

Report confirmed by City of Olympia
staff and Department of Ecology.
Comments included in red.

**KAPA CONSTRUCTION LLC
CRITICAL AREAS ANALYSIS REPORT:
PARCEL 12825110600**

MARCH 2019



ACERA^{LLC}

Advanced Concepts in Environmental Regulatory Assistance

KAPA CONSTRUCTION LLC

CRITICAL AREAS ANALYSIS REPORT:

PARCEL 12825110600

PREPARED FOR:

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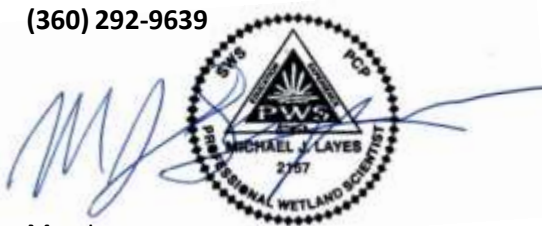
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MARCH 2019

EXECUTIVE SUMMARY

The findings and conclusions presented in this report are based on an interpretation of information currently available to ACERA. This summary is for introductory purposes and should be used only with the full text of this report.

ACERA has completed a critical area assessment at Thurston County Parcel 12825110600, located at 2817 Boulevard Road SE, Olympia, WA (Site). The Site was assessed for regulated wetlands and streams June 28th, 2018. The site investigation resulted in the assessment of one onsite wetland (Wetland A) that contained indicators of wetland hydrology, hydric soils, and a predominance of hydrophytic vegetation which satisfied the criteria set forth in the 1987 U.S. Army Corps of Engineers' *Wetlands Delineation Manual* (Corps 1987) and *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region v2.0* (Corps 2010). Tables 1 and 2 below summarize the assessed wetland(s). Appendix A contains maps and figures. Figure A on the following page is a Wetland Summary Map.

Table 1. Wetland Size, Category, and Buffer Width Summary

Wetland ID	Size (Sq. Ft.)*	Size (Acres)*	Wetland Category ¹	Buffer Width (Feet) ²
A	570	0.01	IV	n/a ³

*Approximate – not a professional survey.

1. Washington State Wetland Rating System for Western Washington: 2014 Update, Hruby 2014.

2. City of Olympia Required Buffer Widths for Wetlands – OMC 18.32.535 Wetlands – Wetland Buffers

3. City of Olympia Wetland Exemption - OMC 18.32.515 Wetlands – Small Wetlands

Table 2. Wetland Classification Summary

Wetland ID	Cowardin Class ¹	HGM Class ²	Dominant Hydrophytic Vegetation and Wetland Indicator Status
A	PFO1C	Depressional	Pacific Willow (FACW), Douglas Spiraea (FACW)

1. Classification of Wetlands and Deepwater Habitats of the United States - Cowardin 1979.

2. Hydrogeomorphic Classification - Washington State Wetland Rating System for Western Washington: 2014 Update, Hruby 2014.



Figure A. Wetland Summary Map

Wetland boundaries/classifications identified by ACERA are considered preliminary until the flagged wetland boundaries/classifications are validated by the regulating agency(ies) with jurisdiction over the Project/Site.

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1.0 INTRODUCTION

ACERA has completed a critical area assessment at Thurston County Parcel 12825110600, located at 2817 Boulevard Road SE, Olympia, WA (Site). The Site is within Section 25, Township 18N, Range 02W, Willamette Meridian. The center of the Site is at: Latitude 47.023155 North / Longitude -122.866561 West. Figures are provided in Appendix A, Wetland Rating Forms in Appendix B, and Wetland Determination Forms in Appendix C.

1.1 Site Description

The Site consists of one parcel that totals 5 acres in size (Figure 1). Access to the Site is from the west side of Boulevard Road SE Lane SW, south of the intersection of 28th Avenue E. The Site is undeveloped. The eastern portion of the Site has been recently cleared of brush. The western portion is vegetated with thick Himalayan Blackberry. Topographically, the eastern portion of the Site gently slopes down from east to west. At the central portion, the Site moderately slopes down, west into a glacial kettle formation. Properties to the South and East are developed with high density single family residences. Property to the West is undeveloped. Property to the North is developed with a church.

1.2 Scope of Services

The scope of work for this study was limited to the following tasks:

- A review of documents readily available, including national and local wetland inventory maps and the *Soil Survey of the Thurston County Area* (1990).
- A visual assessment to observe existing site conditions and to identify wetland(s) and stream(s) located within the project study limits. Methods defined in the *U.S. Army Corps of Engineers Wetland Delineation Manual* (1987), and *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region v2.0* (2010) were used to determine the presence and extent of wetlands on the Site.
- Review federal, state, and local regulations pertaining to the wetlands and/or streams identified on the Site. The review was used to classify the on-site wetlands and/or streams.
- An assessment of on-site wetland functions and values, categorization, and applicable buffer determination.
- A report documenting the methods, results, and conclusions of this wetland assessment.

2.0 METHODS

The following section discusses the standard methods used by ACERA to identify, delineate, and categorize wetlands and streams.

2.1 Preliminary Review

Prior to field work, background research of existing information was completed. Documents and websites reviewed included, but were not limited to: National and local wetland inventory maps; The Natural Resource Conservation Service's (NRCS) Web Soil Survey; Google Earth Aerial Photographs; USGS 7.5 Minute Topographical Maps; and the WDNR Forest Practices data base. A preliminary review for threatened, endangered, and sensitive plant and animal species was conducted using: WDFW: PHS on the Web and SalmonScape, and the WDNR Natural Heritage website.

2.2 Field Methodology

An assessment of existing site conditions and visual observations were made to identify wetland(s) and streams located within the project study limits. Methods defined in the *U.S. Army Corps of Engineers Wetland Delineation Manual* (Corps 1987) and *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region v2.0* (Corps 2010) were used to determine the presence and extent of wetlands on and near the site. Please note that *The Washington State Wetlands Identification and Delineation Manual* (Ecology 1997), was repealed March 14, 2011 and is not used by ACERA. The methods in the Corps manuals recognize that the three parameters of hydrology, hydric soils, and hydrophytic vegetation are found in wetlands and that these parameters are important in the establishment and maintenance of wetland communities. The methods evaluate each of the three parameters to determine if a wetland is present and to establish wetland boundaries.

The methods for stream OHWM determination were followed in the publication: *Determining the Ordinary High Water Mark on Streams in Washington State. Second Review Draft. Washington State Department of Ecology, Shorelands & Environmental Assistance Program, Lacey, WA. Ecology Publication # 08-06-001.* (Olson, P. and E. Stockdale. 2010). This publication uses the OHWM definition from the Shoreline Management Act:

"Ordinary high water mark" on all lakes, streams, and tidal water is that mark that will be found by examining the bed and banks and ascertaining where the presence and action of waters are so common and usual, and so long continued in all ordinary years, as to mark upon the soil a character distinct from that of the abutting upland, in respect to vegetation as that condition exists on June 1, 1971, as it may naturally change thereafter, or as it may change thereafter in accordance with permits issued by a local government or the department: PROVIDED, that in any area where the ordinary high water mark cannot be found, the ordinary high water mark adjoining salt water shall be the line of mean higher high tide and the ordinary high water mark adjoining fresh water shall be the line of mean high water.

The Site assessment was performed on June 28th, 2018. To mark the boundary between wetlands and uplands, pink surveyor's flagging labeled "WETLAND DELINEATION" was numerically labeled and tied to vegetation, survey stakes, or placed in the substrate along the onsite wetland boundary. White and pink polka dot flagging was used to mark the points where data was collected. ACERA located wetland boundaries with GPS.

2.3 Hydrophytic Vegetation

The USFWS and the NWI have established a rating system that has been applied to commonly occurring plant species on the basis of their frequency of occurrence in wetlands (Table 3). Species indicator status expresses the range in which plants may occur in wetlands and non-wetlands (uplands). Under this system, vegetation is considered hydrophytic when there is an indicator status of facultative (FAC), facultative wetland (FACW) or

obligate wetland (OBL). *The National Wetland Plant List: 2016 Wetland Ratings* (Lichvar 2016) was used to determine vegetation indicator status.

Table 3. Definitions for USFWS Plant Indicator Status

Plant Indicator Status Category	Indicator Status Abbreviation	Definition (Estimated Probability of Occurrence)
Obligate Upland	UPL	Occur rarely (<1 percent) in wetlands, and almost always (>99 percent) in uplands
Facultative Upland	FACU	Occur sometimes (1 percent to <33 percent) in wetlands, but occur more often (>67 percent to 99 percent) in uplands
Facultative	FAC	Similar likelihood (33 percent to 67 percent) of occurring in both wetlands and uplands
Facultative Wetland	FACW	Occur usually in wetlands (>67 percent to 99 percent), but also occur in uplands (1 percent to 33 percent)
Obligate Wetland	OBL	Occur almost always (>99 percent) in wetlands, but rarely occur in uplands (<1 percent)
No Indicator	NI	Not an Indicator due to insufficient information to determine status
Not Listed	NL	Not listed - either non-native species or does not occur in wetlands (UPL)

Indicators of Hydrophytic Vegetation include: 1 Rapid Test for Hydrophytic Vegetation; 2 Dominance Test; 3 Prevalence Index; 4 Morphological Adaptions; and 5 Wetland Non-Vascular Plants. Indicator 1 is met when all dominant species across all strata are FACW and/or OBL. Indicator 2 is met when **more than** 50 percent of the dominant species in the plant community are FAC or wetter. Indicator 3 is an index of weighted-average wetland indicator status of all plant species within the sampling plot. This indicator is met when the Prevalence index equals 3 or less **and** indicators of wetland hydrology and hydric soils are also met. Indicator 4 allows for conversion of FACU plants to FAC if morphological adaptations to wetland hydrology are observed on those plants; the plot is then reassessed and must meet either Indicator 2 or 3. Indicator 5 is used for bryophyte dominant plant communities. This indicator is met when more than 50 percent of the total coverage of bryophytes consists of species known to be highly associated with wetlands.

