



**CRITICAL AREAS STUDY FOR**

**8619 36<sup>th</sup> Avenue NE**

Tax Parcel Nos. 00459600000202 & 00459600000301

Acre Project #19078

Prepared By:

Acre Environmental Consulting, LLC.  
17715 28<sup>th</sup> Ave. NE  
Lake Forest Park, WA 98155  
(206) 450-7746

For:

CH Office, LLC  
PO Box 14424  
Mill Creek, WA 98082

December 12, 2019

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### ATTACHMENTS:

1. VICINITY MAP
2. WETLAND DETERMINATION DATA FORMS (4 DATA POINTS ON-SITE)
3. WETLAND RATING FORM FOR WESTERN WASHINGTON (1 RATING FORM)
4. SITE PHOTOGRAPHS
5. CRITICAL AREAS STUDY MAP SHEET CA1.00

## **SITE DESCRIPTION**

On December 3, 2019 *Acre Environmental Consulting, LLC* visited the approximate 1.24-acre site located at 8619 36<sup>th</sup> Avenue NE in the City of Marysville, Washington. The site is further located as a portion of Section 21, Township 30N, Range 5E, W.M. The parcel numbers for this property are 00459600000202 and 00459600000301. The purpose of this site visit was to locate regulated critical areas on and adjacent to the subject site. Surrounding land use is comprised of commercial development to the west, residential development to the north and south, and Quilceda Creek and an associated wetland to the east.

Access to this site is from 36<sup>th</sup> Avenue NE located along the western boundary of the property. This property is generally flat and contains an existing duplex on the southern lot. The majority of the site is occupied by maintained lawn. A steep, forested slope is located in the eastern portion of the site and grades to a Category II wetland associated with Quilceda Creek (Type S stream) located just east of the property. In the City of Marysville, Category II wetlands and Quilceda Creek are each provided a 100-foot protective buffer measured from the delineated wetland edge or ordinary high water mark of the stream. Per MMC22E.010.220(3)b, “any stream adjoined by a wetland or other adjacent habitat area shall have the buffer which applies to the wetland or other habitat area unless the stream buffer requirements are more expansive”. In this instance, the 100-foot wetland buffer is the more restrictive buffer.

## **PROJECT DESCRIPTION**

The applicant is proposing to construct a commercial building and associated infrastructure on the western portion of this property. This project has been designed so that no work will occur in the on-site buffer or associated building setback. Due to careful project design, no adverse environmental impacts and no net loss of ecological functions will occur as a result of this project.

## **METHODOLOGIES OF CRITICAL AREAS DETERMINATION**

On December 3, 2019 *Acre Environmental Consulting, LLC* conducted a site visit to locate wetlands and streams on and adjacent to the subject site. The methods used for delineating, classifying, and rating the critical areas in the project area are consistent with current Federal, State, and Snohomish County requirements. At the time of our December 3, 2019 site investigation, the weather was cloudy with a temperature of 50 degrees Fahrenheit.

Wetlands were identified using the routine methodologies described in the U.S. Army Corps of Engineers Wetland Delineation Manual produced in 1987 and the U.S. Army Corps of Engineers Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region produced in May 2010 (hereinafter referred to as “the Corps Regional Supplement”). The Corps Regional Supplement is designed for concurrent use with the 1987 Corps Wetland Delineation Manual and all subsequent versions. The 2010 Regional Supplement provides technical guidance and procedures for identifying and delineating wetlands that may be subject to regulatory jurisdiction under Section 404 of the Clean Water Act. Where differences in the two documents occur, the Corps Regional Supplement takes precedence over the Corps Manual for applications in the Western Mountains, Valleys, and Coast Region.

According to the federal methodologies described above, identification of wetlands is based on a three-factor approach involving indicators of hydrophytic vegetation, hydric soils, and the presence or evidence of persistent hydrology. Except where noted in the manuals, the three-factor approach discussed above requires positive indicators of hydrophytic vegetation, hydric soils, and wetland hydrology, to make a determination that an area is a regulated wetland. Using the aforementioned manuals, the procedure for making a wetland determination include the following:

- 1.) Examination of the site for hydrophytic vegetation (species present/percent cover);
- 2.) Examination for the presence of hydric soils in areas where hydrophytic vegetation is present; and
- 3.) The final step is determining if wetland hydrology exists in the area examined under the first two steps.

Per industry standards, *Acre Environmental Consulting, LLC* examined the entire project site. Per current City of Marysville requirements, *Acre Environmental Consulting, LLC* also assessed adjacent properties within 200 feet of the proposed project limits, to the maximum extent possible without entering adjacent properties. While a detailed assessment of Critical Areas on adjacent properties was not possible due to the lack of legal access, *Acre Environmental Consulting, LLC* conducted a review of all available information to assess the presence of off-site Critical Areas within 200 feet of the subject site. This review is necessary to determine if any regulated Critical Areas exist off-site which would cause associated protective buffers to extend onto the property and affect the development proposal.

In addition to on-site field reviews, *Acre Environmental Consulting, LLC* examined aerial photographs and topographical data on Snohomish County’s PDS Map Portal system. Web soil survey maps produced by the Natural Resources Conservation Service (NRCS), National Wetlands Inventory (NWI) maps produced by the U.S. Fish and Wildlife Service (USFWS), SalmonScape fish distribution maps produced by the Washington Department of Fish and

Wildlife (WDFW), and StreamNet fish distribution maps produced by Pacific States Marine Fisheries Commission.

### **BOUNDARY DETERMINATION FINDINGS**

Wetlands were classified according to the U.S. Fish and Wildlife Service (USFWS) Cowardin system Classification of Wetlands and Deepwater Habitats of the United States (Cowardin et al., 1979) and rated, by categories, according to the Washington State Department of Ecology Wetland Rating Form for Western Washington: 2014 Update, as required by the City of Marysville Municipal Code, Chapter 22E.010 (Critical Areas Management). Buffers are also determined by this chapter.

#### **Wetland**

**HGM Class:** Depressional

**Cowardin:** Palustrine, Forested wetland, Broad-leaved Deciduous, Seasonally Flooded/Saturated (PFO1E)

**Ecology Rating:** Category II

**City of Marysville Rating:** Category II, 100' Buffer

This wetland is located immediately east of the subject property and is associated with Quilceda Creek. It appears that this wetland unit meets the criteria to be rated as a Depressional wetland rather than a Riverine wetland based on the following: The subject wetland unit is located outside of the mapped FEMA floodway (100 Year flood) and is located several feet higher than the frequently flooded portion of the wetland adjacent to the stream, based on topography from Snohomish County's PDS Map Portal system. As a result, the subject wetland unit does not appear to be frequently flooded by overbank flow from Quilceda Creek (flooded at least once in two years). There is a visible difference in vegetation between the Riverine wetland unit and the subject Depressional wetland unit. The vegetation in the Riverine unit appears to be comprised of hardhack (*Spiraea douglasii*, FacW) and willow (*Salix* spp.) while vegetation in the subject wetland unit is represented by the species described below which are less tolerant of frequent disturbance. Finally, none of the field indicators of a Riverine wetland, including scour marks, recent sediment deposits, bent or damaged vegetation resultant from flooding, layered sediment deposits, or flood marks, were observed in the subject wetland.

Based on the above, and using guidance provided by the Washington State wetland rating system for western Washington (2014 Update). This hydrogeomorphic (HGM) class depressional wetland received a total score for functions of 20 points (8 points for Water Quality Functions, 6 points for Hydrologic Functions, and 6 points for Habitat Functions) on the

DOE Wetland Rating Form for Western Washington: 2014 Update. Wetlands with scores between 20 and 22 points for all functions are classified as Category II wetlands per MMC 22E.010.100. In the City of Marysville, Category II wetlands typically receive 100-foot protective buffers from their delineated edge. The buffer of this wetland extends on to the subject site.

Vegetation in the subject wetland is represented by a canopy of red alder (*Alnus rubra*, Fac), and western red cedar (*Thuja plicata*, Fac), with salmonberry (*Rubus spectabilis*, Fac), vine maple (*Acer circinatum*, Fac), lady fern (*Athyrium filix-femina*, Fac), and reed canarygrass (*Phalaris arundinacea*, FacW) in the understory. Soils in this wetland have a Munsell color of black (10YR 2/1) with a texture of muck from 0 to 18 inches below the surface. Soils were saturated to the surface during our December 3, 2019 site visit.

### **Quilceda Creek – Type S**

**Cowardin:** Riverine, Lower Perennial, Streambed, Mud (R2SB5)

**City of Marysville Rating:** Type S stream, 100' Buffer

Located approximately 165 feet east of the subject site at its nearest point Quilceda Creek is inventoried by the City of Marysville as an Urban Conservancy Shoreline of the State. Quilceda Creek flows south towards Possession Sound and is known to support both resident and anadromous fish including, candidate Coho salmon (*Oncorhynchus kisutch*), threatened Bull trout (*Salvelinus confluentus*), threatened fall and summer Chinook salmon (*Oncorhynchus tshawytscha*), threatened summer and winter Steelhead (*Oncorhynchus mykiss*), and unlisted cutthroat trout (*Oncorhynchus clarki*). In the City of Marysville, Quilceda Creek is provided a 100-foot protective buffer measured from the ordinary high water mark of the stream. Per MMC22E.010.220(3)b, “any stream adjoined by a wetland or other adjacent habitat area shall have the buffer which applies to the wetland or other habitat area unless the stream buffer requirements are more expansive”. In this instance, the 100-foot wetland buffer is the more restrictive buffer.

### **Non - Wetland**

The majority of the subject site is represented by maintained lawn. Typical vegetation in the lawn is represented by colonial bentgrass (*Agrostis capillaris*, Fac), tall fescue (*Schedonorus arundinaceus*, Fac), oxeye daisy (*Leucanthemum vulgare*, FacU), and English plantain (*Plantago lanceolata*, FacU). Typical soils in the lawn area have a Munsell color of dark brown (10YR 3/3), with a texture of sandy loam from 0 to 18 inches below the surface. Soils were moist during our December 3, 2019 site visit. The slope in the eastern portion of the property that grades to the off-site wetland and stream is forested, represented by a canopy of western red cedar (*Thuja plicata*, Fac), and big leaf maple (*Acer macrophyllum*, FacU), with hazelnut (*Corylus cornuta*, FacU), snowberry (*Symphoricarpos albus*, FacU), sword fern (*Polystichum munitum*, FacU), and

Oregon grape (*Berberis nervosa*, FacU) in the understory. Typical soils on the slope have a Munsell color of brown (10YR 4/3), with a texture of fine sandy loam from 0 to 18 inches below the surface. Soils were dry during our December 3, 2019 site investigation.

