

# Sewall Wetland Consulting, Inc.

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March 8, 2018

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RE: 5637 Mercer Way – *Revised* Critical Areas Report SWC Job#14-206

# **1.0 INTRODUCTION**

This report describes our observations of any jurisdictional wetlands, streams and buffers on or within 200' of the proposed single family home located at 5637 East Mercer Way in the City of Mercer Island, Washington (the "site").

The site is an irregular shaped 0.88 acre parcel (Parcel #192405-0312) consisting of an east sloping site located within the SE <sup>1</sup>/<sub>4</sub> of Section 19 Township 24 North, Range 5 East of the W.M.

## METHODOLOGY

Ed Sewall of Sewall Wetland Consulting, Inc. inspected the site November 6, 2014. The site was reviewed using delineation methodology described in the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory, 1987), and the *Western Mountains, Valleys and Coast region Supplement* (Version 2.0) dated June 24, 2010, as required by the US Army Corps of Engineers.

Wetland Ratings were determined using the *Washington State Wetlands Rating System for Western Washington* Publication #04-06-025 dated August 2004 as well as the associated rating forms revised in 2006 & 2008.



Above and below: Vicinity map of the site.



Soil colors were identified using the 1990 Edited and Revised Edition of the *Munsell Soil Color Charts* (Kollmorgen Instruments Corp. 1990).

The Washington State Wetlands Identification and Delineation Manual and the Corps of Engineers Wetlands Delineation Manual/Regional Supplement all require the use of the three-parameter approach in identifying and delineating wetlands. A wetland should support a predominance of hydrophytic vegetation, have hydric soils and display wetland hydrology. To be considered hydrophytic vegetation, over 50% of the dominant species in an area must have an indicator status of facultative (FAC), facultative wetland (FACW), or obligate wetland (OBL), according to the National List of Plant Species That Occur in Wetlands: Northwest (Region 9) (Reed, 1988). A hydric soil is "a soil that is saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions in the upper part". Anaerobic conditions are indicated in the field by soils with low chromas (2 or less), as determined by using the Munsell Soil Color Charts; iron oxide mottles; hydrogen sulfide odor and other indicators. Generally, wetland hydrology is defined by inundation or saturation to the surface for a consecutive period of 12.5% or greater of the growing season. Areas that contain indicators of wetland hydrology between 5%-12.5% of the growing season may or may not be wetlands depending upon other indicators. Field indicators include visual observation of soil inundation, saturation, oxidized rhizospheres, water marks on trees or other fixed objects, drift lines, etc. Under normal circumstances, indicators of all three parameters will be present in wetland areas.

#### **OBSERVATIONS**

#### Existing Site Documentation.

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

#### **National Wetlands Inventory (NWI)**

There are no wetlands mapped on or near the site on the NWI mapping for area of the site.



Above: NWI Map of the study area

# Soil Survey

According to data on file with the NRCS Soil Survey, the site as mapped as Kitsap silt loam 15%-30% slopes. Kitsap soils are a moderately welldrained soils formed in lacustrine deposits. Kitsap soils are not considered "hydric" soils according to the publication Hydric Soils of the United States (USDA NTCHS Pub No.1491, 1991).



Above: NRCS Soil map of the study area.

# City of Mercer Island Water Inventoried Watercourses

The City of Mercer Island stream inventory shows a perennial flowing non-fish bearing stream also known as a Type 2 watercourse with a 50' buffer.



Above: Mercer Island Stream Inventory of the site

#### **Field observations**

The site consists of a bowl shaped parcel sloping to the east with a stream and associated slope type wetlands associated with the stream. The site is generally forested, although a quarry spall driveway accesses the site off an existing paved driveway which passes through the site.

The site has steep slopes to the south as well as an undulating topography in the vicinity of the stream. The site is covered by a mix of red alder, western hemlock and some big leaf maple. Understory species include sword fern, red huckleberry, salmonberry and some stinging nettle.

Soil pits excavated in the upland portion of the site were found to have dry, gravelly loam soils with soil colors of 10YR 3/3-3/4. Soils were found to be dry within the upper 16" during our wet season observations.

#### Wetlands

As previously mentioned, a slope type wetland covers most of the site outside the steep slopes. Below is a description of these wetlands;

## Wetland A

Wetland A consists of a forested slope type wetland that covers most of the site. This wetland was previously flagged by Wetland resources in 2004 and the delineation was found to still be accurate.