2.4 Wetland Hydrology

Hydrologic conditions identifying wetland characteristics occur during those periods when the soils are inundated permanently or periodically, or the soil is continuously saturated to the surface for sufficient duration to develop hydric soils and support vegetation typically adapted for life in periodically anaerobic conditions. Research has indicated that the **duration** of soil saturation and inundation during the growing season is more influential on the plant community than the **frequency** of soil saturation and inundation during the growing season. For the purposes of this wetland delineation, the wetland hydrology criterion was considered to be satisfied if it appeared that wetland hydrology was present for a minimum of 14 or more days during the growing season at a minimum frequency of five years in ten. The growing season begins when the soil reaches a temperature of 41 degrees Fahrenheit at 19.7" below the surface, or observable plant biological activity has begun at the Site (bud burst, seed sprout, emergence of herbaceous plants, etc.).

Wetland Hydrology indicators are split into four groups (A through D). These include: A. direct observations of surface or ground water; B. evidence that the site is subject to flooding or inundation (water marks, drift deposits, etc.); C. evidence that the soil is saturated or was saturated recently (oxidized rhizospheres, the presence of reduced iron or sulfur in the soil profile, etc.); and D. landscape, soil, and vegetation features that

indicate contemporary wet conditions. Each indicator group is further divided into primary and secondary indicators. Wetland hydrology is met when one primary or two secondary indicators are observed.

Hydrology is evaluated by direct visual observation of surface inundation or soil saturation within 16 inches below the existing ground surface in data plots. According to the 1987 Corps Manual, *"for soil saturation to impact vegetation, it must occur within a major portion of the root zone (usually within 12 inches of the surface) of the prevalent vegetation."* Therefore, if saturated soils or indicators were observed within 12 inches of the surface, positive indicators of wetland hydrology are noted. The area near each data plot is also examined for indicators of wetland hydrology. It was not possible to observe conditions during the entire growing season. Areas where several positive indicators of hydrology were observed, and other indicators of wetland conditions were observed, it is assumed that wetland hydrology occurs for a sufficient period of the growing season to meet the wetland criteria.

2.5 Hydric Soils

The National Technical Committee for Hydric Soils (NTCHS) defines a hydric soil as *"a soil that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part"* (USDA Soil Conservation Service 1994). These conditions favor the growth and regeneration of hydrophytic vegetation. Hydric soil indicators are formed predominantly by the accumulation or loss of iron, manganese, sulfur, or carbon compounds in a saturated and anaerobic environment. As a result of anaerobic conditions, hydric soils exhibit characteristics directly observable in the field, including high organic matter content, greenish or bluish gray color (gley formation), accumulation of sulfidic material, spots of orange or yellow color (redoximorphic features), and dark soil colors (low chromas).

Soil observations were completed within soil data plots dug with a shovel to a depth of at least 16 inches below the existing ground surface. Soil organic content was estimated visually and textually. The presence of sulfidic material was determined by the presence of sulfide gases (i.e., a "rotten egg" odor). Soil colors were recorded after being determined through use of the three aspects of color in the Munsell® Soil Color Chart: hue, value, and chroma (e.g., a soil designated as 10YR 6/2 has a hue of 10YR, a value of 6, a chroma of 2, and a soil color name of light brownish gray) (Munsell 2000).

Soil samples were then examined for a match of color and texture characteristics with hydric soil indicators listed in the manual: *Field Indicators of Hydric Soils in the United States v8.1* (USDA 2017). Hydric soil indicators used in this region include: A1 Histosol; A2 Histic Epipedon; A3 Black Histic; A4 Hydrogen Sulfide; A11 Depleted Below Dark Surface; A12 Thick Dark Surface; S1 Sandy Mucky Mineral; S5 Sandy Redox; S6 Stripped Matrix; F1 Loamy Mucky Mineral; F2 Loamy Gleyed Matrix; F3 Depleted Matrix; F6 Redox Dark Surface; F7 Depleted Dark Surface; and F8 Redox Depressions.

2.6 Wetland Categorization and Buffers

Wetland(s) were rated during the site assessment using Ecology's *Washington State Wetlands Rating System for Western Washington: 2014 Update* (Hruby 2014), as well as the wetland classification guidelines in *OMC 18.32.510 Wetlands – Rating System*. Wetland Rating Sheets are provided in Appendix B. Wetland buffers were assigned to each wetland based on the criteria detailed in *OMC 18.32.535 Wetlands – Wetland Buffers*.

2.7 Stream Typing and Buffers

Stream(s) were assessed and typed based on the stream type definitions of *WA State Forest Practices Board - WAC 222-16-030*, current online WDNR Forest Practices database Water Type Maps, and *OMC 18.32.410 Streams and Priority Riparian Areas – Typing System*. Stream buffer widths were determined based on the requirements of *OMC 18.32.435 Streams and Priority Riparian Areas – Buffers*.

3.0 RESULTS

An assessment for the presence of wetlands and streams was performed on June 28th, 2018. No streams were identified on or near the Site. One wetland (Wetland A) was identified on the Site (Figure 2). Indicators of wetland hydrology, hydric soil characteristics, and dominant hydrophytic vegetation observed within Wetland A is summarized below. Wetland Rating Sheets are in Appendix B. Wetland Determination Forms are in Appendix C.

An offsite depression located approximately 70 feet west of the Site has been previously reviewed by the City of Olympia and determined to be nonwetland. Refer to the attached letter in Appendix D.

3.1 Wetland A

Wetland A is located within the western portion of the Site (Figure 2). It is approximately 570 square feet. Wetland A has a hydrogeomorphic classification of Depressional. Therefore, the Depressional rating forms were used to assess the appropriate wetland category (Hruby 2014). The wetland rating unit was defined by the wetland boundary.

This wetland is rated Category IV (Hruby 2014). According to *OMC 18.32.515 Wetlands – Small Wetlands*, Wetland A qualifies as an exempt wetland:

1. It is an isolated Category III or IV wetland;
2. It is not associated with a riparian corridor;
3. It is not part of a wetland mosaic; and
4. It Does not contain habitat identified as essential for local populations of priority species identified by the Washington State Department of Fish and Wildlife; and
5. No part of the wetland is within shorelines of the State of Washington, except as authorized by *OMC 18.20.420.C.3*.

Hydrologic support for Wetland A is primarily from seasonal high ground water, rainfall, and surface runoff from adjacent buffer areas. Wetland A contains seasonal standing water up to the wetland boundary. Wetland hydrology indicators observed at Wetland A were: B8-*Sparsely Vegetated Concave Surface* and B9-*Water-Stained Leaves*. A1- *Surface Water*, A2-*Water Table*, and A3-*Saturation* indicators were not observed at the time of the site visit. These indicators are presumed to be present earlier in the growing season.

Soils sampled within Wetland A were a layer of 10YR3/2 *very dark grayish brown* silt loam, over a layer of 10YR3/2 *very dark grayish brown* silt loam with 10YR5/8 *yellowish brown* redoximorphic concentrations and met the criteria for hydric soil indicator F6-*Redox Dark Surface*. The Natural Resource Conservation Service's (NRCS) Soil Survey of the Thurston County Area, Washington (Figure 8) was reviewed to determine areas likely to contain Hydric Soils indicative of wetland conditions. The soil survey identifies: 128 *Yelm Fine Sandy Loam* (Non-Hydric) within Wetland A.

Wetland A has a Cowardin classification of: Palustrine Forested, Persistent, Seasonally Flooded (PFO1C) (Cowardin 1979). Wetland A contains a forested plant community dominated by Pacific Willow (FACW) and Douglas Spiraea (FACW).

4.0 FLORA OBSERVATIONS

Observations of plant species found on or adjacent to the Site during field work activities were noted. Table 4 provides a summary of plant species observations. These observations are not intended to provide a complete inventory, but a basic list of common flora species found at the Site.

