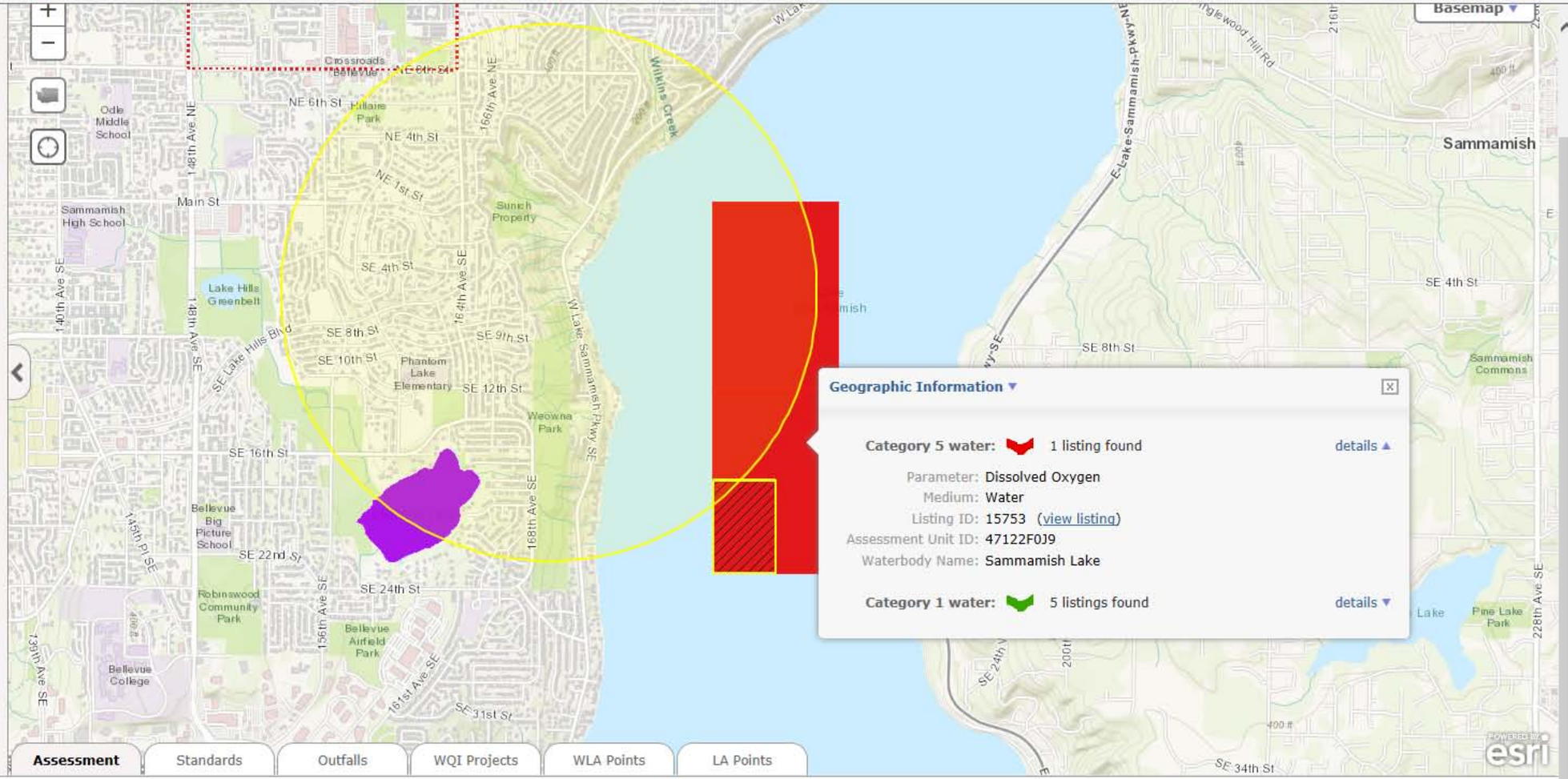
Spatial filter applied ✓

(remove filter)

1) Choose buffer distance:

1/4 mile | 1/2 mile | **1 mile** | 5 miles

2) Click on map to make selection.