This slope-type wetland is vegetated with a mix of red alder, salmonberry, lady fern, skunk cabbage and some creeping buttercup. red-osier dogwood and lady fern.

Soil pits excavated within the wetland revealed a silt loam with a soil color of 2.5Y 2.5/1 with few, fine faint redoximorphic concentrations. Soils within the wetland were saturated at the surface during our wet season observation period.

Using the US Fish and Wildlife Wetland Classification Method (Cowardin et al. 1979), this wetland contains areas that would be classified as PFO1C.

Using the WADOE Wetland Rating system and rating the wetland as a slope wetland, this wetland scored a total of 34 points with 18 for habitat. This indicates a Category III wetland. According to City of Mercer Island Municipal Code (MIMC) Chapter 19.07.080.C.1, Category III wetlands have a 50' standard buffer.

## Stream A

As previously mentioned, a small perennial stream flows easterly along the north side of the site. This stream originates in seeps from the bordering slope wetlands and flows somewhat steeply to the east where it cascades over a bank into a catch basin and then a culvert under Mercer Way. The stream flows in a 100' long culvert which is a barrier to any fish migration up through the culvert. As a result, this small channel has been mapped as the City as a Type 2 watercourse. Based upon MIMC Chapter 19.07.070.B.1, Type 2 watercourses have a 50' standard buffer.

## Stream B

Stream B is a small perennial stream flows easterly along the south side of the site just north of the existing as well as proposed driveway. This stream originates in seeps from the bordering slope wetlands and flows in a small defined swale. An old pipe lays in the bed of the stream and may have been a drain or waterline, it is of unknown origin. This stream like Stream A flows to the east where it cascades over a bank into a catch basin and then a culvert under Mercer Way. The stream flows in a 100' long culvert which is a barrier to any fish migration up through the culvert. As a result, this small channel has been mapped as the City as a Type 2 watercourse. Based upon MIMC Chapter 19.07.070.B.1, Type 2 watercourses have a 50' standard buffer. This buffer is located entirely within other critical areas and buffers.

## Wildlife Habitat Conservation Areas

A review of the site revealed no state or federally listed species on or near the site. A review of the Washington State Department of Fish and Wildlife Priority Mapping system was conducted for the site. This mapping identifies state listed species as well as areas considered by WDFW to be "priority habitats". The mapping of the area of the site

revealed no listed state or federal species utilizing the site. It does show and area to the north of the site as part of a "biodiversity corridor" (*purple shading*), which is a densely forested area with some steep slopes.

## **Functions and Values**

Wetland A is a forested wetland and as such provides habitat to numerous species that tolerate being within close proximity to humans. The wetland main function is as a groundwater discharge point, which allows groundwater to reach the surface and provide hydrological support to the Type 2 watercourse passing through the site.



Above: WDFW Priority Habitat mapping of the area of the site.

## PROPOSED PROJECT

The proposed project is the construction of a single family residence as current zoning allows. As previously described, the site is highly encumbered by critical areas including a stream, associated wetland, buffers and steep slopes. There is no part of the site located outside of these critical areas. As a result, in order to build a home on this site the application of MIMC Chapter 19.07.030.B *"Allowed alterations and*" *reasonable use exception*" must be utilized. As described in this section of Code;

B. Reasonable Use Exception.

1. Application Process. If the application of these regulations deny reasonable use of a subject property, a property owner may apply to the hearing examiner for a reasonable use exception pursuant to permit review, public notice and appeal procedures set forth in Chapter 19.15 MICC.

2. Studies Required. An application for a reasonable use exception shall include a critical area study and any other related project documents, such as permit applications to other agencies, and environmental documents prepared pursuant to the State Environmental Policy Act.

3. Criteria. The hearing examiner will approve the application if it satisfies all of the following criteria:

a. The application of these regulations deny any reasonable use of the property. The hearing examiner will consider the amount and percentage of lost economic value to the property owner;

The application of the standard regulations regarding wetlands, streams, steep slopes and buffers would not allow construction of a home on the site. The only feasible location to build a home will impact some wetland and buffer.