Table 4. Plant Species List

Common Name	Scientific Name	Wetland Indicator Status
Trees		
Big Leaf Maple	<i>Acer macrophyllum</i>	FACU
Choke Cherry	<i>Prunus virginiana</i>	FACU
Douglas Fir	<i>Pseudotsuga menziesii</i>	FACU
Oregon Ash	<i>Fraxinus latifolia</i>	FACW
Pacific Willow	<i>Salix lasiandra</i>	FACW
Red Alder	<i>Alnus rubra</i>	FAC
Western Hemlock	<i>Tsuga heterophylla</i>	FACU
Western Red Cedar	<i>Thuja plicata</i>	FAC
Shrubs		
Beaked Hazelnut	<i>Corylus cornuta</i>	FACU
Cut-Leaf Blackberry	<i>Rubus laciniatus</i>	FACU
Douglas Spiraea	<i>Spiraea douglasii</i>	FACW
Himalayan Blackberry	<i>Rubus armeniacus</i>	FAC
Indian Plum	<i>Oemleria cerasiformis</i>	FACU
Nootka Rose	<i>Rosa nutkana</i>	FAC
Oceanspray	<i>Holodiscus discolor</i>	FACU
Pacific Crabapple	<i>Malus fuscus</i>	FACW
Pea-Fruit Rose	<i>Rosa pisocarpa</i>	FAC
Red Osier Dogwood	<i>Cornus alba</i>	FACW
Salal	<i>Gaultheria shallon</i>	FACU
Salmonberry	<i>Rubus spectabilis</i>	FAC
Scotch Broom	<i>Cytisus scoparius</i>	NL(UPL)
Snowberry	<i>Symphoricarpos albus</i>	FACU
Thimbleberry	<i>Rubus parviflorus</i>	FACU
Trailing Blackberry	<i>Rubus ursinus</i>	FACU
Twinberry	<i>Lonicera involucrata</i>	FAC
Vine Maple	<i>Acer circinatum</i>	FAC
Herbs, grasses, sedges, rushes, and ferns		
Bent Grass	<i>Agrostis capillaris</i>	FAC
Bird Vetch	<i>Vicia cracca</i>	NL (UPL)
Bird's Foot Trefoil	<i>Lotus corniculatus</i>	FAC
Bracken Fern	<i>Pteridium aquilinum</i>	FACU
Canadian thistle	<i>Cirsium arvense</i>	FAC
Common Vetch	<i>Vicia sativa</i>	UPL
Creeping buttercup	<i>Ranunculus repens</i>	FACW
Curley Dock	<i>Rumex crispus</i>	FAC
Dandelion	<i>Taraxacum officinale</i>	FACU
Dewey Sedge	<i>Carex deweyana</i>	FAC
English Plantain	<i>Plantago major</i>	FAC

Common Name	Scientific Name	Wetland Indicator Status
False Lily of the Valley	<i>Maianthemum dilatatum</i>	FAC
Fringecup	<i>Tellima grandiflora</i>	FACU
Hairy Cat's Ear	<i>Hypochaeris radicata</i>	FACU
Heal All	<i>Prunella vulgaris</i>	FACU
Horsetail	<i>Equisetum arvense</i>	FAC
Kentucky Blue Grass	<i>Poa pratensis</i>	FAC
Lady fern	<i>Athyrium cyclosorum</i>	FAC
Long-leaved Plantain	<i>Plantago lanceolata</i>	FACU
Meadow Foxtail	<i>Alopecurus pratensis</i>	FAC
Orchard grass	<i>Dactylis glomerata</i>	FACU
Ox-Eye Daisy	<i>Leucanthemum vulgare</i>	FACU
Red Clover	<i>Trifolium pratense</i>	FACU
Red fescue	<i>Festuca rubra</i>	FAC
Reed Canarygrass	<i>Phalaris arundinacea</i>	FACW
Slough Sedge	<i>Carex obnupta</i>	OBL
Soft Rush	<i>Juncus effusus</i>	FACW
Sweet Vernal Grass	<i>Anthoxanthum odoratum</i>	FACU
Sword Fern	<i>Polystichum munitum</i>	FACU
Velvet Grass	<i>Holcus lanatus</i>	FAC
White Clover	<i>Trifolium repens</i>	FAC
This listing represents the major plant species identified by ACERA in June 2018 There may be other species present on the Site that are not listed.		

5.0 CONCLUSION

ACERA has completed a wetland boundary delineation and assessment at Thurston County Parcel 12825110600. One Category IV wetland (Wetland A) was assessed on the Site. This wetland is exempt and therefore does not require a buffer.

The findings and conclusions documented in this report have been prepared for specific application to this Site. They have been developed in a manner consistent with that level of care and skill normally exercised by members of the environmental science profession currently practicing under similar conditions in the area. Our work was also performed in accordance with the terms and conditions set forth in our proposal. The conclusions and recommendations presented in this report are professional opinions based on an interpretation of information currently available to us and are made within the operation scope, budget, and schedule of this project. No warranty, expressed or implied, is made.

Wetland boundaries/classifications identified by ACERA are considered preliminary until the flagged wetland boundaries/classifications are validated by the regulating agency(ies). Validation of the wetland boundaries by the regulating agency(ies) provides a certification, usually written, that the wetland boundaries verified are the boundaries that will be regulated by the agency(ies) until a specific date or until the regulations are modified. Only the regulating agency(ies) can provide this certification.

Since wetlands are dynamic communities affected by both natural and human activities, changes in wetland boundaries may be expected; therefore, wetland delineations cannot remain valid for an indefinite period of time. Local agencies typically recognize the validity of wetland delineations for a period of 5 years after completion of a wetland delineation report. Development activities on a site 5 years after the completion of this wetland delineation report may require revision of the wetland delineation. In addition, changes in government codes, regulations, or laws may occur. Because of such changes, our observations and conclusions applicable to this site may need to be revised wholly or in part.

6.0 QUALIFICATIONS OF AUTHOR

Mike Layes is a Wildlife Biologist with 23 years professional experience. He is also a Professional Wetland Scientist (#2157) certified through the Society of Wetland Scientists. Mr. Layes has extensive training and experience in wetland science, aquatic habitat restoration and mitigation project design, wetland delineation, stream assessments, fishery survey techniques, ordinary high water mark (OHWM) determinations, near-shore marine habitat assessments, eelgrass bed delineation, aquatic ecology, and threatened and endangered species survey and monitoring techniques, and environmental permitting.

Mr. Layes earned a Bachelor of Science Degree in Wildlife Biology/Forest Ecology from The Evergreen State College in 1995. He has previously worked as a wildlife biologist for several Federal and State agencies, Universities, and Environmental Consulting Firms throughout his career on a wide range of projects dealing with threatened and endangered species and their habitats. Mr. Layes' experience in both wetland and wildlife science gives him the ability to prepare combined wetland and fish and wildlife habitat assessments as needed for any given project.

Mr. Layes is an experienced SCUBA diver with over 300 logged dives. He conducts underwater field work for fisheries surveys, shoreline, outfall, marina and shellfish farm development and restoration projects. He also has extensive experience with the surveying and removal of invasive aquatic plants in lakes and rivers.

7.0 REFERENCES

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Appendix A. Figures

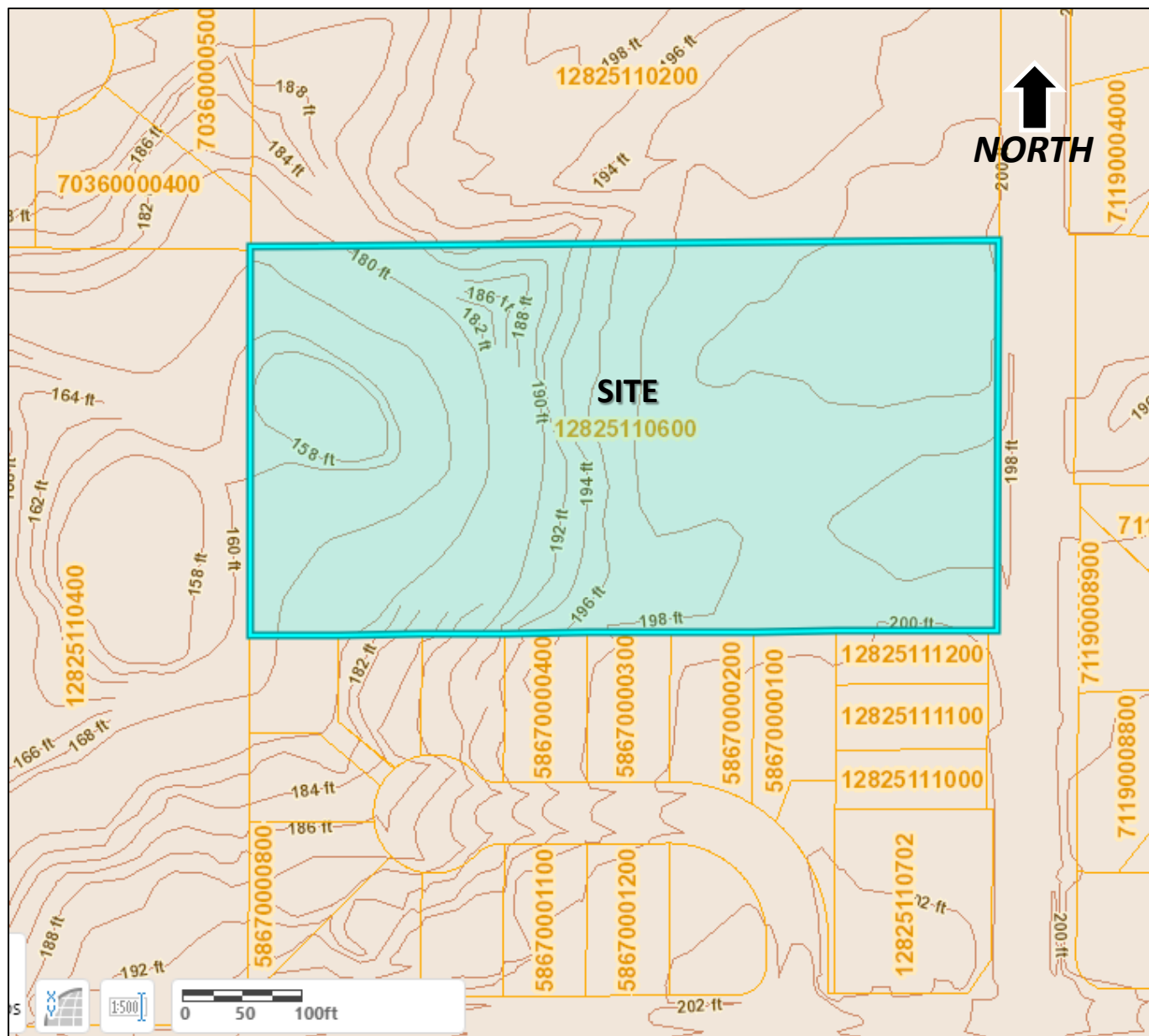


Figure 1. Parcel Map



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**Not a professional Survey. Features shown are provisional until verified by City of Olympia.*