NATURAL RESOURCE CONSERVATION SERVICE SOILS DESCRIPTION:

The Natural Resources Conservation Service (NRCS) mapped the subject property as being underlain by Ragnar fine sandy loam, 0 to 8 percent slopes on the flat, western portion of the site, Ragnar fine sandy loam, 8 to 15 percent slopes on the slope in the eastern portion of the property, and Norma loam in the off-site wetland associated with Quilceda Creek.

The NRCS describes the Ragnar series as a moderately well drained soil on outwash plains. The surface layer is typically a dark brown fine sandy loam about two inches thick. The upper part of the subsoil is dark brown and brown sandy loam about 22 inches thick. Included in this unit are areas of Everett, Indianola, Pastik and Wilson soils on terraces and outwash plains. Included areas make up about 15 percent of the total acreage.

Norma loam is described as a very deep poorly drained soil in depressional areas on outwash plains and till plains. It formed in alluvium. Typically the surface layer is very dark gray loam about 10 inches thick. The subsoil is dark grayish brown sandy loam about 18 inches thick. Included in this unit are small areas of soils that have a surface layer and subsoil of silt loam and soils that have a gravelly and sandy subsoil. Also included are areas of Bellingham and Custer soils and Terric medisaprists in depressional areas. Included areas make up about 15 percent of the total acreage. Permeability of this soil is moderately rapid. Available water capacity is moderate. This soil is listed as hydric in the Hydric Soils List for Washington.

### **BUILDING SETBACKS**

Per MMC22E.010.380 (Building setbacks). “Unless otherwise provided, buildings and other structures shall be set back a distance of 15 feet from the edges of all critical area buffers or from the edges of all critical areas, if no buffers are required. The following may be allowed in the building setback area:

- (1) Landscaping;
- (2) Uncovered decks;
- (3) Building overhangs, if such overhangs do not extend more than 18 inches into the setback area; and
- (4) Impervious ground surfaces, such as driveways and patios; provided, that such improvements may be subject to water quality regulations as adopted. (Ord. 2852 § 10 (Exh. A), 2011).”

## EXISTING FUNCTIONS AND VALUES ANALYSIS

The methodologies for this functions and values analysis are based on professional opinion developed through past field analyses and interpretations. This assessment pertains specifically to the subject stream and wetland system, but is typical for assessments of similar systems throughout western Washington. The three main functions provided by wetlands include water quality, stormwater / hydrologic control, and wildlife habitat. The on-site wetland and stream corridor is forested, dominated by native trees and shrubs. The majority of the wetland buffer on the subject site is represented by maintained lawn / pasture.

Quilceda Creek provides important functions including hydrologic transport, transport of solids (suspended and dissolved), and habitat for a variety of fish and wildlife species. As discussed previously in this report, Quilceda Creek provides habitat for anadromous and resident salmonid fish species. The wetland associated with this stream aids in water quality and hydrologic control, resulting in cleaner water entering the stream's channel. The established trees and shrubs within the wetland and a portion of the on-site buffer provide important ecological functions. The root action of this vegetation serves to aid with soil / bank stabilization, thus reducing erosion and sedimentation among the stream channel. In addition, the large trees within the wetland and buffer provide a future source of large woody debris (LWD) to the stream and wetland. Large woody debris is known to increase functions within stream channels, including reducing water velocity, providing shade for fish and other aquatic species, and habitat for terrestrial species. In addition to the LWD recruitment, the trees and shrubs among the riparian corridor also aid in the recruitment of organic matter to the stream and wetland environments.

Wetlands in western Washington often contain necessary wildlife habitat resources such as food, water, thermal cover, and hiding cover in close proximity, and the undisturbed vegetated areas within this stream corridor provide a secure corridor for wildlife movement. The subject wetlands provide a moderate level of habitat for wildlife species as evidenced by Habitat Function scores on the Wetland Rating Form for Western Washington: 2014 Update of 6. Due to its vegetative structure, the subject wetland provides habitat for use by many terrestrial wildlife species including birds and mammals. The wetland and associated buffers provide protected habitat, which becomes increasingly important as areas become further populated with humans and habitat areas become fragmented. The wetland and stream adjacent to the subject site are part of a large, contiguous tract of native vegetation. This connectivity results in protected habitat corridors which provide wildlife with increased access to forage and cover resources, maintain species richness and diversity, and decrease the potential for conflict with humans and domestic pets.

The subject wetland and associated stream likely provide habitat for many species of wildlife.



The following avian species were detected on-site: American robin (*Turdus migratorius*), black-capped chickadee (*Poecile atricapillus*), house finch (*Carpodacus mexicanus*), and song sparrow (*Melospiza melodia*).

The established vegetation within the wetland and on the slope portion of the buffer serves to intercept rain fall before it strikes the soil, thereby reducing erosion and improving water quality. Furthermore, the dense vegetation and adsorbent soils serve to trap sediment and pollutants and provide increased water quality functions that aid in a reduction of sediment which results in cleaner water leaving the site. The association of this wetland with Quilceda Creek allows it to moderate stream flows by adsorbing water during storm events and slowly releasing it during periods of lower flows. This reduces peak flooding and helps to protect downstream habitat and ecological resources.

The grasses and forbs in the lawn / pasture portion of the buffer likely serve to filter sediment and pollutants from overland flow, thus improving water quality. However, the lack of vegetative structure limits the potential wildlife habitat value for this area.

## TERMS & CONDITIONS

The environmental consulting work conducted, including this Critical Areas Study (collectively the "Services") is supplied to CH Office, LLC (the "Client") as a means of determining whether any wetlands, streams, and/or fish and wildlife habitats regulated by the City of Marysville Critical Areas Regulations exist on, or adjacent to the site. The Services are provided in accordance with the following General Terms and Conditions (the "Terms"). In accepting the Services provided by *Acre Environmental Consulting, LLC* ("Acre"), the Client voluntarily enters into and agrees to the binding effect of the following Terms.

This report is intended to provide information deemed relevant in the Client's attempt to comply with the regulations currently in effect. The work for this report has conformed to the standard of care employed by professional ecologists in the Pacific Northwest. All other representations or warranties, whether express or implied, are hereby disclaimed concerning the work or this report. This report is based largely on readily observable conditions and, to a lesser extent, on readily ascertainable conditions. No attempt has been made to determine hidden or concealed conditions. If such conditions exist or arise, the information contained in this report may be rendered inaccurate or incomplete based upon those conditions. Acre acts solely as an independent contractor in providing the Services to the Client, and nothing in the provision of such Services shall be construed as creating an agency, partnership, joint venture or other similar legal relationship between Acre and the Client.

Please note that Acre did not provide detailed analyses of other permitting requirements not discussed in this report (i.e., structural, drainage, geotechnical, or engineering requirements).

The laws applicable to Critical Areas are subject to varying interpretations. While Acre observed professional industry standards when completing this review, the information included in this report does not guarantee approval by any federal, state, and/or local permitting agencies. Therefore, all work on this property should not commence until permits have been obtained from all applicable agencies. If there are any questions regarding this report, please contact me at 206.450.7746.

*Acre Environmental Consulting, LLC.*



Louis Emenhiser  
Principal Wetland Ecologist  
Professional Wetland Scientist #1680

## REFERENCES

Cowardin, et al, 1979. Classification of Wetlands and Deepwater Habitats of the United States. U.S.D.I. Fish and Wildlife Service. FWS/OBS-79/31. December 1979.

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

Hruby, T. 2014. Washington State wetland rating system for western Washington – 2014 Update. Publication #14-06-029. Olympia, WA: Washington Department of Ecology

Lichvar, R.W., D.L. Banks, W.N. Kirchner, and N.C. Melvin. 2016. The National Wetland Plant List: 2016 wetland ratings. Phytoneuron 2016-30: 1-17. Published 28 April 2016. ISSN 2153 733X

Marysville Municipal Code. Chapter 22E.010 (Critical Areas Management) December 12, 2019. Marysville, Washington.

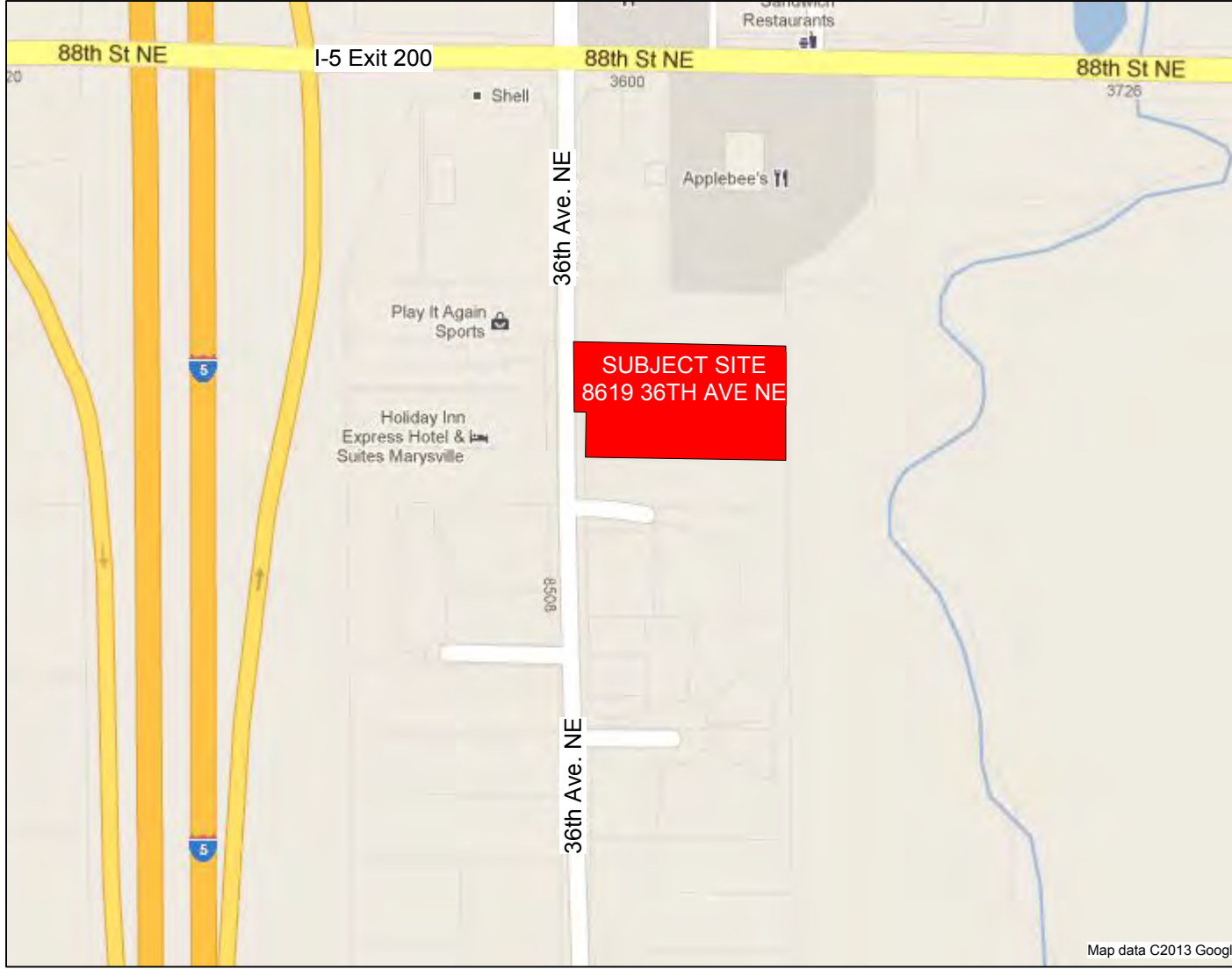
SalmonScape. Interactive Mapping website administered by the Washington Department of Fish and Wildlife. <http://wdfw.wa.gov/mapping/salmonscape/index.html>. Website last visited on December 12, 2019.