*b.* No other reasonable use of the property has less impact on critical areas. The hearing examiner may consider alternative reasonable uses in considering the application;

The site is zoned for a single family home use and there is no other alternative reasonable use of the site.

c. Any alteration to critical areas is the minimum necessary to allow for reasonable use of the property;

The following mitigation sequencing was conducted to determine the most appropriate impacts and mitigation;

This sequencing requires addressing the following criteria;

#### a. Avoid any disturbances to the wetland or buffer;

The entire site is wetland and buffer. There is no way to develop the site under any reasonable scenario without impacting both wetlands and buffers.

#### b. Minimize any wetland or buffer impacts;

In order to minimize impacts, the site plan has been designed to utilize the existing driveway access point/driveway and has pushed the reasonable size home foot print as far away from the stream as is possible. Buffer impacts have been minimized by having no lawn or landscaped areas, and having just the bare essentials, being the driveway and the home structure itself. The new site plan has moved the home location east to reduce the amount of wetland impact to 3,420 sf and buffer impact to 2,621sf. The main difference between the new plan and the old plan is the reduction in driveway buffer impacts by shifting the site to the east. Wetland Impact has been reduced by 374sf and buffer impacts by 885sf (see attached plan). There will also be 1,763sf of temporary impact to wetlands from grading during construction. This is not fill, just regrading without removing wetland characteristics except vegetation, so the area will be restored with native plants.

	Hearing examiner plan	city plan
Roof area	2150 sf	2150 sf
House footprint	1631 sf	1631 sf
Driveway	1640 sf	1560 sf
Site disturbance	6041 sf	6926 sf
Wetland disturbance by the house & drive	e 2537 sf	2031 sf
Wetland disturbance grading only	883 sf	1763 sf
Total wetland disturbance	3420 sf	3794 sf



c. Restore any wetlands or buffer impacted or lost temporarily; and

Temporarily impacted wetland from grading around the structure will be replanted with native vegetation.

*d.* Compensate for any permanent wetland or buffer impacts by one of the following methods:

*i.* Restoring a former wetland and provide buffers at a site once exhibiting wetland characteristics to compensate for wetlands lost;

This is not possible as there are no "former" wetlands on the site.

ii. Creating new wetlands and buffers for those lost; and

This is not possible as there is no room to create new wetlands, or buffers on the site.

iii. Enhancing wetlands that have reduced function;

The wetlands on-site are generally in good shape and cannot be functionally improved with any enhancements.

Other factors to consider in this Reasonable Use review are;

1. Although zoned to permit two single family residences, only one is proposed.

2. The square footage of the proposed residence is only 1,631 square feet (approx.), which is 37% of the 4,300 square foot average size of a new single family residence built on Mercer Island in 2013-2014.

3. The house is sited on the most level portion of the property, This is within the applicable 50 foot watercourse buffer of Stream B.

4. Excavation will be limited to the extent necessary to build the house and related driveway.

5. The property's impervious surfaces have been restricted to a total of Approximately 6,041 square feet, 10% of which are existing.

6. Only 15% of the lot will be covered, which represents less than 42% permitted by code.

In addition to the fill of wetland for the foundation, a minor amount of fill will occur from the proposed driveway. The driveway will be located over the current location of the quarry spall driveway that exists on the site, further reducing impacts.

*d. Impacts to critical areas are mitigated to the greatest extent reasonably feasible consistent with best available science;* 

In order to mitigate for the minimal impacts to the sites wetlands from the project, we are proposing using credits from the King County Mitigation Reserves program.

e. The proposal does not pose an unreasonable threat to the public health, safety, or welfare; and

The proposed construction of a home on the site will not impact public health or safety and will utilize the latest construction techniques to minimize impacts to critical areas. f. The inability of the applicant to derive reasonable use of the property is not the result of actions by the applicant after the effective date of this chapter.

The ability of the owner to derive reasonable use of the property is not the result of any action at any time by the owner, and solely the fact that the site is covered by critical areas.

## Stormwater

Stormwater from the new impervious surfaces on-site will be collected in a stormwater vault under the driveway and discharged to an existing culvert along the east end of the driveway. This water will then drain through the existing roadside ditch tpo the stream. This should mimic existing drainage patterns on the site.

Once approval of the proposed conceptual mitigation is received, a final detailed mitigation plan will be provided to the city for review and approval.