Figure 2. Critical Areas Map*



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- AB = Aquatic Bed
- EM = Emergent
- SS = Shrub/Scrub
- FO= Forested

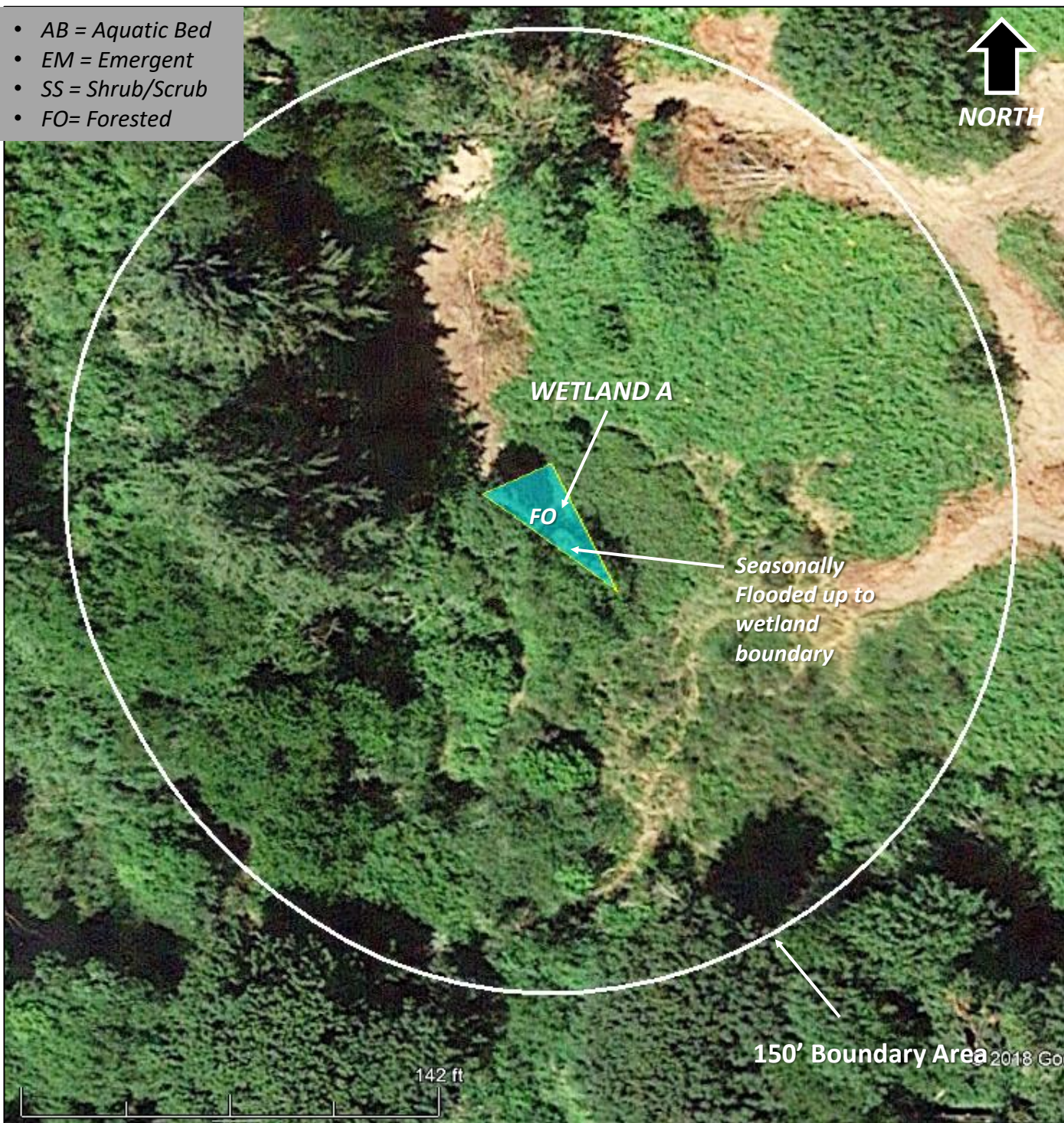


Figure 3. Wetland Rating Map #1



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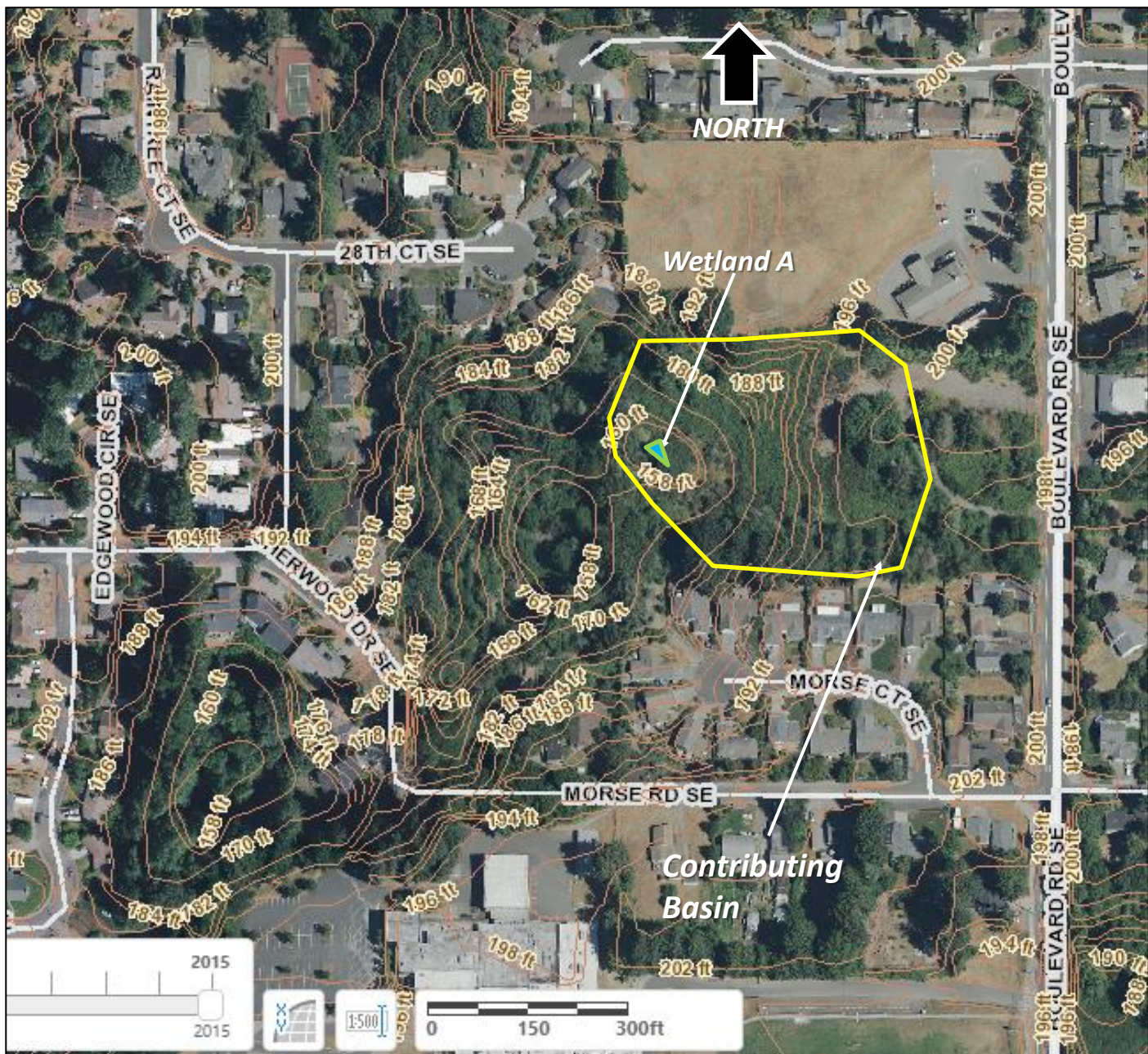
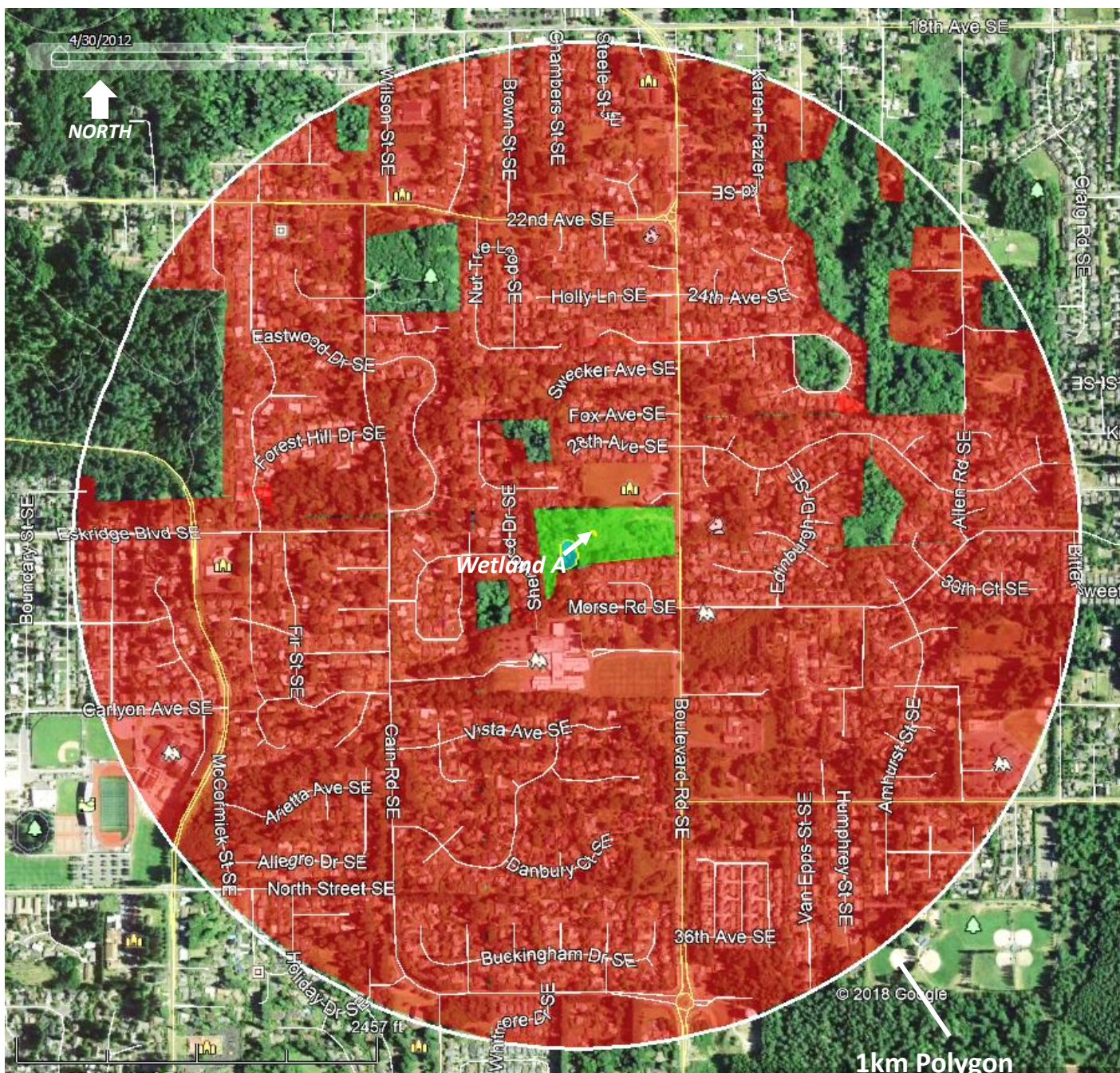