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Water Quality Atlas Version: 1.0.0.0

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https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx

100%

10:21 AM 8/21/2020

https://www.fws.gov/wetlands/data/mapper.html

iMap | Web Soil Survey - Home | Wetlands Mapper

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National Wetlands Inventory

surface waters and wetlands

ABOUT | GET DATA | PRINT | FIND LOCATION

BASEMAPS

MAP LAYERS

- Wetlands
- Riparian
- Riparian Mapping Areas
- Data Source
  - Source Type
  - Image Scale
  - Image Year
- Areas of Interest
- FWS Managed Lands
- Historic Wetland Data

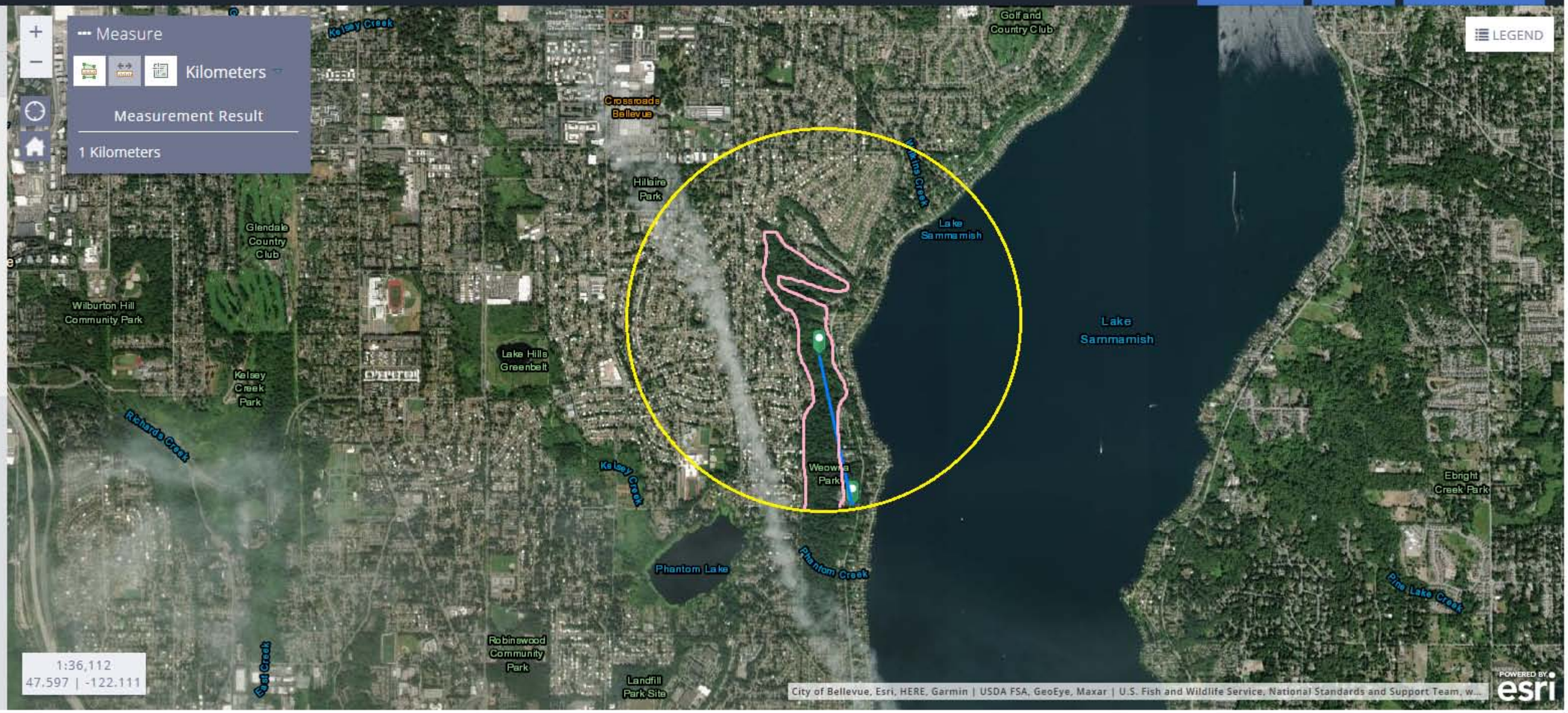
Measure

Kilometers

Measurement Result

1 Kilometers

LEGEND



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https://www.fws.gov/wetlands/data/mapper.html
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Page Safety Tools

National Wetlands Inventory
surface waters and wetlands

ABOUT | GET DATA | PRINT | FIND LOCATION

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- Riparian Mapping Areas
- Data Source
  - Source Type
  - Image Scale
  - Image Year
- Areas of Interest
- FWS Managed Lands
- Historic Wetland Data