## **US Army Corps permit**

An application for fill of .046 acres of wetlands was submitted to the US Army Corps of Engineers in July of 2015. A comment letter was received on August 18, 2015 with several requested changes. We are in the process of responding to this letter. One of the requests is that we utilize the King County Mitigation Reserve Program for mitigating the impacts. The Corps requires the use of a bank like this if it is available. As a result we will be purchasing credits from the bank to satisfy the Corps request. As a result the combination of the proposed on-site mitigation as well as purchase of credits from the King County Mitigation reserves program will fully mitigate the proposed impacts on the site.

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

Sincerely, Sewall Wetland Consulting, Inc.

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Ed Sewall Senior Wetlands Ecologist PWS #212

#### REFERENCES

City of Mercer Island Municipal Code

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

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

Western Mountains, Valleys and Coast Regional Supplement (Version 2.0) dated June 24, 2010. USACOE

Washington State Wetlands Rating System for Western Washington Publication #04-06-025 dated August 2004, Revised 2008.



Above: Site as viewed from Mercer Way Below: looking north across site near existing driveway entrance





Above: Existing quarry spall access driveway which leads to proposed building site

Weiland page or number A	Wetland name or sumber
WETLAND RATING PORM - WESTERN WASHINGTON Version 2 - Updated Jely 2006 to increase accuracy and reproducibility among users	Does the wetland unit being rated meet any of the criteria below? If you answer YES to any of the questions below you will need to protect the wet
Updated Oct 2008 with the new WENW definitions for princity habitats	according to the regulations regarding the special characteristics found in the wet
Name of wetland (if known): _ het A - Myen Way Date of site visit: 11-6.14	Circul Astrian Washingto Mine Mine Astri Authtrongtabureation
Rated by Ed Semall Trained by Ecology? Yes_No_ Date of training	ព្រំចនាវព្រំព័រចាប់ចំណើងចម្រោះសម្តេច (ស្រុកពារអារាមនៅទៀត (ស្រុកខ្មែរស្រុក)
	SP1. Has the wetland unit been documented as a habitat for any Federally listed. Threatened or Endangered animal or plant species (T/Z species)?
SEC:TWNSHP: Is S/T/R in Appendix D? Yes No	For the purposes of this rating system, "documented" means the wetland is on the
Map of wetland unit: Figure Estimated size	appropriate state or federal database.
	SP2. Has the wetland unit been documented as habitat for any State listed
SUMMARY OF RATING	Threatened or Endangered animal species?
	For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are
Category based on FUNCFIONS provided by wetland	categorized as Category I Natural Heritage Wetlands (see p. 19 of data form).
	SP3. Does the welland unit contain individuals of Priority species listed by the
	WDFW for the state?
Score for Water Quality Functions 20	SP4. Does the welland unit have a local significance in addition to its functions?
Category I = Score >= 70	For example, the wetland has been identified in the Shoreline Master
	Program, the Critical Areas Ordinance, or in a local management plan as
Category III = Score 30-50 Score for Habitat Functions / 8 Category IV = Score <30	having special significance.
Category 1V = 500re < 30 TOTAL score for Functions 3 4	
Category based on SPECIAL CHARACLERISTICS of welland	
Category based on SPECIAL CHARACTERISTICS of welland	To complete the next part of the data sheet you will need to determine Hydrogeomorphic Class of the wetland being rated.
I II Does not Apply	Hydrogeomorphic Class of the wetland being rated.
	Hydrogeomorphic Class of the wetland being rated. The hydrogeomorphic classification groups wetlands into those that function in similar v
I II Does not Apply	Hydrogeomorphic Class of the wetland being rated. The hydrogeomorphic classification groups wetlands into those that function in similar v simplifies the questions needed to answer how well the wetland functions. The Hydrog
I II Does not Apply Final Category (choose the "highest" category from above)	Hydrogeomorphic Class of the wetland being rated. The hydrogeomorphic classification groups wetlands into those that function in similar v simplifies the questions needed to answer how well the wetland functions. The Hydrog
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II       Does not Apply         Final Category (choose the "highest" category from above)       IIII         Summary of basic information about the vertical unit       Verticated unit         Verticated (SS)       Provide (SS)         Zaturate       Degreesional         Natural Heritage Wetland       Riverine	Hydrogeomorphic Class of the wetland being rated. The hydrogeomorphic classification groups wetlands into those that function in similar v simplifies the questions peeded to answer how well the wetland functions. The Hydrog Class of a wetland can be determined using the key below. See p.24 for more detailed
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II     IDoes not Apply       Final Category (choose the "highest" category from above)     IIII       Summary of basic information about the wetland unit     Withenter (RS       Extuariant     Withenter (RS       Extuariant     Nature Heritage Wetland       Nature I Heritage Wetland     Rivernine       Ing     Lake-fringe       Mature Forest     Slope       Old Growth Forest     Flots	Hydrogeomorphic Class of the wetland being rated. The hydrogeomorphic classification groups wetlands into those that function in similar simplifies the questions peeded to answer how well the wetland functions. The Hydrog Class of a wetland can be determined using the key below. See p.24 for more detailed
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#### Weiland name or number PA