Figure 4. Wetland Rating Map #2



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Accessible Relatively Undisturbed



Non-accessible Low/Moderate Intensity Land Use



Accessible Low/Moderate Intensity Land Use



Non-accessible Relatively Undisturbed



High Intensity Land Use

Figure 5. Wetland Rating Map #3



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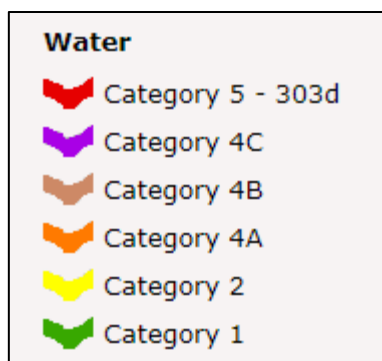
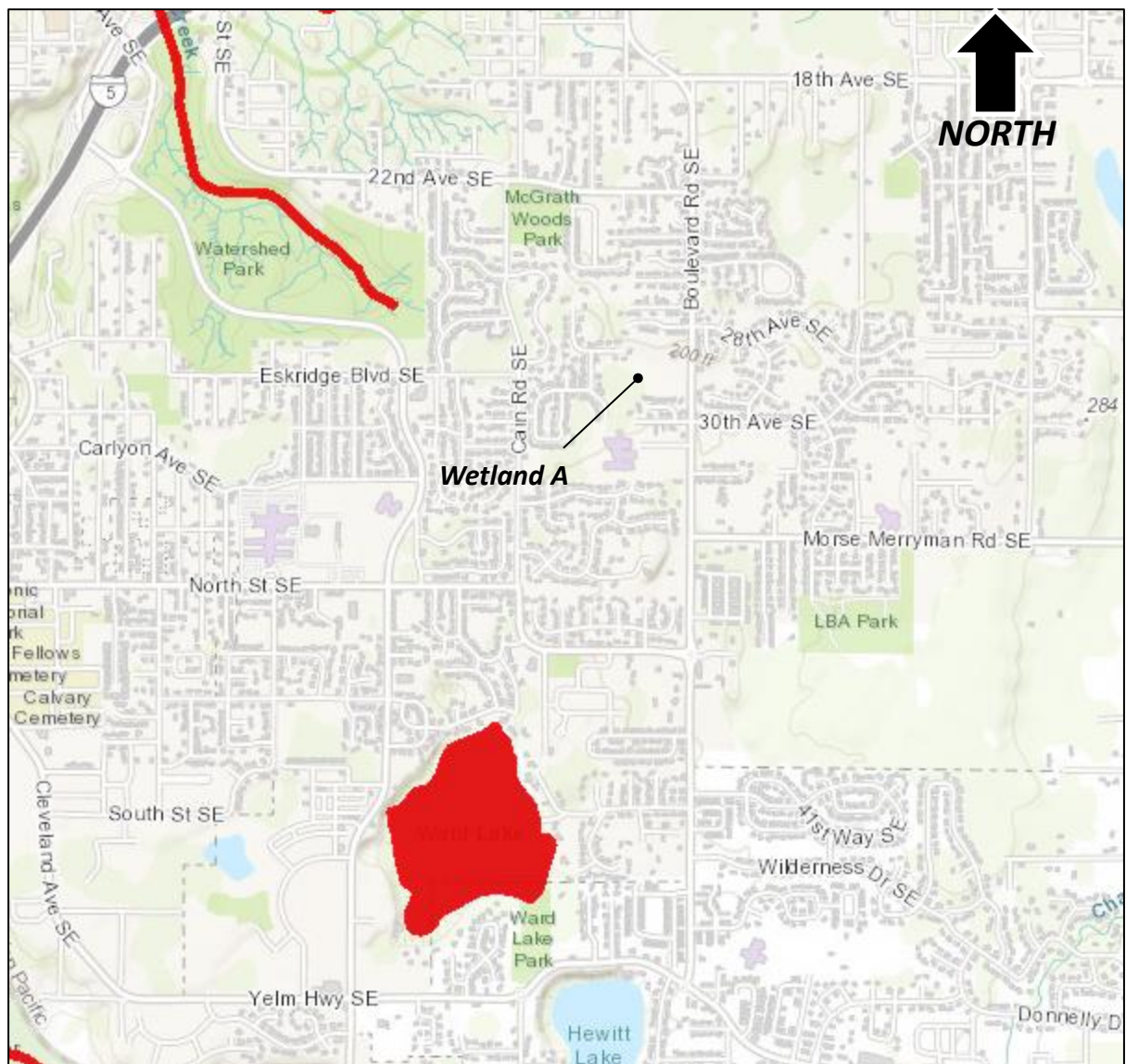


Figure 6. Wetland Rating Map #4



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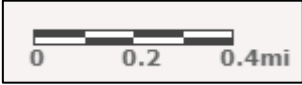
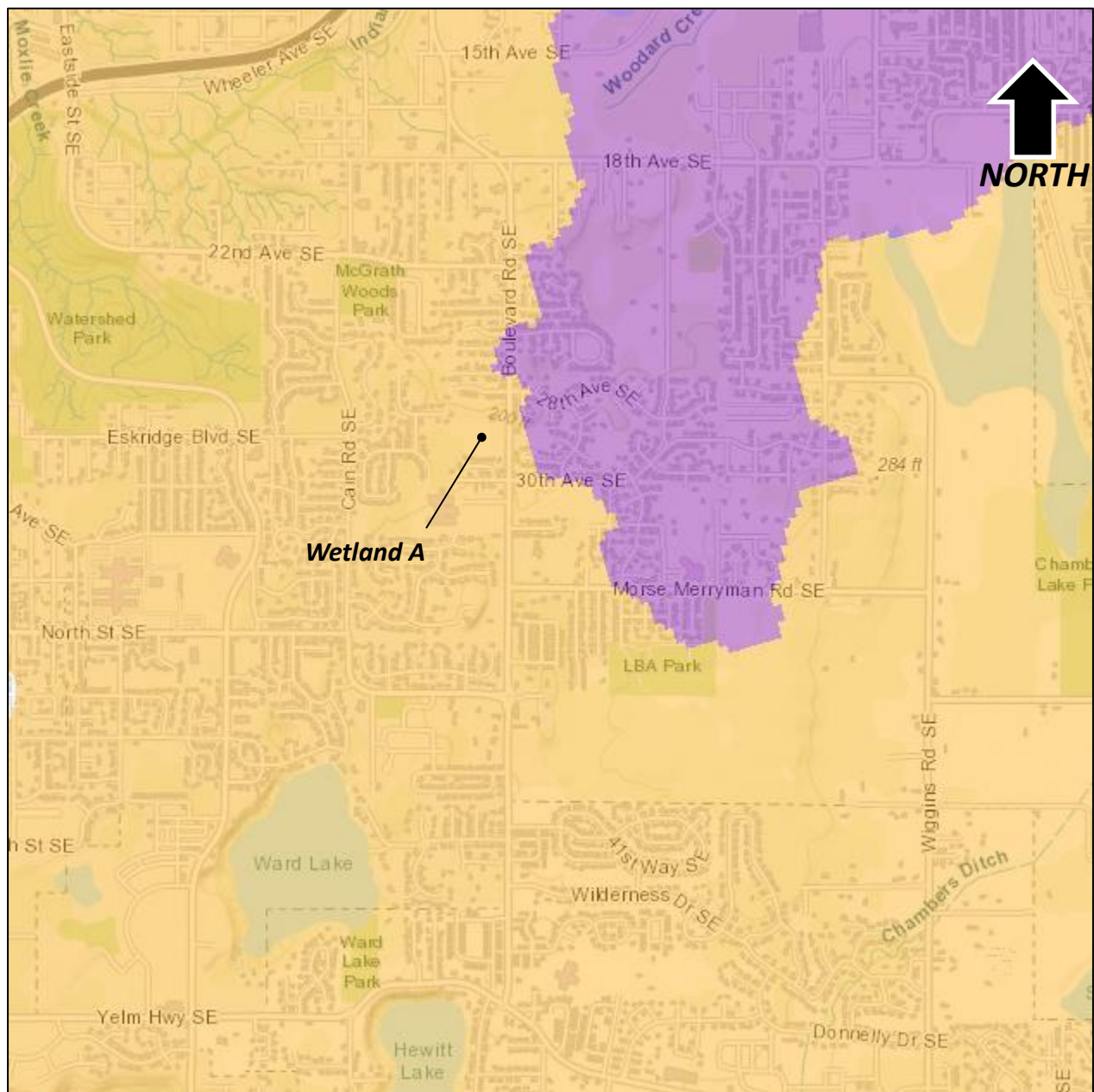