Measure
Feet
Measurement Result
162.6 Feet

LEGEND

100%
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8/21/2020

https://geodataservices.wdfw.wa.gov/hp/phs/

iMap | Priority Habitats and Species: ... | PHS on the Web

File Edit View Favorites Tools Help

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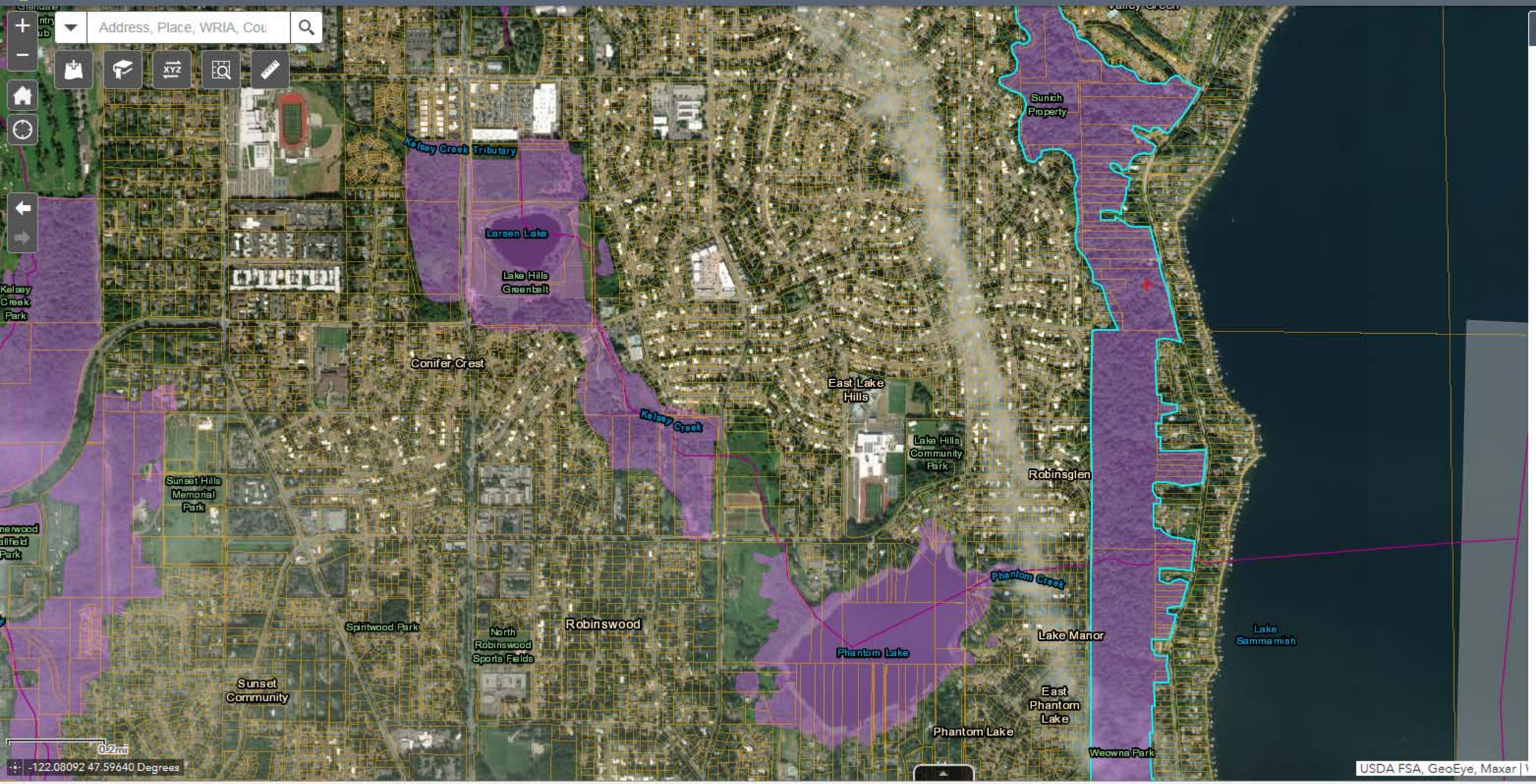
Page | Safety | Tools

PHS on the Web

Quick Start Guide | User Guide | Feedback



PHS Identify

Generate Report

Occurrence Name	Biodiversity Areas And Corridor
Priority Area	Terrestrial Habitat
Site Name	BELLEVUE PARKS
Accuracy	1/4 mile (Quarter Section)
Notes	CITY AND/OR COUNTY PARKS LOCATED IN BELLEVUE. ONLY THE PORTIONS WITH DESIREABLEWILD LIFE HABITAT ARE MAPPED. LAKE HILLS PARK CONTAINS WETLANDS.
Source Record	902050
Source Dataset	PHSREGION
Source Name	MULLER, TED
Source Entity	WA Dept. of Fish and Wildlife
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
Management Recommendations	Click for more info.
Geometry Type	Polygons

100%

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8/21/2020

Geotechnical Report Update

PanGEO Inc. August 13, 2020

PanGEO
INCORPORATED
Geotechnical & Earthquake
Engineering Consultants

August 13, 2020
File No. 20-282

Eyal Hillel
Nadlan Group LLC
Eyalhi2000@gmail.com

Subject: **Geotechnical Report Update**
Proposed Single-Family Residence
439 West Lake Sammamish Pkwy SE, Bellevue, WA

Dear Eyal,

As requested, this letter is prepared to serve an update to the 2006 and 2014 reports prepared by Associated Earth Science (AESI) for the above property. Our work was performed in general accordance with our mutually agreed scope of work outlined in our proposal dated July 30, 2020, which was subsequently approved by you on the same date. Our service scope included reviewing existing reports, reviewing current design plans, and providing our opinions and conclusions in this letter.