StreamNet. Fish Data for the Northwest. Administered by the Pacific States Marine Fisheries Commission. <http://www.streamnet.org/>. Website last visited on December 12, 2019.

U.S. Army Corps of Engineers (2010). "Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0)," ERDC/EL TR-10-3, U.S. Army Engineer Research and Development Center, Vicksburg, MS.

U.S. Fish and Wildlife Service. National Wetlands Inventory Wetlands Mapper. <http://107.20.228.18/Wetlands/WetlandsMapper.html#>. Last modified October 8, 2019. Website last visited on December 12, 2019.

Web Soil Survey. United States Department of Agriculture. Natural Resources Conservation Service. <http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm>. Website last visited on December 12, 2019.



**MAP SHEET: Vicinity**



PREPARED BY:  
 Acre Environmental Consulting, LLC  
 17715 28th Avenue NE  
 Lake Forest Park, WA 98155  
 Phone: (206) 450-7746  
 Email: louis@acreenvironmental.com

VICINITY MAP  
 8619 36TH AVE NE, MARYSVILLE, WA  
 TAX PARCEL NOS. 00459600000202 & 00459600000301

PREPARED FOR:  
 CH Office, LLC  
 PO Box 14424  
 Mill Creek, WA 98082

Acre Job: 19078  
 Drawn By:  
 L. Ementhiser  
 Date: 12.12.19  
 Revision #: N/A

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

Project/Site: 8619 36th Ave NE City/County: Marysville / Snohomish County Sampling Date: 12.03.19  
 Applicant/Owner: CH Office, LLC State: WA Sampling Point: DP1  
 Investigator(s): Louis Emenhiser Section, Township, Range: S21, T30N, R5E, W.M.  
 Landform (hillslope, terrace, etc.): Stream Valley Local relief (concave, convex, none): Concave Slope (%): 0-2 %  
 Subregion (LRR): LRR-A Lat: 48.0744 Long: -122.1810 Datum: \_\_\_\_\_  
 Soil Map Unit Name: Norma Loam NWI classification: PFOC

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

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

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

## VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30 meters</u> )	Absolute % Cover	Dominant Species?	Indicator Status															
1. <u>Alnus rubra</u>	30	Y	Fac	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>6</u> (A) Total Number of Dominant Species Across All Strata: <u>6</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)														
2. <u>Thuja plicata</u>	10	Y	Fac															
3. _____																		
4. _____																		
40 = Total Cover																		
Sapling/Shrub Stratum (Plot size: <u>10 meters</u> )																		
1. <u>Rubus spectabilis</u>	40	Y	Fac+	<b>Prevalence Index worksheet:</b> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; text-align: right;">Total % Cover of:</td> <td style="width: 50%; text-align: left;">Multiply by:</td> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>20</u></td> <td>x 2 = <u>40</u></td> </tr> <tr> <td>FAC species <u>140</u></td> <td>x 3 = <u>420</u></td> </tr> <tr> <td>FACU species <u>0</u></td> <td>x 4 = <u>0</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 = <u>0</u></td> </tr> <tr> <td>Column Totals: <u>160</u> (A)</td> <td><u>460</u> (B)</td> </tr> </table> Prevalence Index = B/A = <u>2.87</u>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>20</u>	x 2 = <u>40</u>	FAC species <u>140</u>	x 3 = <u>420</u>	FACU species <u>0</u>	x 4 = <u>0</u>	UPL species <u>0</u>	x 5 = <u>0</u>	Column Totals: <u>160</u> (A)	<u>460</u> (B)
Total % Cover of:	Multiply by:																	
OBL species <u>0</u>	x 1 = <u>0</u>																	
FACW species <u>20</u>	x 2 = <u>40</u>																	
FAC species <u>140</u>	x 3 = <u>420</u>																	
FACU species <u>0</u>	x 4 = <u>0</u>																	
UPL species <u>0</u>	x 5 = <u>0</u>																	
Column Totals: <u>160</u> (A)	<u>460</u> (B)																	
2. <u>Acer circinatum</u>	30	Y	Fac-															
3. _____																		
4. _____																		
5. _____																		
70 = Total Cover																		
Herb Stratum (Plot size: <u>1 meter</u> )																		
1. <u>Athyrium filix-femina</u>	30	Y	Fac	<b>Hydrophytic Vegetation Indicators:</b> <input checked="" type="checkbox"/> Dominance Test is >50% <input checked="" type="checkbox"/> Prevalence Index is $\bar{A}3.0^1$ Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Wetland Non-Vascular Plants <sup>1</sup> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.														
2. <u>Phalaris arundinacea</u>	20	Y	FacW															
3. _____																		
4. _____																		
5. _____																		
6. _____																		
7. _____																		
8. _____																		
9. _____																		
10. _____																		
11. _____																		
50 = Total Cover																		
Woody Vine Stratum (Plot size: _____)																		
1. _____				<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No _____														
2. _____																		
_____ = Total Cover																		
% Bare Ground in Herb Stratum <u>50</u>																		

Remarks:



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

Project/Site: 8619 36th Ave NE City/County: Marysville / Snohomish County Sampling Date: 12.03.19  
 Applicant/Owner: CH Office, LLC State: WA Sampling Point: DP2  
 Investigator(s): Louis Emenhiser Section, Township, Range: S21, T30N, R5E, W.M.  
 Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Convex Slope (%): 70%  
 Subregion (LRR): LRR-A Lat: 48.0746 Long: -122.1809 Datum: \_\_\_\_\_  
 Soil Map Unit Name: Ragnar fine sandy loam, 8 to 15 percent slopes 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 <input checked="" type="checkbox"/> Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b> Yes _____ No <input checked="" type="checkbox"/>
Remarks: Slope in the eastern portion of the property.	

### VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30 meters</u> )	Absolute % Cover	Dominant Species?	Indicator Status															
1. <u>Thuja plicata</u>	60	Y	Fac	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)  Total Number of Dominant Species Across All Strata: <u>6</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>16</u> (A/B)														
2. <u>Acer macrophyllum</u>	20	Y	FacU															
3. _____																		
4. _____																		
<u>80</u> = Total Cover				<b>Prevalence Index worksheet:</b> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;">Total % Cover of:</th> <th style="width: 50%;">Multiply by:</th> </tr> </thead> <tbody> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>0</u></td> <td>x 2 = <u>0</u></td> </tr> <tr> <td>FAC species <u>60</u></td> <td>x 3 = <u>180</u></td> </tr> <tr> <td>FACU species <u>80</u></td> <td>x 4 = <u>320</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 = <u>0</u></td> </tr> <tr> <td><b>Column Totals:</b> <u>140</u> (A)</td> <td><u>500</u> (B)</td> </tr> </tbody> </table> <p style="text-align: center; margin-top: 10px;">Prevalence Index = B/A = <u>3.57</u></p>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>0</u>	x 2 = <u>0</u>	FAC species <u>60</u>	x 3 = <u>180</u>	FACU species <u>80</u>	x 4 = <u>320</u>	UPL species <u>0</u>	x 5 = <u>0</u>	<b>Column Totals:</b> <u>140</u> (A)	<u>500</u> (B)
Total % Cover of:	Multiply by:																	
OBL species <u>0</u>	x 1 = <u>0</u>																	
FACW species <u>0</u>	x 2 = <u>0</u>																	
FAC species <u>60</u>	x 3 = <u>180</u>																	
FACU species <u>80</u>	x 4 = <u>320</u>																	
UPL species <u>0</u>	x 5 = <u>0</u>																	
<b>Column Totals:</b> <u>140</u> (A)	<u>500</u> (B)																	
<u>30</u> = Total Cover																		
<b>Sapling/Shrub Stratum (Plot size: <u>10 meters</u>)</b>																		
1. <u>Corylus cornuta</u>	20	Y	FacU															
2. <u>Symphoricarpos albus</u>	10	Y	FacU-															
3. _____																		
4. _____																		
5. _____																		
<u>30</u> = Total Cover																		
<b>Herb Stratum (Plot size: <u>1 meter</u>)</b>																		
1. <u>Polystichum munitum</u>	20	Y	FacU															
2. <u>Berberis nervosa</u>	10	Y	FacU															
3. _____																		
4. _____																		
5. _____																		
6. _____																		
7. _____																		
8. _____																		
9. _____																		
10. _____																		
11. _____																		
<u>30</u> = Total Cover																		
<b>Woody Vine Stratum (Plot size: _____)</b>																		
1. _____																		
2. _____																		
_____ = Total Cover																		
% Bare Ground in Herb Stratum <u>70</u>																		

**Hydrophytic Vegetation Indicators:**  
 \_\_\_ Dominance Test is >50%  
 Prevalence Index is  $\bar{A}3.0^1$   
 Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)  
 \_\_\_ Wetland Non-Vascular Plants<sup>1</sup>  
 Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)  
<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic Vegetation Present?** Yes \_\_\_\_\_ No

Remarks:





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

Project/Site: 8619 36th Ave NE City/County: Marysville / Snohomish County Sampling Date: 12.03.19  
 Applicant/Owner: CH Office, LLC State: WA Sampling Point: DP3  
 Investigator(s): Louis Emenhiser Section, Township, Range: S21, T30N, R5E, W.M.  
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 0-2%  
 Subregion (LRR): LRR-A Lat: 48.0744 Long: -122.1816 Datum: \_\_\_\_\_  
 Soil Map Unit Name: Ragnar fine sandy loam, 0 to 8 percent slopes 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 <input checked="" type="checkbox"/> Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b> Yes _____ No <input checked="" type="checkbox"/>
Remarks: Maintained lawn in the central portion of the site.	