Figure 7. Wetland Rating Map #5





Map Unit Symbol	Map Unit Name
39	Giles silt loam, 3 to 15 percent slopes
126	Yelm fine sandy loam, 0 to 3 percent slopes
127	Yelm fine sandy loam, 3 to 15 percent slopes
128	Yelm fine sandy loam, 15 to 30 percent slopes

Figure 8. USDA NRCS Soil Map



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Appendix B. Wetland Rating Forms

Wetland name or number A

Changes based on field verification by
Department of Ecology and City of Olympia
Staff.

RATING SUMMARY – Western Washington

Name of wetland (or ID #): A Date of site visit: 6/28/2018
 Rated by MIKE LAYES, PWS Trained by Ecology? ☒ Yes ☐ No Date of training 4/20/2006
 HGM Class used for rating DEPRESSIONAL Wetland has multiple HGM classes? ☐ Y ☒ N

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

Source of base aerial photo/map GOOGLE EARTH

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
 X Category IV – Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
Circle the appropriate ratings				
Site Potential	(H) M L	H (M) L	H M (L)	
Landscape Potential	H M (L)	H M (L)	H M (L)	
Value	(H) (M) L	H M (L)	H M (L)	TOTAL
Score Based on Ratings	8 8	4	3	15 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	X

Wetland name or number ^A _____

Maps and figures required to answer questions correctly for Western Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	3
Hydroperiods	D 1.4, H 1.2	3
Location of outlet (<i>can be added to map of hydroperiods</i>)	D 1.1, D 4.1	n/a
Boundary of area within 150 ft of the wetland (<i>can be added to another figure</i>)	D 2.2, D 5.2	3
Map of the contributing basin	D 4.3, D 5.3	4
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	5
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	6
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	7

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 (<i>can be added to another figure</i>)	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream (<i>can be added to another figure</i>)	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 (<i>can be added to another figure</i>)	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 (<i>can be added to figure above</i>)	S 4.1	
Boundary of 150 ft buffer (<i>can be added to another figure</i>)	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	

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 _____

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 A

DEPRESSIONAL AND FLATS WETLANDS		
Water Quality Functions - Indicators that the site functions to improve water quality		
D 1.0. Does the site have the potential to improve water quality?		
D 1.1. Characteristics of surface water outflows from the wetland: Wetland is a depression or flat depression (QUESTION 7 on key) with no surface water leaving it (no outlet). points = 3 Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet. points = 2 Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing points = 1 Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch. points = 1	3	
D 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic (use NRCS definitions). Yes = 4 No = 0		0
D 1.3. Characteristics and distribution of persistent plants (Emergent, Scrub-shrub, and/or Forested Cowardin classes): Wetland has persistent, ungrazed, plants > 95% of area points = 5 Wetland has persistent, ungrazed, plants > 1/2 of area points = 3 Wetland has persistent, ungrazed plants > 1/10 of area points = 1 Wetland has persistent, ungrazed plants < 1/10 of area points = 0	5	
D 1.4. Characteristics of seasonal ponding or inundation: <i>This is the area that is ponded for at least 2 months. See description in manual.</i> Area seasonally ponded is > 1/2 total area of wetland points = 4 Area seasonally ponded is > 1/4 total area of wetland points = 2 Area seasonally ponded is < 1/4 total area of wetland points = 0	4	
Total for D 1	Add the points in the boxes above	12

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?		
D 2.1. Does the wetland unit receive stormwater discharges?	Yes = 1 No = 0	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	0
D 2.3. Are there septic systems within 250 ft of the wetland?	Yes = 1 No = 0	0
D 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1-D 2.3?	Yes = 1 No = 0	0
Source _____		
Total for D 2	Add the points in the boxes above	0

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

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

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

Comment from DOE

On question should be revised (although it will not impact the overall rating of the wetland).
Question D3.3 asks if the site has been identified as important for maintaining water quality.
As there is a TMDL in development, the answer to this question should be yes, and the water quality value should be rated as high. When a basin wide TMDL plan is developed, it is assumed that all wetlands are valuable in a basin where water quality is poor enough to require a TMDL.

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) | points = 4 |
| Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet | points = 2 |
| Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch | points = 1 |
| Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing | points = 0 |

4

D 4.2. Depth of storage during wet periods: *Estimate the height of ponding above the bottom of the outlet. For wetlands with no outlet, measure from the surface of permanent water or if dry, the deepest part.*

- | | |
|--|------------|
| Marks of ponding are 3 ft or more above the surface or bottom of outlet | points = 7 |
| Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet | points = 5 |
| Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet | points = 3 |
| The wetland is a "headwater" wetland | points = 3 |
| Wetland is flat but has small depressions on the surface that trap water | points = 1 |
| Marks of ponding less than 0.5 ft (6 in) | points = 0 |

3

D 4.3. Contribution of the wetland to storage in the watershed: *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.*

- | | |
|---|------------|
| The area of the basin is less than 10 times the area of the unit | points = 5 |
| The area of the basin is 10 to 100 times the area of the unit | points = 3 |
| The area of the basin is more than 100 times the area of the unit | points = 0 |
| Entire wetland is in the Flats class | points = 5 |

3

Total for D 4

Add the points in the boxes above

10

Rating of Site Potential If score is: 12-16 = H X 6-11 = M 0-5 = L

Record the rating on the first page

D 5.0. Does the landscape have the potential to support hydrologic functions of the site?

D 5.1. Does the wetland receive stormwater discharges?

Yes = 1 No = 0

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

0

D 5.3. Is more than 25% of the contributing basin of the wetland covered with intensive human land uses (residential at >1 residence/ac, urban, commercial, agriculture, etc.)?

Yes = 1 No = 0

0

Total for D 5

Add the points in the boxes above

0

Rating of Landscape Potential If score is: 3 = H 1 or 2 = M X 0 = L

Record the rating on the first page

D 6.0. Are the hydrologic functions provided by the site valuable to society?

D 6.1. The unit is in a landscape that has flooding problems. *Choose the description that best matches conditions around the wetland unit being rated. Do not add points. Choose the highest score if more than one condition is met.*

- | | |
|--|------------|
| The wetland captures surface water that would otherwise flow down-gradient into areas where flooding has damaged human or natural resources (e.g., houses or salmon redds): | |
| • Flooding occurs in a sub-basin that is immediately down-gradient of unit. | points = 2 |
| • Surface flooding problems are in a sub-basin farther down-gradient. | points = 1 |
| Flooding from groundwater is an issue in the sub-basin. | points = 1 |
| The existing or potential outflow from the wetland is so constrained by human or natural conditions that the water stored by the wetland cannot reach areas that flood. <i>Explain why</i> _____ | points = 0 |
| There are no problems with flooding downstream of the wetland. | points = 0 |

0

D 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?

Yes = 2 No = 0

0

Total for D 6

Add the points in the boxes above

0

Rating of Value If score is: 2-4 = H 1 = M X 0 = L

Record the rating on the first page

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.*

- | | | |
|---|----------------------------------|---|
| <input type="checkbox"/> Aquatic bed | 4 structures or more: points = 4 | 0 |
| <input type="checkbox"/> Emergent | 3 structures: points = 2 | |
| <input type="checkbox"/> Scrub-shrub (areas where shrubs have > 30% cover) | 2 structures: points = 1 | |
| <input checked="" type="checkbox"/> 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

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*).

- | | | |
|--|-------------------------------------|---|
| <input type="checkbox"/> Permanently flooded or inundated | 4 or more types present: points = 3 | 0 |
| <input checked="" type="checkbox"/> Seasonally flooded or inundated | 3 types present: points = 2 | |
| <input type="checkbox"/> Occasionally flooded or inundated | 2 types present: points = 1 | |
| <input type="checkbox"/> Saturated only | 1 type present: points = 0 | |
| <input type="checkbox"/> Permanently flowing stream or river in, or adjacent to, the wetland | | |
| <input type="checkbox"/> Seasonally flowing stream in, or adjacent to, the wetland | | |
| <input type="checkbox"/> Lake Fringe wetland | 2 points | |
| <input type="checkbox"/> Freshwater tidal wetland | 2 points | |

H 1.3. Richness of plant species

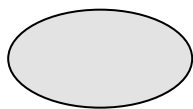
Count the number of plant species in the wetland that cover at least 10 ft².