SITE AND PROJECT DESCRIPTION

The project site is an approximately 1.27-acre vacant lot located at 439 West Lake Sammamish Pkwy SE in Bellevue, Washington (see Vicinity Map, Figure 1). The site is roughly rectangular in shape, and is bordered to the east by West Lake Sammamish Pkwy SE, to the west by existing single-family residences, and to the north and south by vacant lots (see Site and Exploration Plan, Figure 2). A small creek runs approximately from west to east across the southern portion of the site. Based on review of King County iMap, the site generally slopes down from west to east with an average gradient of about 28 percent and with a total vertical relief of about 210-220 feet. Our review of the City of Bellevue Critical Hazards Maps indicates portions of the site are mapped with steep slopes >40%.

We understand that a building permit was issued for construction of a new single-family residence (SFR) in the eastern portion of the site in 2016, however, construction was never started. We further understand that it is planned to re-submit plans to obtain a new building

3213 Eastlake Ave E, Suite B
Seattle, WA 98102
T. (206) 262-0370
F. (206) 262-0374

permit, and the house design will virtually be the same as approved in 2016. The objective of our work is to review existing reports and plans, to update the seismic design parameters, and to conduct a site reconnaissance to evaluate the site conditions.

DOCUMENT REVIEW

As part of our study, we have completed a review of the following documents:

1. Geotechnical report entitled "*Subsurface Exploration. Geologic Hazard, and Preliminary Geotechnical Engineering Report, Washburn Residence, 409 West Lake Sammamish Parkway SE, Bellevue, Washington."* prepared by Associated Earth Science. dated August 1, 20106,
2. Geotechnical Report Update, Kamoh Residence, *409 West Lake Sammamish Parkway SE, Bellevue, Washington.*
3. 2016 Permit plan set which include the following:
    - Architectural Plan Sheets 1 through 3, A-1 through A-16 last Revised on October 12, 2015;
    - Structural Plan Sheets S1 through S5 by BTL Engineering, Inc. last revised on November 23, 2015;
    - Shoring Plan Sheets SS1.0 through SS5.0 by CT Engineering, Inc. last revised on April 25, 2016).

SITE RECONNAISSANCE

As part of our work, we conducted a site reconnaissance of the subject property and the steep slopes adjacent to the property on August 11, 2020. During our site reconnaissance, we observed the existing condition of the site and adjacent properties to look for evidence of past or ongoing instability, such as scarps, sloughs, tension cracks, uneven ground surfaces, jackstrawed trees, breaks in vegetation, water features and convergent landforms. We did not observe any obvious evidence of past slope instability during our site reconnaissance. Additionally, we observed that the steep slopes are covered with bushes and trees, and mature trees on the steep slopes are observed to be straight.

Based on our observations of ground features and the subsurface conditions (i.e. dense soil conditions at the shallow depths), it is our opinion that the site is globally stable in its current configuration. Based on the shoring walls currently designed, it is also our opinion that the proposed construction will not adversely impact the overall global stability of the subject site and surrounding properties, provided that the proposed project is properly constructed pe the approved plans.

SEISMIC DESIGN PARAMETERS PER IBC 2015

The seismic evaluation of the structures should be accomplished in accordance with the 2015 or 2018 International Building Code (IBC). Table 1 below provides seismic design parameters for the site that are in conformance with the 2015/2018 IBC, which specifies a design earthquake having a 2% probability of occurrence in 50 years (return interval of 2,475 years), and the 2008 USGS seismic hazard maps.

Table 1 – 2015/2018 IBC Seismic Design Parameters

	Site Class	Spectral Acceleration at 0.2 sec. (g)	Spectral Acceleration at 1.0 sec. (g)	Site Coefficients		Design Spectral Response Parameters	
		S_S	S_1	F_a	F_v	S_{DS}	S_{D1}
2015 IBC	D	1.295	0.496	1.0	1.5	0.863	0.497
2018 IBC	D	1.308	0.456	1.0	1.85	0.872	0.564

OPTIONS AND AND CONCLUSIONS

Based on our review, in general, we concur with the geotechnical findings and recommendations contained in the referenced geotechnical report and report update and, in our opinion, the geotechnical recommendations outlined in the report have been substantially incorporated in the project design.

Based on our review of the previous geotechnical reports by AESI, the current project design plans, and our evaluation of the Critical Hazards in context of the current Land Use

Code, it is our opinion that the proposed development as currently planned will not adversely affect the Critical Hazard Areas and meets the performance standards of the current Land Use Code.