### VEGETATION – Use scientific names of plants.

<u>Tree Stratum</u> (Plot size: <u>30 meters</u> )	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				
<u>Sapling/Shrub Stratum</u> (Plot size: <u>10 meters</u> )				
1. _____				
2. _____				
3. _____				
4. _____				
5. _____				
_____ = Total Cover				
<u>Herb Stratum</u> (Plot size: <u>1 meter</u> )				
1. <u>Agrostis tenuis</u>	50	Y	Fac	
2. <u>Festuca arundinacea</u>	30	Y	Fac-	
3. <u>Leucanthemum vulgare</u>	10	N	Nol/Upl	
4. <u>Plantago lanceolata</u>	10	N	FacU+	
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
100 = Total Cover				
<u>Woody Vine Stratum</u> (Plot size: _____)				
1. _____				
2. _____				
_____ = Total Cover				
% Bare Ground in Herb Stratum <u>0</u>				

**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 0 x 1 = 0  
 FACW species 0 x 2 = 0  
 FAC species 80 x 3 = 240  
 FACU species 10 x 4 = 40  
 UPL species 10 x 5 = 50  
 Column Totals: 100 (A) 330 (B)  
 Prevalence Index = B/A = 3.3

**Hydrophytic Vegetation Indicators:**  
 Dominance Test is >50%  
 Prevalence Index is  $\bar{A}3.0^1$   
 Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)  
 \_\_\_\_\_ Wetland Non-Vascular Plants<sup>1</sup>  
 Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)  
<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

<b>Hydrophytic Vegetation Present?</b> Yes _____ No <input checked="" type="checkbox"/>
--

Remarks:



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

Project/Site: 8619 36th Ave NE City/County: Marysville / Snohomish County Sampling Date: 12.03.19  
 Applicant/Owner: CH Office, LLC State: WA Sampling Point: DP4  
 Investigator(s): Louis Emenhiser Section, Township, Range: S21, T30N, R5E, W.M.  
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 0-2%  
 Subregion (LRR): LRR-A Lat: 48.0742 Long: -122.1815 Datum: \_\_\_\_\_  
 Soil Map Unit Name: Ragnar fine sandy loam, 0 to 8 percent slopes NWI classification: \_\_\_\_\_

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

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> _____ Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/> _____	<b>Is the Sampled Area within a Wetland?</b> Yes _____ No <input checked="" type="checkbox"/> _____
Remarks: Maintained lawn in the south, central portion of the site.	

### VEGETATION – Use scientific names of plants.

<u>Tree Stratum</u> (Plot size: <u>30 meters</u> )	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				
<u>Sapling/Shrub Stratum</u> (Plot size: <u>10 meters</u> )	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				
<u>Herb Stratum</u> (Plot size: <u>1 meter</u> )	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Agrostis tenuis</u>	<u>30</u>	<u>Y</u>	<u>Fac</u>	
2. <u>Festuca arundinacea</u>	<u>30</u>	<u>Y</u>	<u>Fac-</u>	
3. <u>Dactylis glomerata</u>	<u>20</u>	<u>Y</u>	<u>FacU</u>	
4. <u>Leucanthemum vulgare</u>	<u>10</u>	<u>N</u>	<u>FacU</u>	
5. <u>Taraxacum officinale</u>	<u>10</u>	<u>N</u>	<u>FacU</u>	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
_____ = Total Cover				
<u>Woody Vine Stratum</u> (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum <u>0</u>				

**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: 0.67 (A/B)

**Prevalence Index worksheet:**  
 Total % Cover of: \_\_\_\_\_ Multiply by: \_\_\_\_\_  
 OBL species 0 x 1 = 0  
 FACW species 0 x 2 = 0  
 FAC species 60 x 3 = 180  
 FACU species 40 x 4 = 160  
 UPL species 0 x 5 = 0  
 Column Totals: 100 (A) 240 (B)  
 Prevalence Index = B/A = 2.4

**Hydrophytic Vegetation Indicators:**  
 Dominance Test is >50%  
 Prevalence Index is  $\bar{A}3.0^1$   
 Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)  
 \_\_\_\_\_ Wetland Non-Vascular Plants<sup>1</sup>  
 Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)  
<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____	
--	--

Remarks:



Wetland name or number A

### RATING SUMMARY - Western Washington

Name of wetland (or ID #): Cornwerstave - Wet A Date of site visit: 10/03/19  
 Rated by: L. Emelshiser Trained by Ecology? X Yes    No Date of training: 9, 30, 14  
 HGM class used for rating: Depressional Wetland has multiple HGM classes? X Y    N

NOTE: Form is not complete without the figures requested (figures can be combined).  
 Source of base aerial photo/map: PDS Map Portal, Google Earth

OVERALL WETLAND CATEGORY II (based on functions X 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	Circle the appropriate ratings			TOTAL
	Improving Water Quality	Hydrologic	Habitat	
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	(M) L	(H) M L	
Score based on ratings	<u>8</u>	<u>6</u>	<u>6</u>	<u>20</u>

Score for each function based on three ratings of ratings (rating is not important)  
 9 = H,H,H  
 8 = H,H,M  
 7 = H,H,L  
 6 = H,M,M  
 5 = H,L,L  
 4 = M,M,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
Interdenial	I II III IV
None of the above	<u>X</u>

Wetland Rating System for Western WA - 2018 Update  
 Rating Form - Effective January 1, 2015

Wetland name or number A

### Maps and figures required to answer questions correctly for Western Washington

#### Depressional Wetlands

Map of:	To answer questions:	Figure #
Coarcted plant classes	013, H1.1, H1.4	<u>3</u>
Hydroperiods	014, H1.2	<u>2</u>
Location of outlet (on the outlet to more hydroperiods)	011, 04.1	<u>2</u>
Boundary of area within 150 ft of the wetland (can be added to another figure)	023, 05.2	<u>3</u>
Map of the contributing basin	043, 05.3	<u>3</u>
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H2.1, H2.2, H2.3	<u>4</u>
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	031, 03.2	<u>5</u>
Screen capture of list of TMDLs for WRIA in which wet is found (from web)	033	<u>5</u>

#### Riverine Wetlands

Map of:	To answer questions:	Figure #
Coarcted plant classes	H1.1, H1.4	<u>3</u>
Hydroperiods	H1.2	<u>2</u>
Fringed riparian areas	R1.1	<u>2</u>
Boundary of area within 150 ft of the wetland (can be added to another figure)	R2.4	<u>2</u>
Plant cover of trees, shrubs, and herbaceous plants	R1.2, R4.2	<u>4</u>
Width of unit vs. width of stream (can be added to another figure)	R4.1	<u>4</u>
Map of the contributing basin	R2.2, R2.3, R5.2	<u>3</u>
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H2.1, H2.2, H2.3	<u>4</u>
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R3.1	<u>5</u>
Screen capture of list of TMDLs for WRIA in which wet is found (from web)	R3.2, R3.3	<u>5</u>

#### Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Coarcted plant classes	L1.1, L4.1, H1.1, H1.4	<u>3</u>
Plant cover of trees, shrubs, and herbaceous plants	L1.2	<u>2</u>
Boundary of area within 150 ft of the wetland (can be added to another figure)	H2.1, H2.2, H2.3	<u>4</u>
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	L3.1, L3.2	<u>3</u>
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	L3.1, L3.2	<u>3</u>
Screen capture of list of TMDLs for WRIA in which wet is found (from web)	L3.3	<u>3</u>

#### Slope Wetlands

Map of:	To answer questions:	Figure #
Coarcted plant classes	H1.1, H1.4	<u>3</u>
Hydroperiods	H1.2	<u>2</u>
Plant cover of dense trees, shrubs, and herbaceous plants	S1.3	<u>3</u>
Plant cover of dense, rigid trees, shrubs, and herbaceous plants (can be added to figure above)	S4.1	<u>3</u>
Boundary of 150 ft buffer (can be added to another figure)	S1.4, S5.1	<u>3</u>
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H2.1, H2.2, H2.3	<u>4</u>
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S3.1, S3.2	<u>3</u>
Screen capture of list of TMDLs for WRIA in which wet is found (from web)	S3.3	<u>3</u>

Wetland Rating System for Western WA - 2014 Update  
 Rating Form - Effective January 1, 2015

Wetland name or number A

### HGM Classification of Wetlands in Western Washington

For questions 1-7, the criteria described must apply to the entire unit being rated. If the hydrologic criteria listed in each question do not apply in 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 *Absent* wetlands. If it is Saltwater Tidal Fringe it is an *Estuarine* wetland and is not scored. This method cannot be used in 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 0.6 ft (0.2 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/1m deep 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

YES - The wetland class is **Riverine**

NO - go to 6  
NOTE: The Riverine unit can contain depressions that are filled with water when the river is not flooding.

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

NO - go to 7

YES - The wetland class is **Depressional**

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

NO - go to 8

YES - The wetland class is **Depressional**

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

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

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

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

Wetland name or number **A**

**DEPRESSIONAL AND FLATS WETLANDS**  
**Water Quality Functions - Indicators that the site functions to improve water quality**

D 1.0. Does the site have the potential to improve water quality?	
D 1.1. Characteristics of surface water additions from the wetland: Wetland is a depression or flat depression (QUESTION 7 on key) with no surface water leaving it (no outlet). Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet. Wetland has an unconfined, or slightly constricted, surface outlet that is permanently flowing.	points = 3 points = 1 points = 2
D 1.2. The wetland is a flat depression (QUESTION 7 on key) whose outlet is a permanently flowing ditch. Wetland has an unconfined, or slightly constricted, surface outlet that is permanently flowing.	points = 1 points = 1
D 1.3. Characteristics and distribution of sediments, algae (emphatic), Sphagnum and/or forested Charadriid clumps: Wetland has persistent, ungrazed plants > 55% of area Wetland has persistent, ungrazed plants > 1/3 of area Wetland has persistent, ungrazed plants > 1/10 of area Wetland has persistent, ungrazed plants < 1/10 of area	points = 4 points = 5 points = 3 points = 1 points = 0
D 1.4. Characteristics of seasonal standing or inundation: This is the area that is ponded for at least 2 months. See description in manual Area seasonally ponded is > 5% total area of wetland Area seasonally ponded is > 1% total area of wetland Area seasonally ponded is < 1% total area of wetland	points = 4 points = 2 points = 0
Total for D 1	19
Add the points in the boxes above.	
Rating of Site Potential If score is: $X_{12-16} = H$ $6-11 = M$ $0-5 = L$ Record the rating on the first page	
D 2.0. Does the landscape have the potential to support the water quality function of the site?	Yes = 1 No = 0
D 2.1. Does the wetland unit receive stormwater discharges?	Yes = 1 No = 0
D 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants?	Yes = 1 No = 0
D 2.3. Are there any storm systems within 250 ft of the wetland?	Yes = 1 No = 0
D 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1, D 2.2 or D 2.3?	Yes = 1 No = 0
Total for D 2	1
Add the points in the boxes above.	
Rating of Landscape Potential If score is: $3 \text{ or } 4 = H$ $X_{1 \text{ or } 2} = M$ $0 = L$ Record the rating on the first page	
D 3.0. Is the water quality improvement provided by the site valuable to society?	Yes = 1 No = 0
D 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or visible water that is on the 303(d) list?	Yes = 1 No = 0
D 3.2. Is the wetland in a basin or sub-basin where an aquatic resource is on the 303(d) list?	Yes = 1 No = 0
D 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality (answer YES if there is a TMDL for the basin to which the unit is found)?	Yes = 2 No = 0
Total for D 3	4
Add the points in the boxes above.	
Rating of Value If score is: $X_{2-4} = H$ $1 = M$ $0 = L$ Record the rating on the first page	