*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***

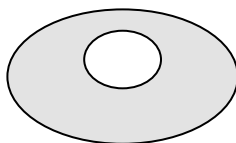
- | | | |
|------------------------------|------------|---|
| If you counted: > 19 species | points = 2 | 0 |
| 5 - 19 species | points = 1 | |
| < 5 species | points = 0 | |

H 1.4. Interspersion of habitats

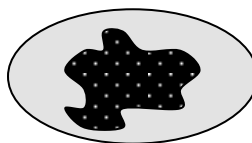
Decide from the diagrams below whether interspersions among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always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



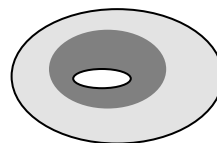
None = 0 points



Low = 1 point

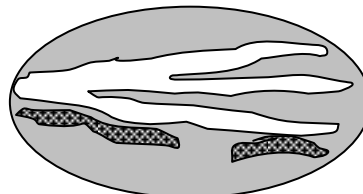
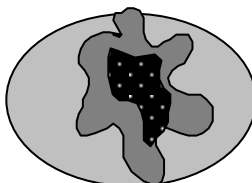
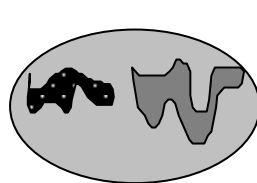


Moderate = 2 points



0

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



Wetland name or number A

<p>H 1.5. Special habitat features:</p> <p>Check the habitat features that are present in the wetland. <i>The number of checks is the number of points.</i></p> <p><input type="checkbox"/> Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long).</p> <p><input type="checkbox"/> Standing snags (dbh > 4 in) within the wetland</p> <p><input type="checkbox"/> 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)</p> <p><input type="checkbox"/> Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present (<i>cut shrubs or trees that have not yet weathered where wood is exposed</i>)</p> <p><input type="checkbox"/> At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (<i>structures for egg-laying by amphibians</i>)</p> <p><input checked="" type="checkbox"/> Invasive plants cover less than 25% of the wetland area in every stratum of plants (<i>see H 1.1 for list of strata</i>)</p>	1
Total for H 1	Add the points in the boxes above 1

Rating of Site Potential If score is: **15-18 = H** **7-14 = M** ^X **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 <i>only habitat that directly abuts wetland unit</i>). Calculate: % undisturbed habitat <u>2</u> + [(% moderate and low intensity land uses)/2] <u>0</u> = <u>2</u> % If total accessible habitat is: > 1/3 (33.3%) of 1 km Polygon 20-33% of 1 km Polygon 10-19% of 1 km Polygon < 10% of 1 km Polygon	 points = 3 points = 2 points = 1 points = 0	0
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. Calculate: % undisturbed habitat <u>15</u> + [(% moderate and low intensity land uses)/2] <u>0</u> = <u>15</u> % Undisturbed habitat > 50% of Polygon Undisturbed habitat 10-50% and in 1-3 patches Undisturbed habitat 10-50% and > 3 patches Undisturbed habitat < 10% of 1 km Polygon	 points = 3 points = 2 points = 1 points = 0	1
H 2.3. Land use intensity in 1 km Polygon: If > 50% of 1 km Polygon is high intensity land use ≤ 50% of 1 km Polygon is high intensity	 points = (- 2) 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 X < 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? <i>Choose only the highest score that applies to the wetland being rated.</i>		
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		0
— 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	

Rating of Value If score is: **2 = H** **1 = M** ^X **0 = L**

Record the rating on the first page

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.

Appendix D. Letter From City of Olympia

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

Project Site: Thurston County Parcel 12825110600 City/County: Olympia/Thurston Sampling Date: 6/28/2018
 Applicant/Owner: KAPA CONSTRUCTION LLC State: WA Sampling Point: SPA1w
 Investigator(s): Mike Layes, PWS Section, Township, Range: 25/18N/02W
 Landform (hillslope, terrace, etc.): Glacial Kettle Local relief (concave, convex, none): concave Slope (%): 5
 Subregion (LRR): A Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: 128-Yelm Fine Sandy Loam, 15-30% Slopes NWI classification: PFO1C
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
 Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
 Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

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

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

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. <u>Salix lasiandra</u>	<u>50</u>	<u>yes</u>	<u>FACW</u>	
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>2</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
4. _____	_____	_____	_____	
50% = <u>25</u> , 20% = <u>10</u>	<u>50</u>	= Total Cover		
Sapling/Shrub Stratum (Plot size: 10 ft)				Prevalence Index worksheet:
1. <u>Spiraea douglasii</u>	<u>50</u>	<u>yes</u>	<u>FACW</u>	
2. _____	_____	_____	_____	Total % Cover of: _____ Multiply by: _____
3. _____	_____	_____	_____	OBL species _____ x1 = _____
4. _____	_____	_____	_____	FACW species _____ x2 = _____
5. _____	_____	_____	_____	FAC species _____ x3 = _____
50% = <u>25</u> , 20% = <u>10</u>	<u>50</u>	= Total Cover		FACU species _____ x4 = _____
Herb Stratum (Plot size: 5 ft)				UPL species _____ x5 = _____
1. _____	_____	_____	_____	Column Totals: _____ (A) _____ (B)
2. _____	_____	_____	_____	Prevalence Index = B/A = _____
3. _____	_____	_____	_____	Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
50% = _____, 20% = _____	_____	= Total Cover		
Woody Vine Stratum (Plot size: 5 ft)				
1. <u>N/A</u>	_____	_____	_____	Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
2. _____	_____	_____	_____	
50% = _____, 20% = _____	_____	= Total Cover		
% Bare Ground in Herb Stratum <u>100</u>				

Remarks:

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type	Category
<p><i>Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met.</i></p> <p>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</p>	
<p>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</p>	Cat. I
<p>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 <i>Spartina</i>, 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 unmowed 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</p>	Cat. I Cat. II
<p>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</p>	Cat. I
<p>SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? <i>Use the key below. If you answer YES you will still need to rate the wetland based on its functions.</i> 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</p>	Cat. I

SC 4.0. Forested Wetlands Does the wetland have at least <u>1 contiguous acre</u> of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? <i>If you answer YES you will still need to rate the wetland based on its functions.</i> — 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 (<i>needs to be measured near the bottom</i>) Yes – Go to SC 5.1 No = Not a wetland in a coastal lagoon SC 5.1. Does the wetland meet all of the following three conditions? — The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100). — At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or unmowed grassland. — The wetland is larger than 1/10 ac (4350 ft ²) Yes = Category I No = Category II		Cat. I Cat. II
SC 6.0. Interdunal Wetlands Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? <i>If you answer yes you will still need to rate the wetland based on its habitat functions.</i> In practical terms that means the following geographic areas: — Long Beach Peninsula: Lands west of SR 103 — Grayland-Westport: Lands west of SR 105 — Ocean Shores-Copalis: Lands west of SR 115 and SR 109 Yes – Go to SC 6.1 No = not an interdunal wetland for rating SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)? Yes = Category I No – Go to SC 6.2 SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger? Yes = Category II No – Go to SC 6.3 SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac? Yes = Category III No = Category IV		Cat I Cat. II Cat. III Cat. IV
Category of wetland based on Special Characteristics If you answered No for all types, enter "Not Applicable" on Summary Form		N/A

SOIL

Sampling Point: SPA1w

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features			Texture ³	Remarks	
	Color (moist)	%	Color (moist)	%	Type ¹			Loc ²
<u>0-6</u>	<u>10YR3/2</u>	<u>100</u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u>Si/L</u>	<u> </u>
<u>6-16</u>	<u>10YR3/2</u>	<u>90</u>	<u>10YR5/8</u>	<u>10</u>	<u>C</u>	<u>M</u>	<u>Si/L</u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
							³ Sa = Sand, Si = Silt, C= Clay, L=Loam	
							G= Gravel, M= Muck, P =Peat, V=Very	
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.)						Indicators for Problematic Hydric Soils³:		
<input type="checkbox"/>	Histosol (A1)		<input type="checkbox"/>	Sandy Redox (S5)		<input type="checkbox"/>	2 cm Muck (A10)	
<input type="checkbox"/>	Histic Epipedon (A2)		<input type="checkbox"/>	Stripped Matrix (S6)		<input type="checkbox"/>	Red Parent Material (TF2)	
<input type="checkbox"/>	Black Histic (A3)		<input type="checkbox"/>	Loamy Mucky Mineral (F1) (except MLRA 1)		<input type="checkbox"/>	Very Shallow Dark Surface (TF12)	
<input type="checkbox"/>	Hydrogen Sulfide (A4)		<input type="checkbox"/>	Loamy Gleyed Matrix (F2)		<input type="checkbox"/>	Other (Explain in Remarks)	
<input type="checkbox"/>	Depleted Below Dark Surface (A11)		<input type="checkbox"/>	Depleted Matrix (F3)				
<input type="checkbox"/>	Thick Dark Surface (A12)		<input checked="" type="checkbox"/>	Redox Dark Surface (F6)				
<input type="checkbox"/>	Sandy Mucky Mineral (S1)		<input type="checkbox"/>	Depleted Dark Surface (F7)				
<input type="checkbox"/>	Sandy Gleyed Matrix (S4)		<input type="checkbox"/>	Redox Depressions (F8)				
Restrictive Layer (if present):								
Type:	<u> </u>					Hydric Soils Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		
Depth (inches):	<u> </u>							
Remarks:								