CLOSURE

We have prepared this report for Eyal Hillel and the project design team. Opinions and conclusions contained in this report are based on a review of pertinent subsurface information and our understanding of the project. The study was performed using a mutually agreed-upon scope of work.

This report has been prepared for planning and design purposes for specific application to the proposed project in accordance with the generally accepted standards of local practice at the time this report was written. No warranty, express or implied, is made.

We appreciate the opportunity to be of service.

Sincerely,

Bart Weitering

HONGBO MICHAEL XUE
STATE OF WASHINGTON
35016
REGISTERED
PROFESSIONAL ENGINEER
8/13/2020

Bart Weitering, G.I.T.
Staff Geologist

H. Michael Xue, P.E.
Principal Geotechnical Engineer

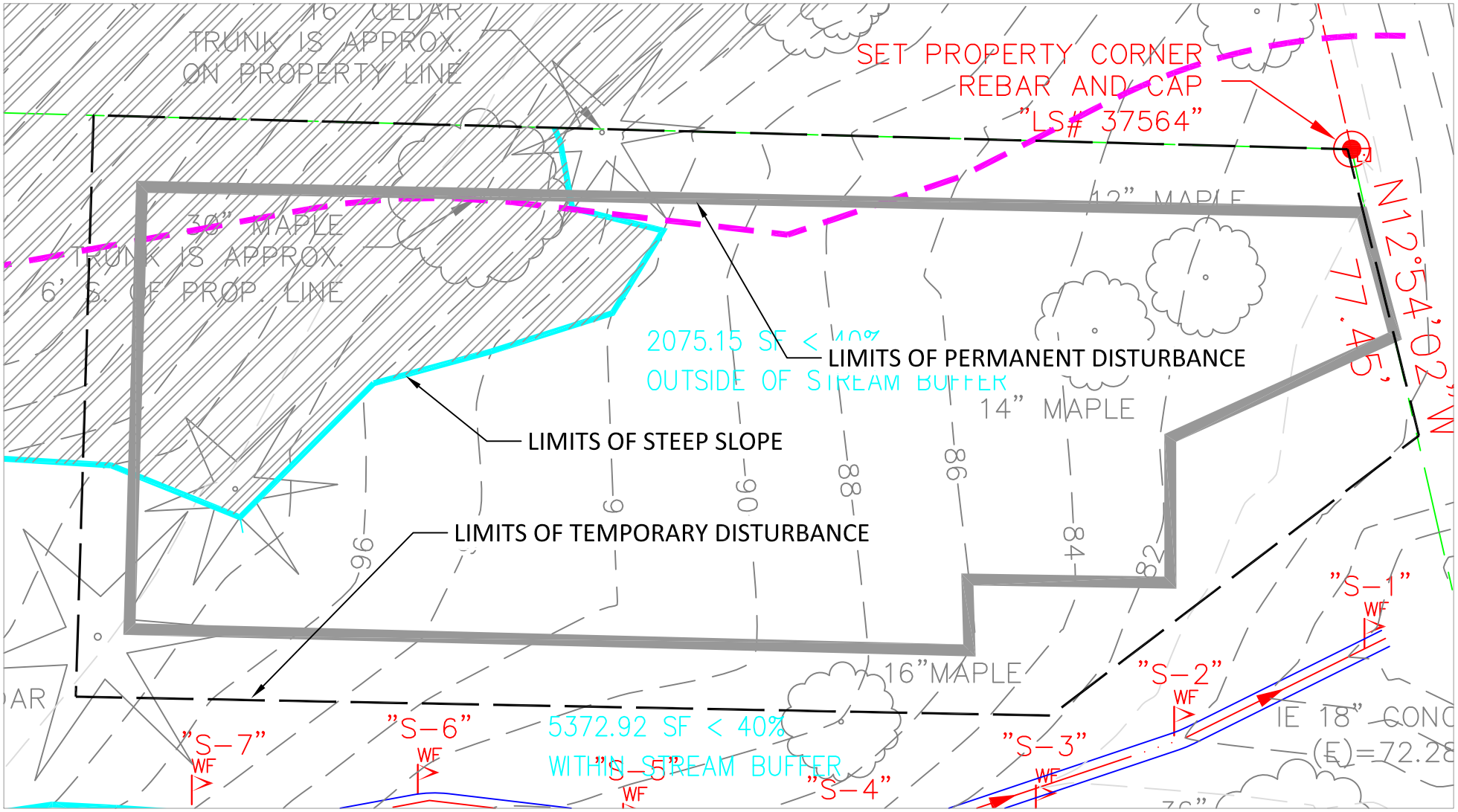
REFERENCES

AESI, 2006, *Subsurface Exploration, Geologic Hazard, and Preliminary Geotechnical Engineering Report, Washburn Residence, 409 West Lake Sammamish Parkway SE, Bellevue, Washington*, dated August 1, 2006.