Wetland name or number **A**

**DEPRESSIONAL AND FLATS WETLANDS**  
**Hydrologic Functions - Indicators that the site functions to reduce flooding and stream degradation**

D 4.0. Does the site have the potential to reduce flooding and erosion?	
D 4.1. Characteristics of surface water outflows from the wetland: Wetland is a depression or flat depression with no surface water leaving it (no outlet). Wetland has an unconfined, flowing stream or ditch, OR highly constricted permanently flowing outlet (points = 2). Wetland is a flat depression (QUESTION 7 on key) whose outlet is a permanently flowing ditch. Wetland has an unconfined, or slightly constricted, surface outlet that is permanently flowing.	points = 4 points = 2 points = 1 points = 0
D 4.2. Depth of surface drainage wetland. Estimate the height of ponding above the bottom of the outlet. For wetlands with no outlet, measure from the surface of permanent water or 7' dry, the deepest part. Meals of ponding are 3 ft or more above the surface or bottom of outlet. Meals of ponding between 2 ft to < 3 ft from surface or bottom of outlet. Meals are at least 0.5 ft to < 2 ft from surface or bottom of outlet. The wetland is a "headwater" wetland. Wetland is that has small depressions on the surface that trap water. Meals of ponding less than 0.5 ft (6 in).	points = 7 points = 5 points = 3 points = 3 points = 1 points = 0
D 4.3. Contribution of the wetland to storage in the watershed. Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself. The area of the basin is less than 10 times the area of the unit. The area of the basin is 10 to 100 times the area of the unit. The area of the basin is more than 100 times the area of the unit. There is no outlet in the flat class.	points = 5 points = 3 points = 0 points = 5
Total for D 4	8
Add the points in the boxes above.	
Rating of Site Potential If score is: $12-16 = H$ $6-11 = M$ $0-5 = L$ Record the rating on the first page	
D 5.0. Does the landscape have the potential to support hydrologic functions of the site?	Yes = 1 No = 0
D 5.1. Does the wetland receive stormwater discharges?	Yes = 1 No = 0
D 5.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate excess runoff?	Yes = 1 No = 0
D 5.3. Is more than 25% of the contributing basin of the wetland covered with extensive human land uses (residential at > 1 residence/acre, urban, commercial, agriculture, etc.)?	Yes = 1 No = 0
Total for D 5	2
Add the points in the boxes above.	
Rating of Landscape Potential If score is: $1 = H$ $X_{1 \text{ or } 2} = M$ $0 = L$ Record the rating on the first page	
D 6.0. Are the hydrologic functions provided by the site valuable to society?	
D 6.1. The unit is in a sub-basin that has flooding problems. Choose the description that best matches conditions around the wetland unit being rated. Do not add points. Choose the highest score if more than one description fits. Note: The wetland captures surface water that would otherwise flow down-gradient into areas where flooding has damaged human or natural resources (e.g., houses or salmon rodds): <ul style="list-style-type: none"> <li>Flooding occurs in a sub-basin that is immediately down-gradient of unit</li> <li>Surface flooding problems are in a sub-basin (either down-gradient)</li> <li>Flooding from groundwater is an issue in the sub-basin.</li> </ul> The existing or potential outflow from the wetland is so constricted by human or natural conditions that the water stored by the wetland cannot reach areas that flood. Explain why: _____ There are no problems with flooding downstream of the wetland.	points = 2 points = 1 points = 1 points = 0
D 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
Total for D 6	1
Add the points in the boxes above.	
Rating of Value If score is: $2-4 = H$ $X_{1} = M$ $0 = L$ Record the rating on the first page	

Wetland name or number **A**

**HABRAT FUNCTIONS** - Indicators that site functions to provide important habitat

<p>H 1.0. Does the site have the potential to provide habitat?</p> <p>H 1.1. Structure of plant community: Indicators on Cowardin classes only from within the Forested class. Check the (open) plant classes in the wetland. Up to 10 patches may be circled/checked for each class to meet the threshold of 1/8 ac or more than 10% of the unit. If it is smaller than 2.5 ac, Add the number of structures checked.</p> <p><input checked="" type="checkbox"/> Emergent  <input checked="" type="checkbox"/> Shrub-swamp (areas where shrubs have &gt; 30% cover)  <input checked="" type="checkbox"/> Forested lakes where trees have &gt; 50% cover  <input checked="" type="checkbox"/> If the unit has a Forested class, check if:  <input checked="" type="checkbox"/> The Forested class has 3 out of 5 strata (terrestrial, sub-canopy, shrubs, herbaceous, moss/ground cover) that each cover 20% within the Forested polygon</p>	<p>4 structures or more: points = 4            3 structures: points = 3            2 structures: points = 2            1 structure: points = 0</p>	<p><b>4</b></p>
<p>H 1.2. Hydroperiod            Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or 1/8 ac to count (see text for descriptions of hydroperiods).</p> <p><input type="checkbox"/> Permanently flooded or inundated  <input checked="" type="checkbox"/> Seasonally flooded or inundated  <input checked="" type="checkbox"/> Occasionally flooded or inundated  <input type="checkbox"/> Seasonally flooded only  <input checked="" type="checkbox"/> Permanently flowing stream or river or adjacent to, the wetland  <input checked="" type="checkbox"/> Seasonally flowing stream or adjacent to, the wetland  <input type="checkbox"/> Lake fringe wetland  <input type="checkbox"/> Freshwater tidal wetland</p>	<p>4 or more types present: points = 5            3 types present: points = 2            2 types present: points = 1            1 type present: points = 0</p>	<p><b>1</b></p>
<p>H 1.3. Richness of plant species            Count the number of plant species in the wetland that cover at least 30 m<sup>2</sup>. 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 <i>Eriogonum multifidum</i>, <i>reed canarygrass</i>, <i>purple loosestrife</i>, <i>Common Nettle</i>.            If you counted &gt; 15 species:            5 - 15 species: points = 2            &lt; 5 species: points = 0</p>	<p><b>2</b></p>	<p><b>2</b></p>
<p>H 1.4. Interpenetration of habitats            Decide from the diagrams below whether interpenetration among Cowardin plant classes (identified 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.</p> <p>None = 0 points            Low = 1 point            Moderate = 2 points            High = 3 points</p>	<p><b>3</b></p>	<p><b>3</b></p>

Wetland name or number **A**

H 1.5. Special habitat features:

<p>Open the habitat features that are present in the wetland. The number of checks is the number of points.</p> <p><input checked="" type="checkbox"/> Large, downed, woody debris within the wetland (2-4 in diameter and 6 ft long)  <input checked="" type="checkbox"/> Standing snags (dbh &gt; 4 in) within the wetland  <input checked="" type="checkbox"/> Undercut banks are present for at least 5.6 ft (2 m) and/or overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) or, or contiguous with the wetland, for at least 33 ft (10 m)  <input type="checkbox"/> Stable steep banks of fine material that might be used by beaver or muskrat for denning (2-30 degree slope) OR signs of beaver activity are present (cut snags or trees that have not yet weathered where wood is exposed)  <input checked="" type="checkbox"/> At least 1/8 ac of low, unimproved persistent plants or woody herbaceous are present in areas that are permanently or seasonally inundated (structures for egg-laying by amphibians)  <input type="checkbox"/> Invasive plants cover less than 25% of the wetland area in every stratum of fields (see H 2.1 for list of plants)</p>	<p>4</p>
<p>Total for H 1</p>	<p><b>19</b></p>
<p>Rating of Site Potential if score is: <math>15-18 = H</math> <input checked="" type="checkbox"/> <math>7-14 = M</math> <input type="checkbox"/> <math>0-6 = L</math></p>	<p>Record the rating on the first page</p>
<p>H 2.0. Does the landscape have the potential to support the habitat functions of the site?</p> <p>H 2.1. Accessible habitat (include only habitat that directly abuts wetland unit).            Calculate:            % undisturbed habitat <math>3 = 10\%</math> (moderate and low intensity land uses)            If total accessible habitat is:            &gt; 1/3 (33.3%) of 1 km Polygon            20-33% of 1 km Polygon            10-20% of 1 km Polygon            &lt; 10% of 1 km Polygon</p>	<p>points = 3            points = 2            points = 1            points = 0</p>
<p>H 2.2. Undisturbed habitat in 1 km Polygon around the wetland            Calculate:            % undisturbed habitat <math>12 = 11\%</math> (moderate and low intensity land uses)            Undisturbed habitat &gt; 50% of Polygon            Undisturbed habitat 10-50% and in 1-3 patches            Undisturbed habitat 10-50% and &gt; 3 patches            Undisturbed habitat &lt; 10% of 1 km Polygon</p>	<p>points = 3            points = 2            points = 1            points = 0</p>
<p>H 2.3. Land use intensity in 1 km Polygon if            &gt; 50% of 1 km Polygon is high intensity land use            &gt; 50% of 1 km Polygon is high intensity</p>	<p>points = (-) 2            points = 0</p>
<p>Total for H 2</p>	<p><b>-2</b></p>
<p>Rating of Landscape Potential if score is: <math>4-6 = H</math> <input type="checkbox"/> <math>3-4 = M</math> <input checked="" type="checkbox"/> <math>0-1 = L</math></p>	<p>Add the points in the boxes above</p>
<p>H 3.0. Is the habitat provided by the site valuable to society?</p> <p># 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 AWR of the following criteria:  <input type="checkbox"/> It has 3 or more priority habitats within 100 m (see next page)  <input type="checkbox"/> It provides habitat for threatened or endangered species (any plant or animal on the state or federal lists)  <input type="checkbox"/> It is occupied as a location for an individual WRPV priority species  <input type="checkbox"/> It is a Wetland of High Conservation Value as determined by the Department of Natural Resources  <input type="checkbox"/> It has been categorized as an important habitat site in a local or regional land-use/conservation plan, or a Shoreline Master Plan, or in a wetland plan.            Site has 1 or 2 priority habitats (based on next page) within 100 m</p>	<p>points = 2            points = 1            points = 0</p>
<p>Rating of Value if score is: <math>2 = H</math> <input checked="" type="checkbox"/> <math>1 = M</math> <input type="checkbox"/> <math>0 = L</math></p>	<p>Record the rating on the first page</p>