#### Classification of Wetland Units in Western Washington

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

1. Are the water levels in the entire unit usually controlled by tides (i.e. except during floods)? NO-go to 2 YES - the wetland class is Tidat Fringe If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)? YES -- Freshwater Tidal Fringe NO -- Saltwater Tidal Fringe (Estuarine) thousands): Xe5.- Presummer frame Frame real-solution of a submeter frame for the submeter for the submeter for the submeter frame for the submeter for the s revision. To maintain consistency between editions, the term "Estuarine" we liad is kept. Please note, however, that the characteristics that define Catogory I and II estuarine wetlands have ohanged (see p. ). 2. The entire wetland unit is flat and procipitation is the only source (>50%) of water to it. Ground water and surface water raceff are NOI sources of water to the unit. NO\_good 3 YES - The wetland class is Flats

If your wetland can be classified as a "Flats" wetland, use the form for Depressional abantianda

3. Does the entire wetland unit meet both of the following criteria? The vegetated part of the wetland is on the shores of a body of permanent open water The vegetated part of the wedgeta is on the shores of a cody of permanent (without any vegetation on the surface) at least 20 acres (8 hs) in size; -At least 30% of the open water area is deeper than 6.6 ft (2 m)?

NO-go to YES - The wotland class is Lake-fringe (Lacustrine Fringe) 4. Does the entire wetland unit meet all of the following criteria?

Me finite websate our inter an of a working of the first of the websate flows through the websate flows are gradual, for water flows arough the websate first on the direction (undirectional) and usually comes from scops. It may flow subsurface, as sheetflow, or in a swale without

distinot banks. The water leaves the wetland without being impounded? NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions of intition ocks (depressions are usually

<3 diameter and less than 1 feet deep). YES - The welland class in Slope

NO - go too

Vetland Rating Form -- western Washington 3 version 2. Updated with new WD2W definitions Oct, 2008

August 2004

Weiland name or number

5. Does the entire wetland unit meet all of the following criteria? \_\_\_\_ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river

The overbank flooding occurs at least once every two years.

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

Wetland Rating Form -- western Washington 4 vention 2 Updated with new WDFW definitions Oct. 2008

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 welland class is Depressional

7. Is the entire welland 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 welland 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. 8. Your wetano unst esents to be difficult to dassify and probably contains several different HGM classs. For example, sceps at the base of a slope may grade into a reverse Bodeplain, or a small steems within a depressional wetland has a zone of floading atong its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the welland unit being rated. If the area of the class listed in column 2 is less than 10% of the unit, classify the wetland using the class that represents more than 90% of the total area.

Metal master a diama continue to theme built a second	是 1.5.5.5.2.014年1月1日,1.11月1日,11月1日。
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slone + Lake-fringe	Lake-fringe
Depressional + Riverine along stream within boundary	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics

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

Wetland name or number A Strip Walends and the other active is antisent density with the manual an Differen nalitions with the day S 1. Does the wetland unit have the potential to improve water quality? (see. p. 64) S S 1. Does not restrict a surge slope of unit: S h1 Characteristics of average slope of unit: Slope is 14 for less (a 18 is lope has a 1 foor vertical drop to elevation for every 100 Å korkantal distance) points = 3 points = 2 S Slope is 1% - 2% Slope is 2% - 5% Slope is greater than 5% points = 1 points = 0 0 
 S
 \$1.2 The soil 2 inchet below the surreview

 2155 = 3 points
 NO = 0 points

 2155 = 3 points
 NO = 0 points

 S
 \$1.3 Charaveful first of the vegetation in the wetland that trap softments and pollutants:

 Choose the points comparements for the description that best fits the wegetation in the weakand. Deraw wegetation were not practice or moved and plant are bight in the of the low.