HYDROLOGY

Wetland Hydrology									
Wetland Hydrology Indicators:					Wetland Hydrology Indicators:				
Primary Indicators (minimum of one required; check all that apply)					Secondary Indicators (2 or more required)				
<input type="checkbox"/>	Surface Water (A1)	<input type="checkbox"/>	Water-Stained Leaves (B9)	<input checked="" type="checkbox"/>	Water-Stained Leaves (B9)				
<input type="checkbox"/>	High Water Table (A2)		(except MLRA 1, 2, 4A, and 4B)		(MLRA 1, 2, 4A, and 4B)				
<input type="checkbox"/>	Saturation (A3)	<input type="checkbox"/>	Salt Crust (B11)	<input type="checkbox"/>	Drainage Patterns (B10)				
<input type="checkbox"/>	Water Marks (B1)	<input type="checkbox"/>	Aquatic Invertebrates (B13)	<input type="checkbox"/>	Dry-Season Water Table (C2)				
<input type="checkbox"/>	Sediment Deposits (B2)	<input type="checkbox"/>	Hydrogen Sulfide Odor (C1)	<input type="checkbox"/>	Saturation Visible on Aerial Imagery (C9)				
<input type="checkbox"/>	Drift Deposits (B3)	<input type="checkbox"/>	Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/>	Geomorphic Position (D2)				
<input type="checkbox"/>	Algal Mat or Crust (B4)	<input type="checkbox"/>	Presence of Reduced Iron (C4)	<input type="checkbox"/>	Shallow Aquitard (D3)				
<input type="checkbox"/>	Iron Deposits (B5)	<input type="checkbox"/>	Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/>	FAC-Neutral Test (D5)				
<input type="checkbox"/>	Surface Soil Cracks (B6)	<input type="checkbox"/>	Stunted or Stresses Plants (D1) (LRR A)	<input type="checkbox"/>	Raised Ant Mounds (D6) (LRR A)				
<input type="checkbox"/>	Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/>	Other (Explain in Remarks)	<input type="checkbox"/>	Frost-Heave Hummocks (D7)				
<input checked="" type="checkbox"/>	Sparsely Vegetated Concave Surface (B8)								
Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? (includes capillary fringe) Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____					Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:									
Remarks:									

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

Project Site: Thurston County Parcel 12825110600 City/County: Olympia/Thurston Sampling Date: 6/28/2018
 Applicant/Owner: KAPA CONSTRUCTION LLC State: WA Sampling Point: SPA2u
 Investigator(s): Mike Layes, PWS Section, Township, Range: 25/18N/02W
 Landform (hillslope, terrace, etc.): Glacial Kettle Local relief (concave, convex, none): convex Slope (%): 30
 Subregion (LRR): A Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: 128-Yelm Fine Sandy Loam, 15-30% Slopes NWI classification: n/a
 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 type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Wetland Hydrology Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Remarks:		

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>4</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50</u> (A/B)
4. _____	_____	_____	_____	
50% = _____, 20% = _____	_____	= Total Cover		
Sapling/Shrub Stratum (Plot size: 10 ft)				Prevalence Index worksheet:
1. <u>Rubus ursinus</u>	<u>50</u>	<u>yes</u>	<u>FACU</u>	
2. <u>Cytisus scoparius</u>	<u>20</u>	<u>yes</u>	<u>NL (UPL)</u>	OBL species _____ x1 = _____
3. <u>Oemleria cerasiformis</u>	<u>5</u>	<u>no</u>	<u>FACU</u>	FACW species _____ x2 = _____
4. _____	_____	_____	_____	FAC species _____ x3 = _____
5. _____	_____	_____	_____	FACU species _____ x4 = _____
50% = <u>37.5</u> , 20% = <u>15</u>	<u>75</u>	= Total Cover		UPL species _____ x5 = _____
Herb Stratum (Plot size: 5 ft)				Column Totals: _____ (A) _____ (B)
1. <u>Holcus lanatus</u>	<u>50</u>	<u>yes</u>	<u>FAC</u>	Prevalence Index = B/A = _____
2. <u>Urtica dioica</u>	<u>30</u>	<u>yes</u>	<u>FAC</u>	
3. <u>Lolium perenne</u>	<u>10</u>	<u>no</u>	<u>FAC</u>	
4. <u>Poa pratensis</u>	<u>10</u>	<u>no</u>	<u>FAC</u>	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
50% = <u>50</u> , 20% = <u>20</u>	<u>100</u>	= Total Cover		
Woody Vine Stratum (Plot size: 5 ft)				Hydrophytic Vegetation Indicators:
1. <u>N/A</u>	_____	_____	_____	
2. _____	_____	_____	_____	<input type="checkbox"/> 2 - Dominance Test is >50%
50% = _____, 20% = _____	_____	= Total Cover		<input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹
% Bare Ground in Herb Stratum <u>0</u>				<input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
Remarks:				<input type="checkbox"/> 5 - Wetland Non-Vascular Plants ¹
				<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
				Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>

Remarks:

SOILSampling Point: SPA2u**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (inches)	Matrix		Redox Features				Texture ³	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
<u>0-12</u>	<u>10YR3/3</u>	<u>100</u>	_____	_____	_____	_____	<u>Sa/Si/L</u>	_____
<u>12-16+</u>	<u>10YR3/4</u>	<u>100</u>	_____	_____	_____	_____	<u>Sa/Si/L</u>	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

³Sa = Sand, Si = Silt, C= Clay, L=Loam

G= Gravel, M= Muck, P =Peat, V=Very

¹Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.²Location: PL=Pore Lining, M=Matrix**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

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

Indicators for Problematic Hydric Soils³:

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

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.**Restrictive Layer (if present):**

Type: _____

Depth (inches): _____

Hydric Soils Present?

Yes

☐

No

☒

Remarks:

HYDROLOGY**Wetland Hydrology Indicators:**

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

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

Secondary Indicators (2 or more required)

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

Field Observations:Surface Water Present? Yes ☐ No ☒ Depth (inches): _____Water Table Present? Yes ☐ No ☒ Depth (inches): _____Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): _____**Wetland Hydrology Present?**

Yes

☐

No

☒

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

Remarks:

Appendix C. Wetland Determination Forms



December 29, 2017

Mr. Jon Pettit
9725 Rich Road SE
Olympia, WA 98501

Dear Mr. Pettit,

RE: 2400 Morse Road SE

This letter is in response to your December 22, 2017 email in which you submitted a wetland reconnaissance report for the subject property owned by Mr. Terry Ballard located at 2400 Morse Road SE. This report was prepared by Alex Callender, a professional wetland scientist.

The report notes that the lowest point of the depression located north of the existing residence does contain the characteristics of a wetland. Mr. Callender found during a walk of the property that stormwater is discharging to the subject property from off-site and is infiltrating onsite within the depression. The report concludes that the depression area may meet wetland parameters, but that the area would not likely maintain wetland functions if the stormwater was removed. The report also notes that the soils outside of the depression match the Yelm series soils, which are not considered hydric.

Based on the wetland report, staff has determined that the wetland environment at the bottom of the depression is not a regulated wetland pursuant to Olympia Municipal Code (OMC) 18.32.505. This section states that "Wetlands do not include those artificial wetlands intentionally created from nonwetland sites, including, but not limited to, irrigation and drainage ditches, grass-lined swales, canals, detention facilities, wastewater treatment facilities, farm ponds, and landscape amenities." While it appears this wetland situation may be the result of unintentional actions and was not intentionally created as cited above, the intent of this section of the code still applies.

Both Chapters 18.32 (wetlands) and 16.60 (trees, soil, vegetation) of the OMC regulate tree and vegetation removal. The more restrictive regulations of Chapter 18.32 apply to sites where a regulated wetland or its buffer is located (18.02.080.E). Absent a regulated wetland or buffer, only the provisions of Chapter 16.60 must be met.

Chapter 16.60 provides for the following tree removal permit exemptions pertaining to Mr. Ballard's property. These exemptions apply as long as the minimum tree density requirement of 30 tree units per acre is maintained on the property (OMC 16.60.040, 16.60.080A Table):

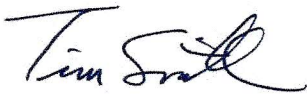
Tree and Vegetation Removal Permit Exempt Activities

- For that portion of the property within 125' of the residence or other buildings: removal of trees and other vegetation within 125' of the residence or other buildings. OMC 16.60.040(F)
- For that portion of the property further than 125' from the residence or other buildings: removal of up to 6 trees per acre, up to a total of 6 trees within any 12 consecutive month period. OMC 16.60.040(H)

Lastly, in prior conversations we had discussed the wetland investigation work that may occur on the 5-acre parcel at 2817 Boulevard Road SE. The City recently held a presubmission conference with a developer for a potential residential subdivision on that property (file #17-4725, Boulevard Road Subdivision). The City informed the developer that a wetland report is required with the submittal of a land development project. If a report finds that a regulated wetland is present on that site, a wetland buffer could extend onto Mr. Ballard's property. I will contact you when the City has received a wetland report for that site. Any land clearing work within a wetland buffer would be limited to the activities outlined in my letter dated October 16, 2017.

Please contact me with any questions at 360.570.3915.

Sincerely,

A handwritten signature in black ink, appearing to read "Tim Smith", with a stylized flourish at the end.

Tim Smith, AICP
Principal Planner