Wetland name or number **A**

<p><b>SC 4.B. Forested Wetlands</b></p> <p>Does the wetland have at least 1 continuous 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 only need to rate the wetland based on its functions.</p> <ul style="list-style-type: none"> <li>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/ha) that are at least 200 years of age OR have a diameter at breast height (DBH) of 32 in (81 cm) or more.</li> <li>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).</li> </ul> <p>Yes = Category I          No = Not a forested wetland for this section</p>	<p>Cat. I</p>
<p><b>SC 5.B. Wetlands in Coastal Lagoons</b></p> <p>Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?</p> <ul style="list-style-type: none"> <li>The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, ditches, or less frequently, rocks.</li> <li>The lagoon in which the wetland is located contains ponded water that is saline or brackish (i.e. 0.5 part during most of the year or at least a portion of the lagoon (except for irregularly flooded wetlands).</li> </ul> <p>Yes = Co to SC 5.1          No = Not a wetland in a coastal lagoon</p> <p><b>SC 5.1. Does the wetland meet all of the following three conditions?</b></p> <ul style="list-style-type: none"> <li>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).</li> <li>At least 5% of the broadest edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.</li> <li>The wetland is larger than 1/4 ac (4350 ft<sup>2</sup>).</li> </ul> <p>Yes = Category I          No = Category II</p>	<p>Cat. I          Cat. II</p>
<p><b>SC 6.0. Inland Wetlands</b></p> <p>Is the wetland west of the 1289 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.</p> <ul style="list-style-type: none"> <li>Long Beach Peninsula Lands west of SR 103</li> <li>Straited Westport Lands west of SR 105</li> <li>Neven Shore-Copalis Lands west of SR 115 and SR 109</li> </ul> <p>Yes = Co to SC 6.1          No = not an Inland wetland for rating</p> <p><b>SC 6.1. Is the wetland 1 ac or larger and scores on 8 of 9 for five habitat functions on the form (see H.I.H or H.I.M. for the three aspects of function)?</b></p> <p>Yes = Category I          No = Co to SC 6.2</p> <p><b>SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger?</b></p> <p>Yes = Category I          No = Co to SC 6.3</p> <p><b>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?</b></p> <p>Yes = Category III          No = Category IV</p> <p>Category of wetland based on Special Characteristics:          If you answered No for all items under "Habitat Functions" on Summary Form</p>	<p>Cat. I          Cat. II          Cat. III          Cat. IV</p>

Wetland name or number **A**

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Map measurements used to determine answers for H2.0.

- 1km area - 62,462,780 SF
- Moderate & low intensity land use (LU) - 8,975,928 SF 14%
- Accessible moderate & low intensity LU - 0 SF
- Relatively undisturbed LU - 9,203,961 SF 15%
- Accessible relatively undisturbed LU - 1,701,843 SF 3%
- High Intensity Land Use - 44,282,891 SF 71%

RATING ANSWERS FOR WETLAND A

D1.1 & D4.1 Wetland has an unconstricted, permanently flowing stream outlet.

D1.3 Wetland has persistent ungrazed plants > 95% of the area.

D1.4 Area that is seasonally ponded is >1/2 total area of the wetland.

D2.2 & D5.2 Greater than 10% of the area within 150' of Wetland A is in land use that generates pollutants and excess runoff (~60%).

D4.3 the contributing basin for Wetland A is ~21,861,408 square feet in size / the ~1,653,762 square foot wetland rating unit = 13.22 (basin is 10 to 100 times the area of the unit).

D5.3 Greater than 25% of the contributing basin of Wetland A is covered with intensive land uses.

H1.1 & H1.4 The wetland contains emergent, scrub-shrub, and forested vegetation, with high interspersions. The forested class has 3 out of 5 strata that each cover 20% within the forested polygon.

H1.2 The wetland contains occasionally flooded or inundated and permanently flowing stream hydroperiods.

Acre Job: 19078  
Drawn By:  
L. Emenhiser  
Figure 1 of 6  
Date: 12.05.2019  
Rev #:

PREPARED FOR:  
CH Office, LLC  
PO Box 14424  
Mill Creek, WA 98082

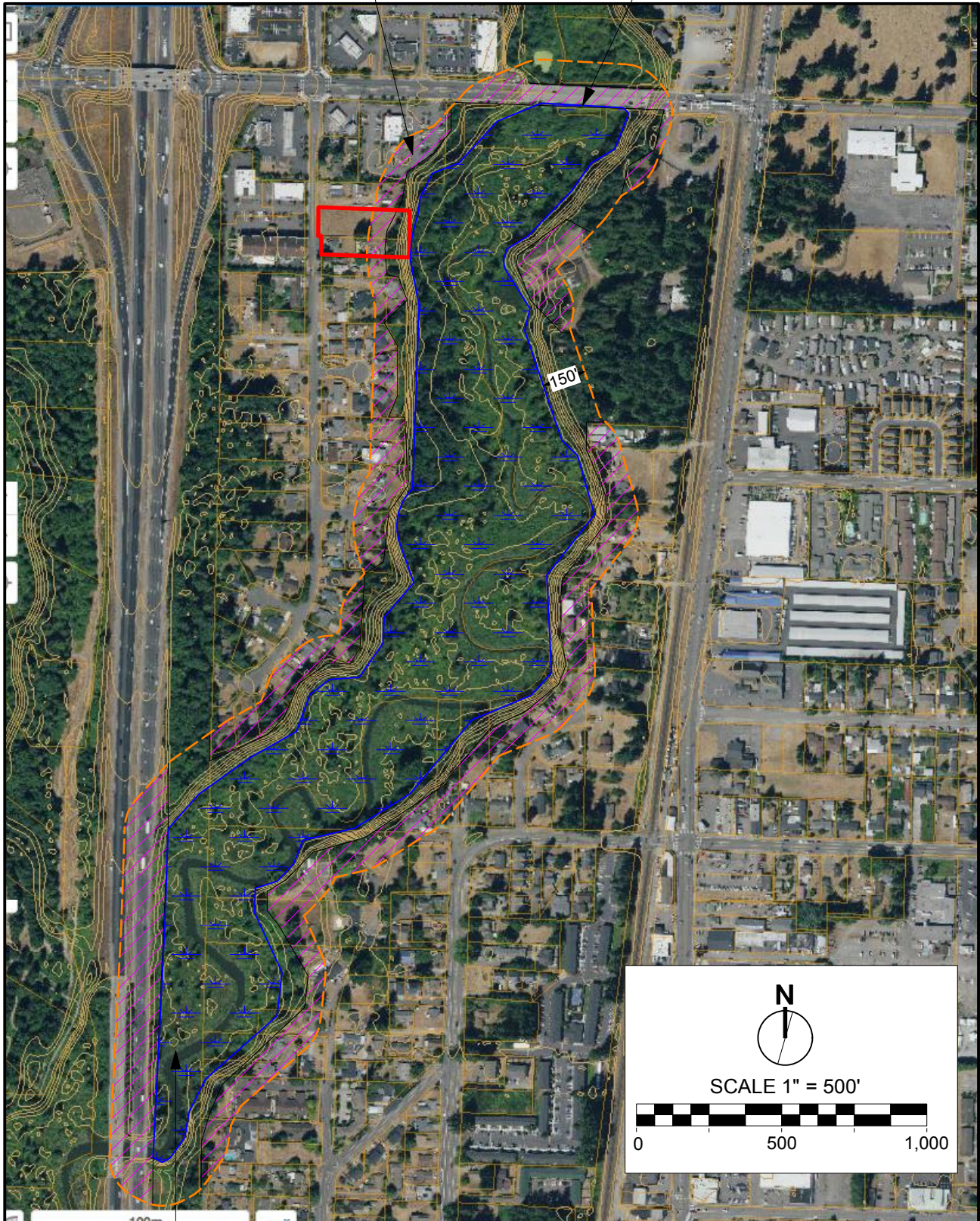
WETLAND RATING NOTES  
8619 36TH AVE NE  
MARYSVILLE, WA  
TAX PARCEL NOS. 00459600000202 & 00459600000301

PREPARED BY:  
Acre Environmental Consulting, LLC  
17715 28th Avenue NE  
Lake Forest Park, WA 98155  
Phone: (206) 450-7746  
Email: louis@acreenvironmental.com



Pollution generating areas (typ.)

Break in wetland rating unit based on unidirectional flow.



Wetland A Rating Unit

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 L. Emenhiser  
 Figure 2 of 6  
 Date: 12.05.2019  
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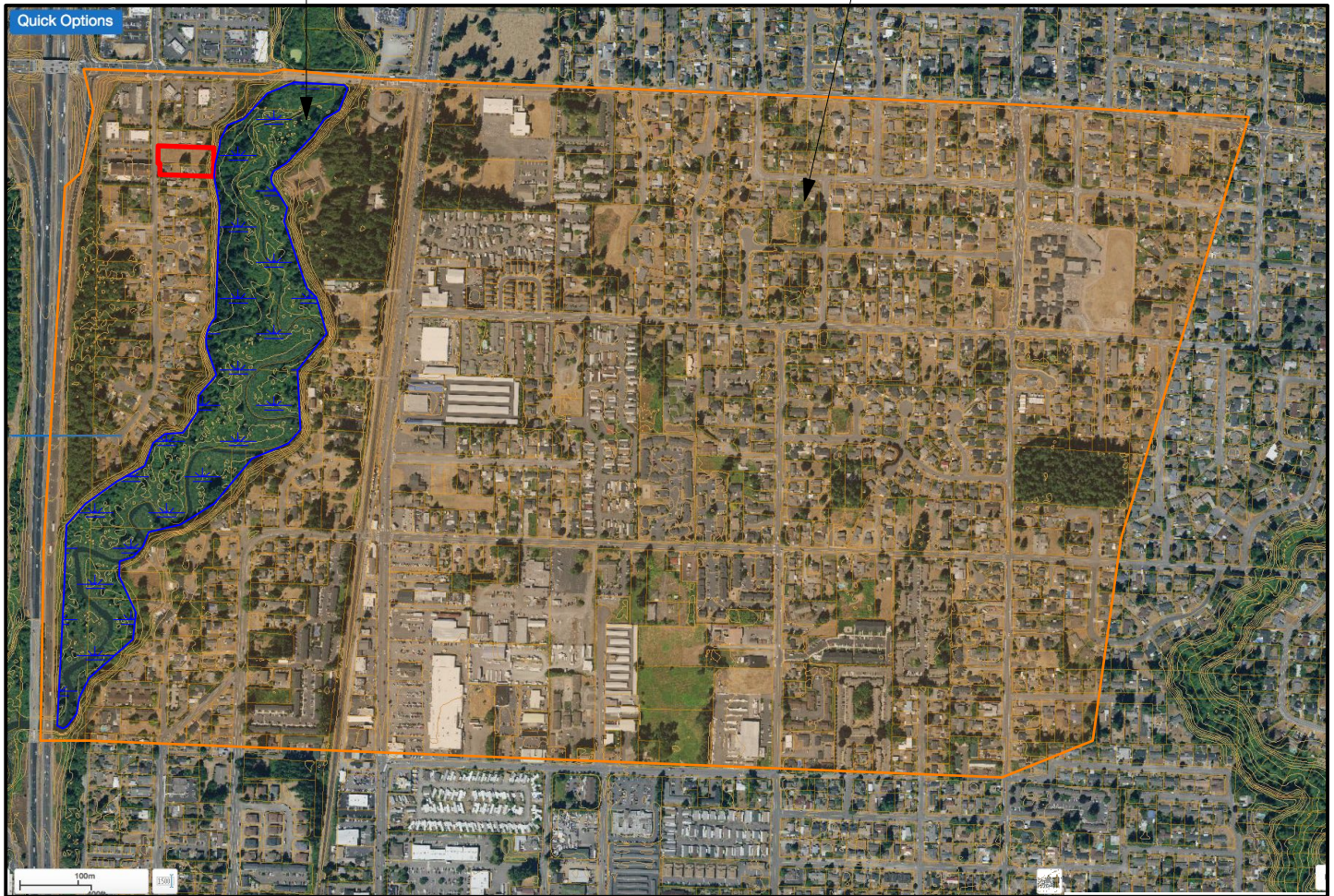
**WETLAND RATING MAP**  
 8619 36TH AVE NE  
 MARYSVILLE, WA  
 TAX PARCEL NOS. 0045960000202 & 0045960000301