 Dense, uncel, herboeous vegetation > 00% of the welland are a plant in 0 fits of the soft are bight in 0 fits and the point are bight in 0 fits and the bight in 0 fits and the point are b S 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic fuse NRCS 3 Figure \_\_\_\_ 2 5 S S2. Does the workand unli have the <u>opportunity</u> to improve water quality? Answer YES if you have to believe there are pollutants in groundwater or surface water coming into the welland that would otherwise reduce water quality in streams, lakes or (see p. 67) coming into the victual that would be been water that a duality in sociality, they are goundwater downgmidtant if four the welland. Note which of the following conditions provide the sources of pollutants. A unit may have pollutants conting from several sources, but any single source would qualify as opportunity. - Grazing in the wetland or within 150ft - Untreated stormwater discharges to wetland --- Tilled fields, logging, or orchards within 150 feet of welland --- Residential, urban areas, or golf courses are within 150 ft upslope of wetland multiplier Z - Other YBS (multiplier is 2) NO multiplier is 1 TOTAL - Water Quality Functions Multiply the score from S1 by S2 S 10 Add score to table on p. 1 Comments

Wetland name or number

\$	<ul> <li>SIMPS Windfinity style="border: border: borde : border: border:</li></ul>	(Polars)
	S 3. Does the wetland unit have the <u>polyntial</u> to reduce flooding and stream erosion?	(see p.68)
S	S 31. Characteristics of Vargetation that back the velocity of surface flows during storms. Choose the points appropriate for the description that back fit conditions in the velocit, (stream of points about be thick enough (neurallow) > 1/80t, or demains amongs, to remain are at during surface flows)           Dense, uncut, right vegetation covers > 90% of the sees of the weiland. Dense, uncut, right vegetation > 1/2 area of weiland Dense, uncut, right vegetation > 1/4 area of methan and the set of the weiland. Dense that 1/4 of area is genzed, mowed, tilled or vegetation is not right	4
S.	S 3.2 Characteristics of slopp wetland that holds back small amounts of flood flows: The slope wetland has small surface depressions that can rothin water over at least 10% of its area. NO () () () () () () () () () () () () ()	0
S	Add the points in the boxes above	1 6
S	54. Does the verdinal have the <u>opportunity</u> to reduce floading and evodon? Is the wetlind is a landcage position where the reduction in variet velocity it provides helps proted downstream property and equatic resources from floading or excessive and/or environ floave? More subtient of the following conditions capits. — Wetling the surface record? that drains to a river or stream that has flooding problems.	(see p. 70)
	Other	multiplier
	(Answer NO if the major source of water is controlled by a reservoir (a.g. wedand is a seep that is on the downstream side of the second secon	
8	TOTAL - Hydrologic Functions Multiply the score from S 3 by S 4 Add score to table on p. 1	6
	Comments	-

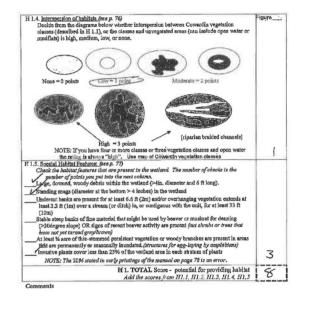
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Weiland name or number\_A-Romin Gal, 11 These questions apply to withouts of all BONI alasses agait an Ph.Ru: Ph.Dr.R - nadaaraa ahar am armanan na mawaa mapafata dabita H I. Does the wetland unit have the <u>potential</u> to provide habitat for many species? 11.1 Notes the vertices that new two present (as defined by Coverday-Site threaded for each old as the second of the second o igure \_\_\_\_ If the yest has a frantise later sheek if: The forested class sheek 3 cut of 5 strata (canopy, sib-canopy, shrubs, herbacoous, moss/ground-cover) that each cover 20% within the forested polygon Add the number of vagetation structures that qualify. If you have: 4 structures or more points = 4 points = 2 Map of Cowardin vegetation classes 3 chruchures 2 2 structures points - I ininta = 0 1 structure 
 1
 1
 intracture
 points 