AESI, 2014, *Geotechnical Report Update, Kamoh Residence, 409 West Lake Sammamish Parkway SE, Bellevue, Washington*, dated September 19, 2014.

International Code Council, 2015/2018, *International Building Code (IBC), 2015/2018.*

DISTURBANCE LIMITS



Temporary Disturbance - 4,300 sf
Permanent Disturbance - 2,959 sf
Steep Slope Disturbance - 980 sf

Nadlan Group LLC
439 W. Lk. Samm. Pkwy SE
Bellevue, WA
Permit #20-115301 LO
October, 21, 2020

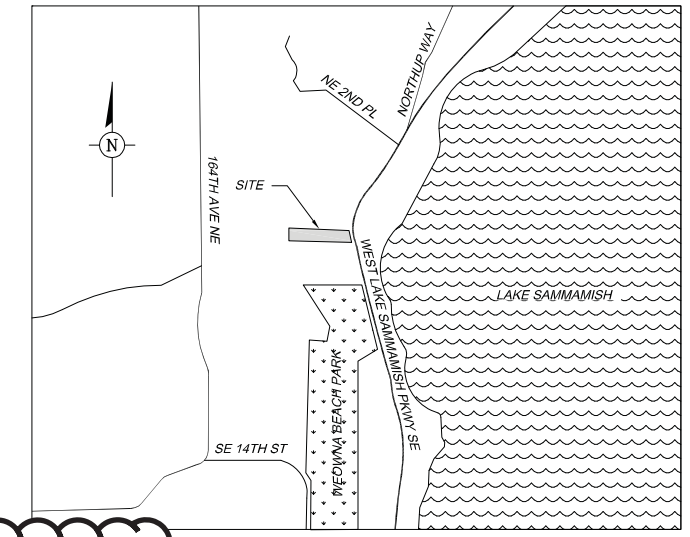
SW 1/4, SEC.36, TWN.25N, RGE. 5E, W.M.

NADLAN GROUP LLC RESIDENCE
439 West Lake Sammamish Parkway SE

GRAPHIC SCALE
30 0 15 30
SCALE IN FEET

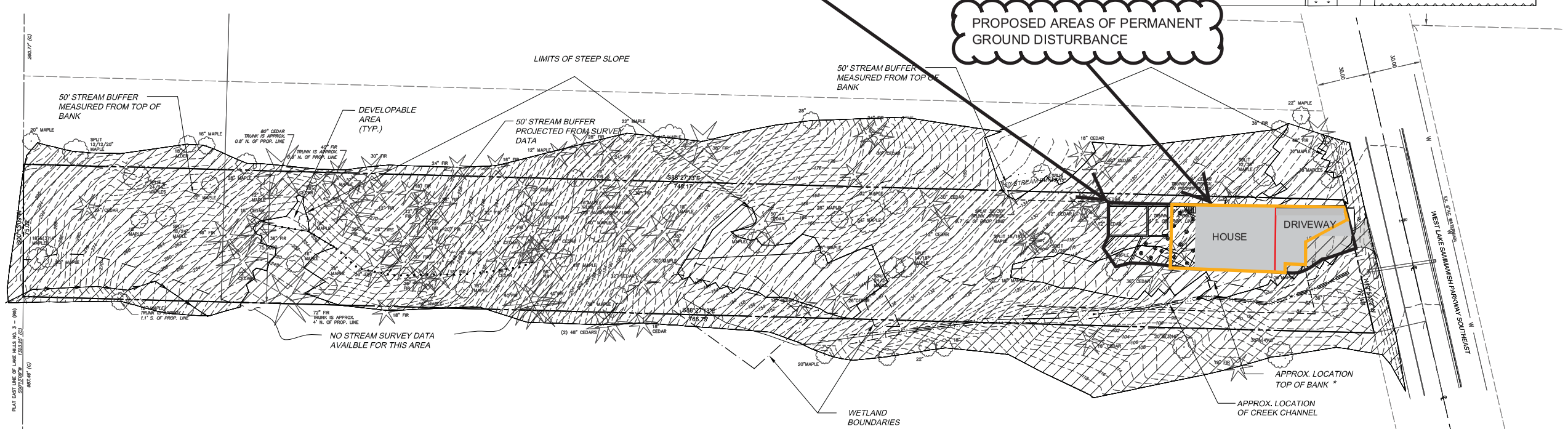
PERMANENT GROUND DISTURBANCE -
HOUSE - 1,992 SF
DRIVEWAY - 855 SF
RETAINING WALLS - 112
SF TOTAL - 2,959 SF

ALL AREAS NOT INDICATED AS PERMANENT DISTURBANCE WILL BE LEFT UNTOUCHED OR REVEGETATED WITH NATIVE PLANTS FOLLOWING CONSTRUCTION IF DISTURBED.