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 Acre Environmental Consulting, LLC  
 17715 28th Avenue NE  
 Lake Forest Park, WA 98155  
 Phone: (206) 450-7746  
 Email: louis@acreenvironmental.com



Wetland A Rating Unit

Contributing Basin for Wetland A



SCALE 1" = 1,000'



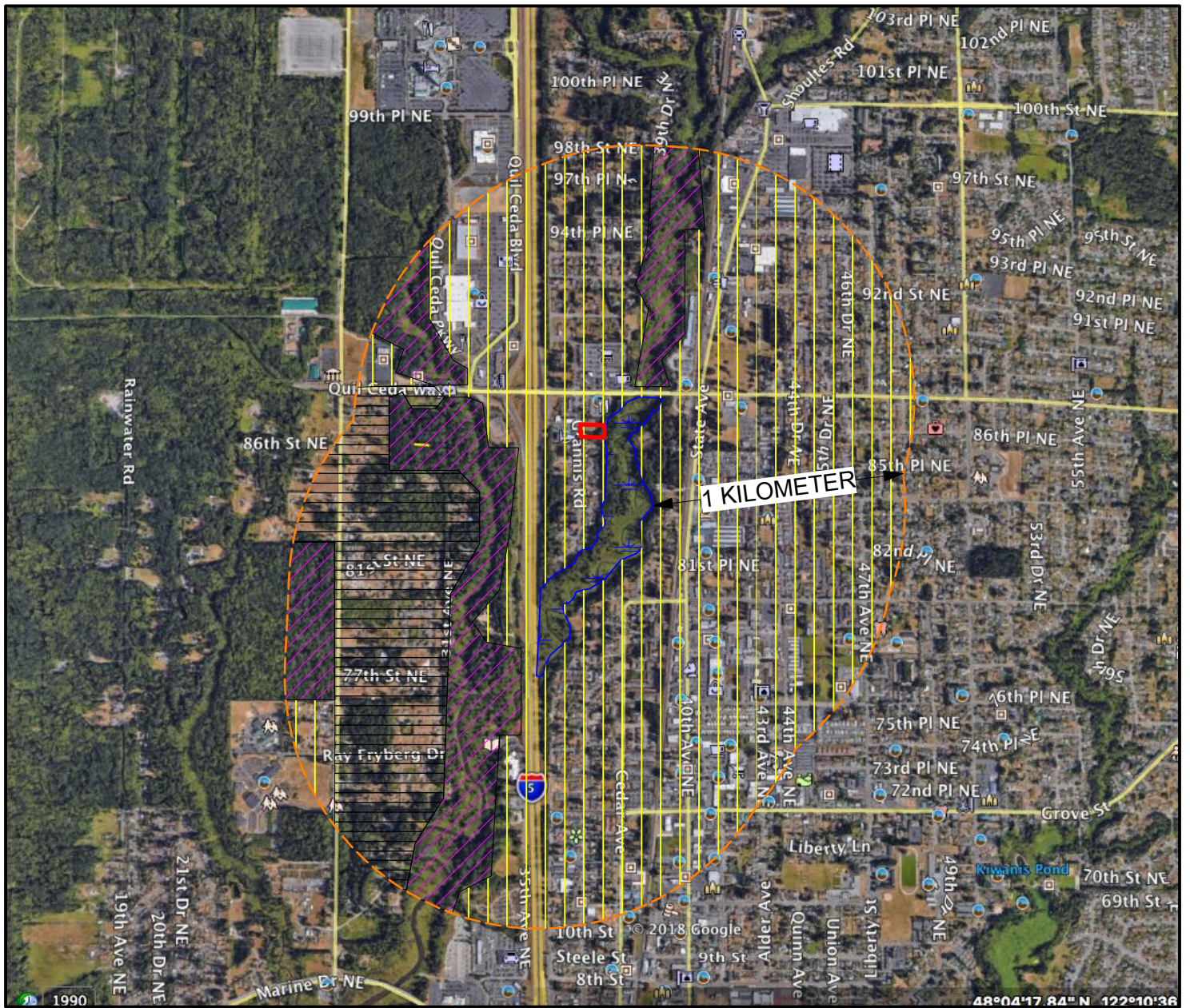
Acre Job: 19078  
Drawn By:  
L. Emenhiser  
Figure 3 of 6  
Date: 12.05.2019  
Rev #:

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


**CONTRIBUTING BASIN MAP**  
8619 36TH AVE NE  
MARYSVILLE, WA  
TAX PARCEL NOS. 00459600000202 & 00459600000301

**PREPARED BY:**  
Acre Environmental Consulting, LLC  
17715 28th Avenue NE  
Lake Forest Park, WA 98155  
Phone: (206) 450-7746  
Email: louis@acreenvironmental.com



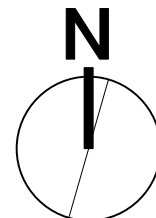


**LEGEND**

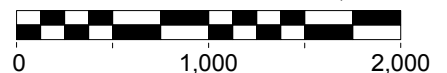
-  SUBJECT WETLAND
-  HIGH INTENSITY LAND USE
-  MODERATE, AND LOW INTENSITY LAND USE
-  RELATIVELY UNDISTURBED LAND
-  ONE KILOMETER POLYGON LINE

Note: Land use definitions are derived from H2.0 Table 3 of the Wetland Rating System for Western WA: 2014 Update

This map was used to derive answers for questions H2.1, H2.2, and H2.3.



APPROX. SCALE 1" = 1,000'



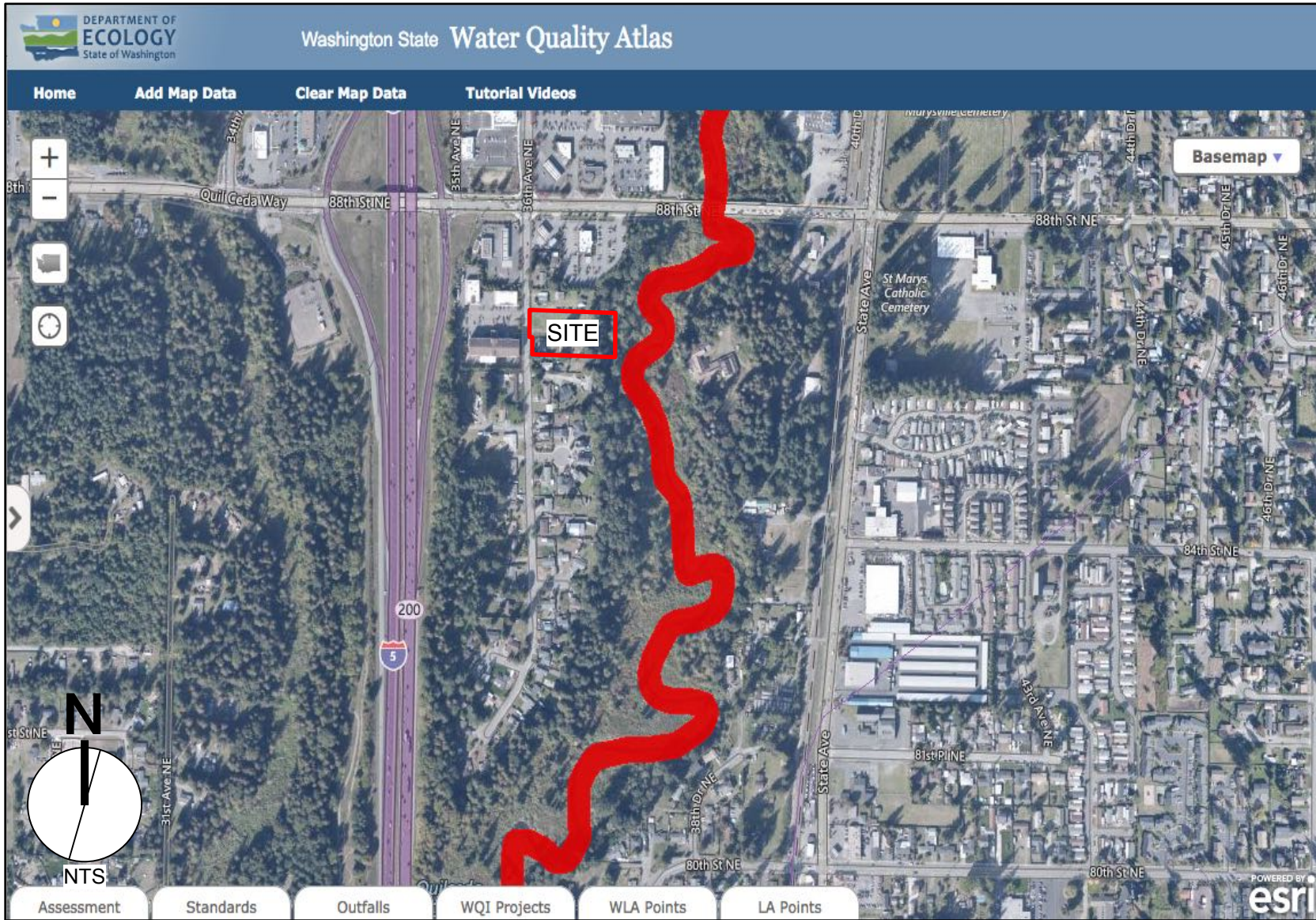
Acre Job: 19078  
 Drawn By: L. Emenhiser  
 Figure 4 of 6  
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**1KM POLYGON MAP (UNDISTURBED & ACCESSIBLE HABITAT)**  
 8619 36TH AVE NE  
 MARYSVILLE, WA  
 TAX PARCEL NOS. 0045960000202 & 0045960000301

**PREPARED BY:**  
 Acre Environmental Consulting, LLC  
 17715 28th Avenue NE  
 Lake Forest Park, WA 98155  
 Phone: (206) 450-7746  
 Email: louis@acreenvironmental.com





D3.1 The subject wetland discharges directly (within 1 mile) of Quilceda Creek listed on the 303(d) list.