 H
 2. Hudropariods (see p. 73)
 Check the types of weate regime has the other of the other of the other other of the other lgure \_\_\_\_ 4 or more types present points = 3 points = 2 point = 1 points = 0 Lake-fringe welland = 2 points Freshwater idal welland = 2 points Map of hydroperiods H 1.3. <u>Richness of Plant Species</u> for a p. 73 Count the number of plant species in the welland that cover at least 10 ft<sup>2</sup>. (different patches of the same species can be a combined to meet the size threshold) You do nal have to name the species. Do not include Eurastan Milfail, read canarygrass, purple loosestrife, Canadian Thisile If you counted: > 19 species 5 - 19 species < 5 species < 5 species points = 1 points = 2 points = 1 points = 2 List species below If you want to: 1 Total for page \_ Wetland Rating Form - western Washington 13 version 2 Updated with new WDFW definitions Oct. 2008 August 2004

Weiland name or number



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#### Wetland name or number A

I 2. Does the wetland unit have the opportunity to provide habitat for many species?	Flater
H 2.1 <u>Buffers</u> (see p. 80) Thoose like description (has best represents condition of buffer of wetland unit. The highest scoring riterion that applies to the wetland is to be used in the rating. See test for definition of "unditarbed."	Figure
<ul> <li>— 100 m (330ft) of relatively undisturbed vegetabed areas, receiver and variar &gt;95% of aircumference. No structures are within the undisturbed part of buffer. (relatively undisturbed also means no-gazzing, no landscaping, no daily human use) Points = 5</li> </ul>	
<ul> <li>— 100 m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water &gt; 50% circumference.</li> </ul>	
<ul> <li>50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water &gt;95% oircumference.</li> <li>Points = 4</li> </ul>	1
<ul> <li>100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water &gt; 25% circum ference, .</li> <li>Pointa = 3</li> </ul>	1
If buffer does not meet any of the criteria above	
- No paved areas (except paved trails) or buildings within 25 m (80ft) of welland > 95%	
circumference. Light to moderate grazing, or lawns are OK. Points = 2	10
<ul> <li>No paved areas or buildings within 50m of wetland for &gt;50% circumference.</li> </ul>	
Light to moderate grazing, or lawns are OK. Points = 2	10
<ul> <li>Heavy grazing in buffer.</li> <li>Points = 1</li> </ul>	
- Vegetaled buffers are <2m wide (6.6ft) for more than 95% of the circumference (e.g. tilled	1 C
fields, paving, basalt hedrock extend to edge of wedland Points = 0.	L
Buffer does not meet my of the criteria above. Points = 1	5
Aorial hoto showing buffars	-
H 2.2 Corridors and Connections (see p. 81) H 2.2.1 Is the welfand part of a relatively undisturbed and unbroken vegetated corridor	
(either cipacian or upland) that is at least 150 ft wide, has at least 30% cover of shrubs, forest or native undisturbed prairin, that connects to estuardes, other wetlands or undisturbed unlands that are at least 250 ences to just? (dams it reparain corritors, heavily used gravel)	
roads, paved roads, are constdured breaks in the corridor). YES = 4 points (go to H 2.3) NO = go to H 2.2.2	
H 2.2.2 is the wetland part of a relatively undisturbed and unbroken vegetated corridor	
(either riparian or upland) that is at least 50ft wide, has at least 30% cover of shrubs or	1
forest, and connects to estuarios, other wetlands or undisturbed uplands that are at least 25	1 C
sores in size? OR a Lake-fringe wetland, if it does not have an undisturbed corridor as in	
acres in size? OR a Lake-fringe wetland, if it does not have an undisturbed corridor as in the quastion above? YES = 2 points (go to H 2.3) NO = H 2.2.3	
acres in size? OR a Lake-fringe wetland, if it does not have an undisturbed corridor as in the question above? YES = 2 points (go to H 2.3) NO = H 2.2.3 H 2.2.3 is the wetland;	
scres în zize? OR a Lake-fringe wetland, if it does not have an undisturbed corridor as in the quaston above? YES = 2 points (go to H 2.3) NO = H 2.2.3 H 2.2.3 in the vetland; within 5 mi (Kano) of a brackich or sair water estuary OR	
acces in size? OR a Lake-fringe wetland, if it does not have an undisturbed corridor as in the quarkon above? YES = 2 points (go to H 2.3) NO = H 2.2.3 H 2.2.3 is the voltance: within 5 mi (lam) of a logal field or pastrac 4-40 acresh OR yrithin 5 mi (cla lange field or pastrac 4-40 acresh OR	Ι.
scres în zize? OR a Lake-fringe wetland, if it does not have an undisturbed corridor as in the quaston above? YES = 2 points (go to H 2.3) NO = H 2.2.3 H 2.2.3 in the vetland; within 5 mi (Kano) of a brackich or sair water estuary OR	1