PERMANENT GROUND DISTURBANCE LIMITS PER ORIGINAL LAND USE PERMIT

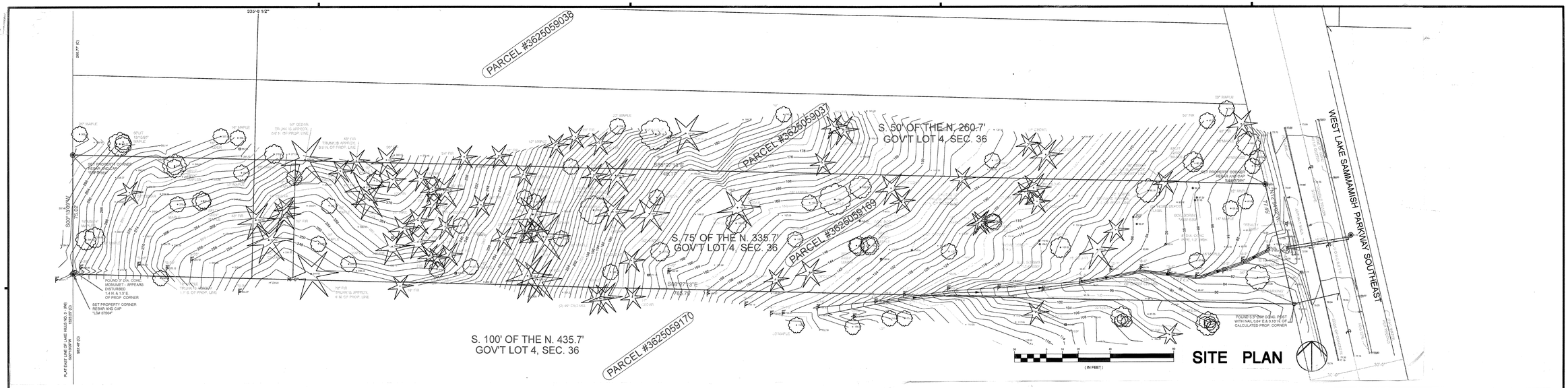
PROPOSED AREAS OF PERMANENT GROUND DISTURBANCE



* TOP OF BANK IS SHOWN AS AGREED BY THE CITY OF BELLEVUE DUE TO AN OVERSIGHT IN THE CRITICAL AREAS ORDINANCE.

SUMMARY TABLE	TOTAL SITE AREA	
	FT²	AS % OF TOTAL SITE
TOTAL CRITICAL AREAS	56,556 SF	99.62 %
NON-CRITICAL AREA / DEVELOPABLE AREA (NON-SHADED)	216 SF	0.38 %
TOTAL SITE AREA	56,772 SF	———

CRITICAL AREA (STEEP SLOPE, STREAM, STREAM BUFFER, AND/OR WETLAND



ADVERAGE EXISTING GRADE

A 88.33	E 94.00	I 100.00	M 91.00	Q 86.00
B 90.00	F 96.00	J 102.00	N 88.00	R 87.75
C 91.00	G 97.75	K 98.00	O 86.00	
D 92.00	H 101.00	L 95.00	P 86.00	

TOTAL: A thru R = 1,669.83 / 18 = 92.80'

IMPERVIOUS SURFACES

	PGIS (sf)	NPGIS (sf)	Total (sf)
Existing	0	0	0
Removed	0	0	0
Replaced	0	0	0
New	995	2,216	3,211
New + Replaced	995	2,216	3,211
Total Impervious	995	2,216	3,211

GREENSCAPE (Front Yard)

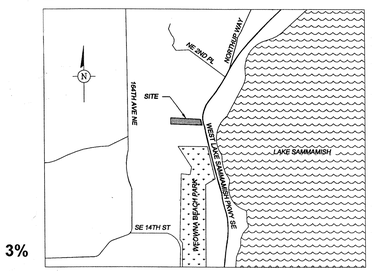
2,332 sf / 3,262 sf = 71%
Natural Vegetation to remain undisturbed

PERMANENT AREA of DISTURBANCE:

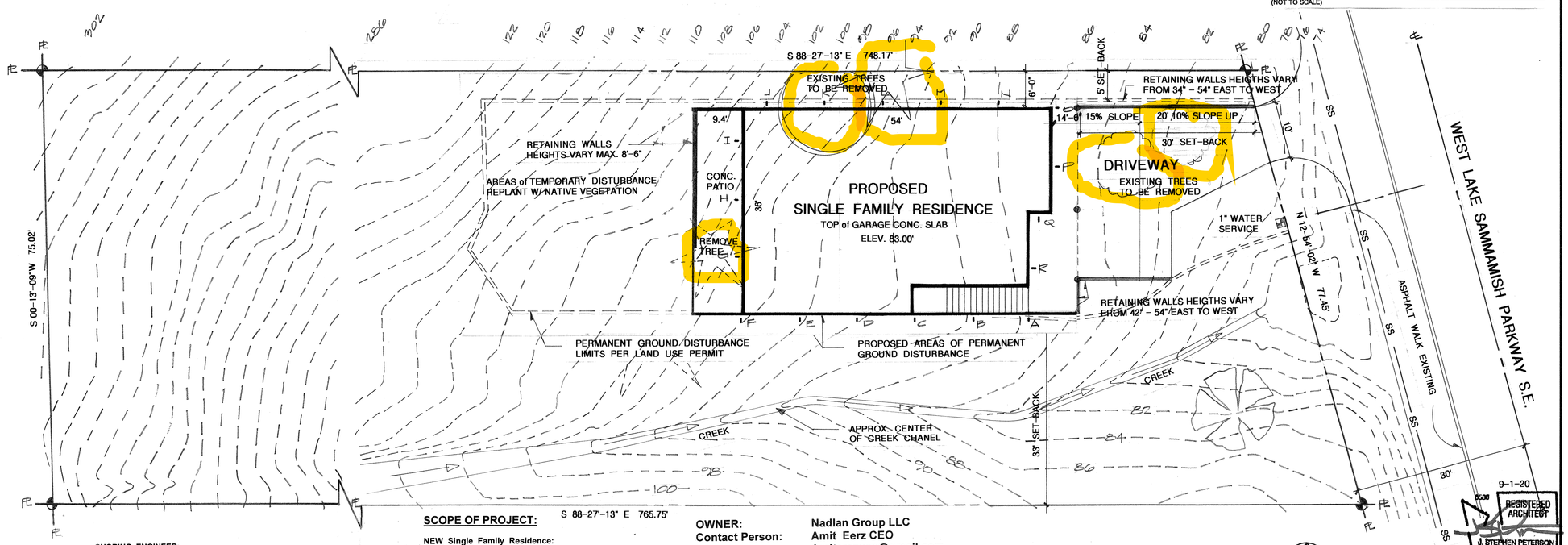
SECOND FLOOR PLAN	1,656 SF
WEST PATIO	336 SF
FRONT WALKS	30 SF
DRIVEWAY	825 SF
RETAINING WALLS	112 SF
	2,959 SF

F.A.R. : 3,708 SF / 55,162 SF = .07 or 8%

LOT COVERAGE: 1,656 SF / 55,162 SF = 3%



VICINITY MAP
(NOT TO SCALE)



ARCHITECT : J. Stephen Peterson & Associates, P.S.
18209 NE 175th Place,
Woodinville, WA 98072
(425) 788-9434 JSPArchitect@comcast.net

STRUCTURAL ENGINEER:
BTL Engineering
19011 Woodinville-Snohomish Road NE # 100
Woodinville, WA 98072 (425) 814-8448
Eric.Dann@btleng.net

SHORING ENGINEER:
CT Engineering Inc.
180 Nickerson Street Suite 302
Seattle, WA 98109 (206) 285-4512
RThomas@ctengineering.com

CIVIL ENGINEER / DRAINAGE:
OMEGA Engineering, Inc.
2707 Wetmore Ave.
Everett, WA 98201 (425) 387-3820
rachel@omega-eng.com

SCOPE OF PROJECT:

NEW Single Family Residence:

1st Floor	1,098 sq. ft.
2nd Floor	1,656 sq. ft.
3rd Floor	954 sq. ft.
	3,708 sq. ft.
Garage	1,280 sq. ft.
Lot Size	55,162 sq. ft.
PARCEL ID #:	3625059169

OWNER: Nadlan Group LLC
Contact Person: Amit Eerz CEO
Amiterezusa@gmail.com
(425) 365-3456

PROJECT ADDRESS: 439 West Lake Sammamish Parkway SE
Bellevue, WA

LEGAL DESCRIPTION: 362505 169 POR of FOLG DESC LY WLY of CO RD – S 75 of N 335.7 FT of GL 4 IN SEC 36-25-5

PARCEL ID #: 3625059169

SITE PLAN

GRAPHIC SCALE
10' 0' 5' 10' 20' 40'
(IN FEET)
1 INCH–10'

9–1–20
REGISTERED ARCHITECT
J. STEPHEN PETERSON
STATE OF WASHINGTON
EXP. 8–14–21

THE COMPLETE LINE

REVISIONS

J. Stephen Peterson & Associates, P.S.
ARCHITECT
18209 NE 175th Place, Woodinville, WA 98072 Phone/fax 425-788-9434 JSPArchitect@comcast.net www.NWarchitect.com

JOB TITLE: NADLAN GROUP RESIDENCE
JOB ADDRESS: 439 WEST LAKE SAMMAMISH PARKWAY SE, BELLEVUE, WA. 98008

DRAWING TITLE: SITE PLAN

SHEET NO. A–2

JOB NO.

DATE 9–1–20