D3.2 The subject wetland is located in a basin or sub-basin with an aquatic resource listed on the 303(d) list.

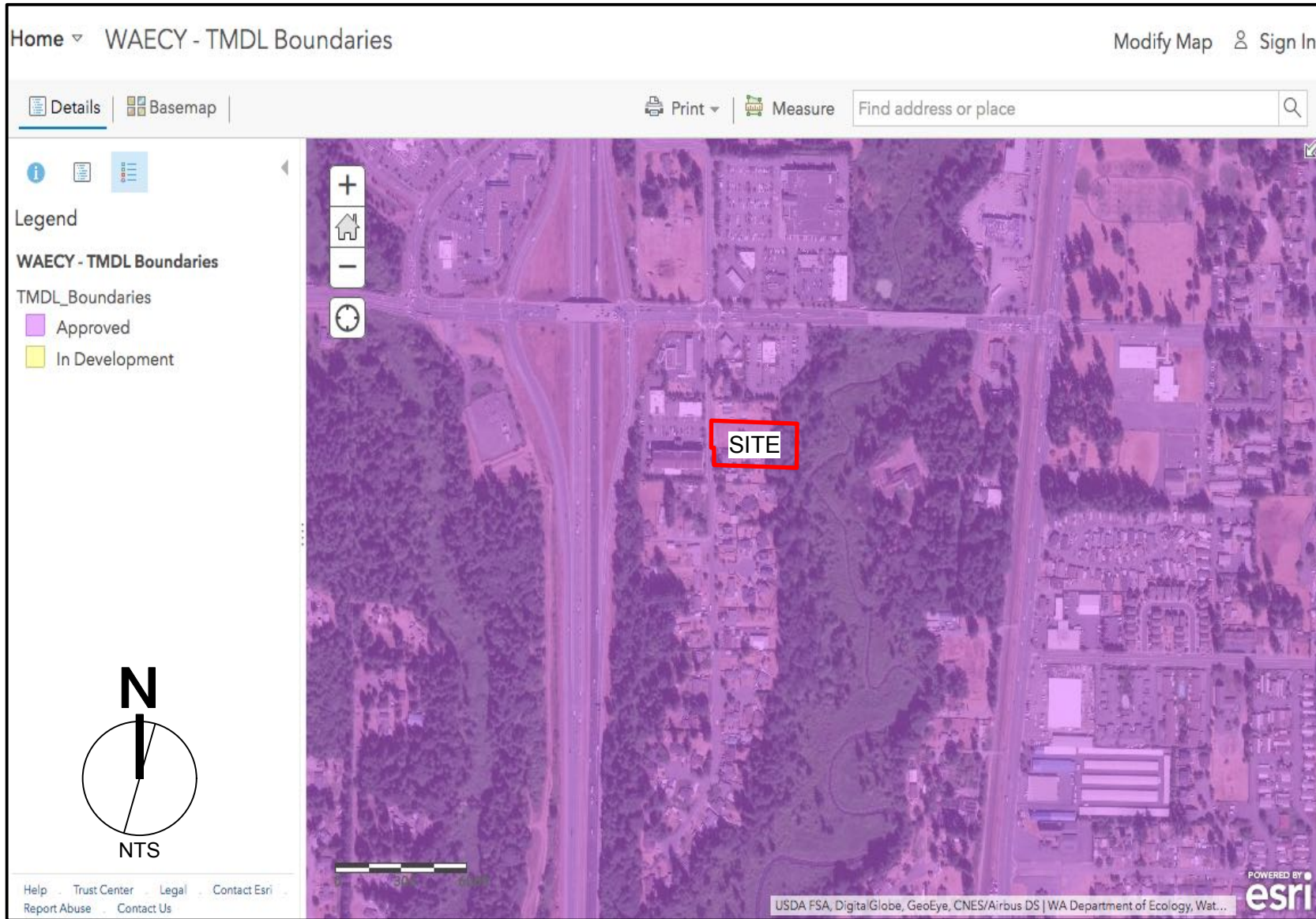


PREPARED BY:  
 Acre Environmental Consulting, LLC  
 17715 28th Avenue NE  
 Lake Forest Park, WA 98155  
 Phone: (206) 450-7746  
 Email: louis@acreenvironmental.com

DOE 303(d) Waters in Basin (Screen Capture)  
 8619 36TH AVE NE  
 MARYSVILLE, WA  
 TAX PARCEL NOS. 00459600000202 & 00459600000301

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S3.3 Based on the Department of Ecology's TMDL Boundaries webpage, TMDL's have been developed for the Quilceda Creek Basin in which this wetland rating unit is found.



PREPARED BY:  
 Acre Environmental Consulting, LLC  
 17715 28th Avenue NE  
 Lake Forest Park, WA 98155  
 Phone: (206) 450-7746  
 Email: louis@acreenvironmental.com

TMDL'S FOR WR1A 7 (Screen Capture)  
 8619 36TH AVE NE  
 MARYSVILLE, WA  
 TAX PARCEL NOS. 00459600000202 & 00459600000301

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 PO Box 14424  
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 L. Emmerhiser  
 Figure 6 of 6  
 Date: 12.05.2019  
 Rev #:



## Site Photographs for 8619 36<sup>th</sup> Avenue NE



Picture 1: Looking east at the subject wetland. The actual data site is at the pink ribbon.



Picture 2: Looking west at the forested buffer. The actual data site is at the pink ribbon.



Picture 3: Looking southeast at the lawn/pasture buffer.



Picture 4: Looking east at the wetland from the top of slope.



Picture 5: Looking northeast.



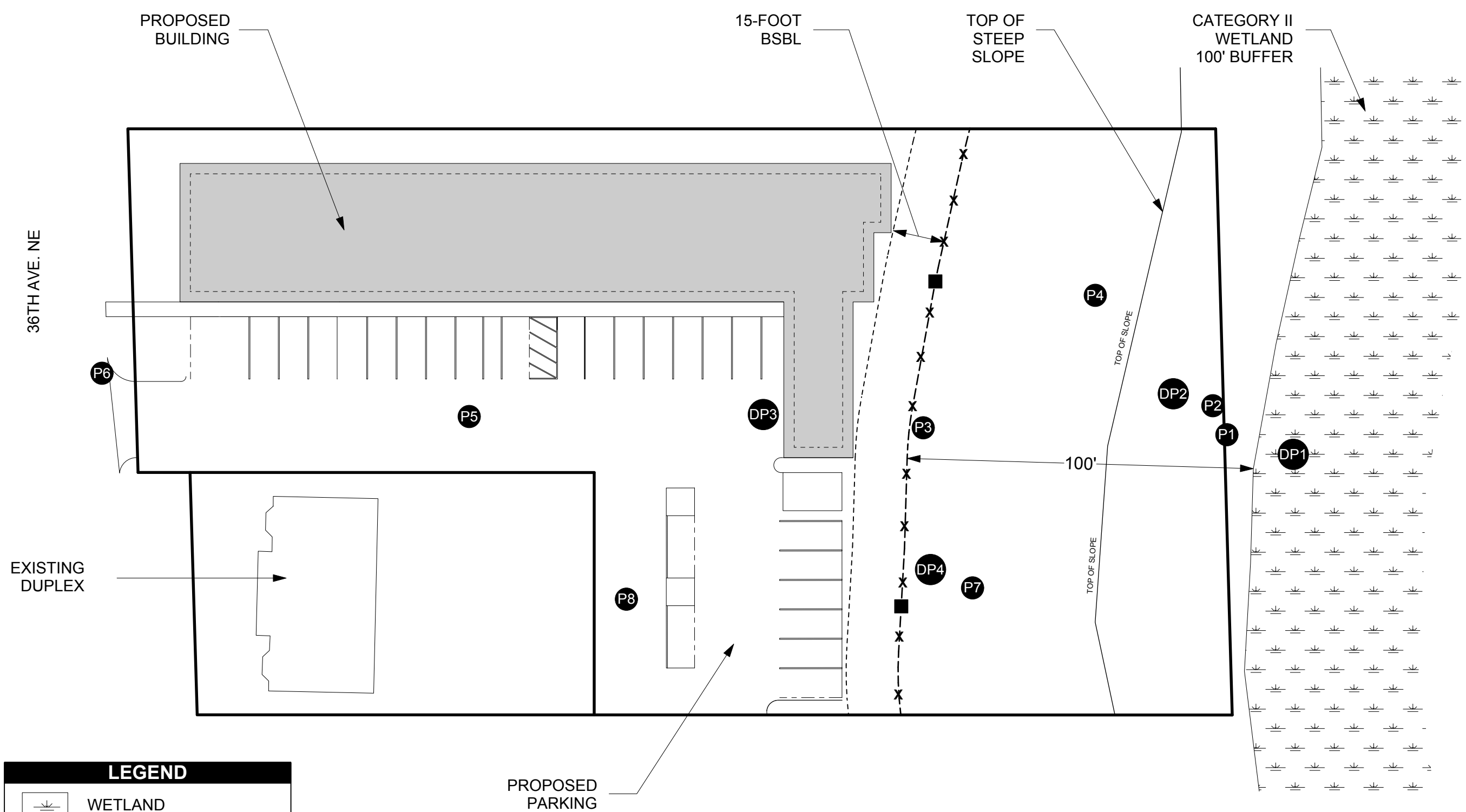
Picture 6: Looking east across the northern portion of the site.










Picture 7: Looking west at the existing duplex in the southwestern portion of the site.



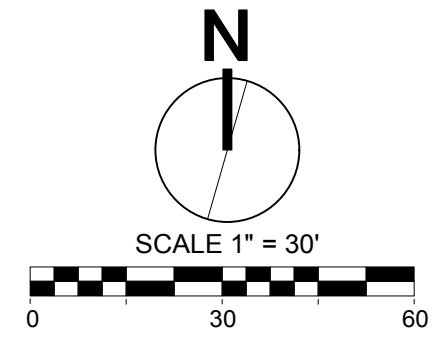
Picture 8: Looking east at the buffer in the southeastern portion of the site.



**LEGEND**

-  WETLAND
-  BUFFER
-  BUILDING SETBACK
-  NGPA SIGN
-  TWO-RAIL FENCE
-  DATA POINT (4 TOTAL)
-  PHOTO POINT (8 TOTAL)

QUILCEDA CREEK  
 TYPE S STREAM  
 100' BUFFER  
 (OHWM IS APPROX. 165'  
 EAST OF THE SUBJECT SITE)



SCALE 1" = 30'