Wetland name or number\_\_\_\_\_\_

H 2.3 Near or adjacent to other priority habitats listed by WDFW (see new and complete	T
descriptions of WDFW priority habitats, and the countles in which they can be fou	nd in
the PHS report http://wdfw.wa.gov/hab/phallst.htm }	
Which of the following priority habitats are within 330ft (100m) of the wetland unit? M	OTE: the
connections do not have to be relatively undisturbed.	
Aspen Stands: Pure or mixed stands of aspen greater than 0.4 ha (1 acre).	- 1
Blodiversity Areas and Corridors: Areas of habitat that are relatively important to v	arious
species of native fish and wildlife (full descriptions in WDFW PHS report p. 152).	
Herbaceous Balds: Variable size patches of grass and forbs on shallow soils over bed	trock.
Old-growth/Mature forests: (Old-growth west of Cascade crest) Stands of at least 2	
species, forming a multi-layered canopy with occasional small openings; with at loa	st 20
trees/ha (8 trees/acro) > 81 cm (32 m) dbh or > 200 years of age, (Mature forests) S	Stands
with average diameters exceeding 53 cm (21 in) doh; crown cover may be less that 3	100%;
orown cover may be less that 100%; decay, decadence, numbers of snags, and quant	ity of
large downed material is generally less than that found in old-growth; 80 - 200 years	sold
west of the Cascado creat.	
Oregon white Oak: Woodlands Stands of pure oak or oak/conifer associations when	
canopy coverage of the oak component is important (full descriptions in WDFW PH	S
report p. 158).	
Riparian: The area adjacent to equatic systems with flowing water that contains elem	ients of
both squatic and terrestrial ecosystems which mutually influence each other.	
Westside Prairies: Herbacoous, non-forested plant communities that can either take	
form of a dry prairie or a wet prairie (full descriptions in WDFW PHS report p. 161)	
Instream: The combination of physical, biological, and chemical processes and condi	
that interact to provide functional life history requirements for instream fish and will	difb
resources.	1999 C
Nearshore: Relatively undisturbed nearshore habitats. These include Coastal Nearsh Open Coast Nearshore, and Puget Sound Nearshore. (full descriptions of habitats and Antipatric and Antipatric antipatric and Antipatric and Antipatric	
definition of relatively undisturbed are in WDFW report; pp. 167-169 and glossary	
Appendix A).	ia
Caves: A naturally occurring cavity, recess, void, or system of interconnected passage	sunder.
the earth in soils, rock, ice, or other geological formations and is large enough to con	
human.	
Cliffs: Greater than 7,6 m (25 ft) high and occurring below 5000 ft.	
Talus: Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.	5 ft).
composed of basali, andesite, and/or sedimentary rock, including riprap slides and m	ine
Itailings. May be associated with oliffs.	
Sungs and Logs: Trees are considered snags if they are dead or dying and exhibit suf	
decay characteristics to enable cavity excavation/use by wildlife. Priority snags have	
diameter at breast height of > 51 cm (20 in) in western Washington and are > 2 m (6	
height, Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (2	0 ft)
long.	
If wetland has 3 or more priority habitats = 4 points	
If wetland has 2 priority habitats = 3 points	
If wetland has 1 priority habitat = 1 point No habitats = 0 points	1
Note: All vegetated wetlands are by definition a priority habitat but are not included	in this
list. Near watlands are addressed in mestion H 2.4	

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Weiland name or number \_\_\_\_\_ H 2.4 Wetland Landszenz (c)ecose the one description of the landscape around the wetland that best file) [see p. 84] There are at least 3 other wetlands within ½ mile, and the connections between them are relatively undistructed (light grazing tetween wetlands OK, as is lake shore with some basting, but connections should NOT be bisered by payed roads, all, fields or other are shown of the source of th basing, but connections should NOT be bisseted by paved reads, fill, fields, or other development. The welland is Lake-frings on a lake with little disturbance and there are 3 other lake-frings wellands within 15 mile disturbed There are a least 3 other wellands within 14 mile, BUT the connections between them, see disturbed The welland yikhin 15 mile mere and 15 Lake-frings on a lake with disturbance and there are 3 other lake-fliggs welland within 14 mile points = 3 There is at least 1 welland within 14 mile. Dista = 0 3 H 2. TOTAL Score - opportunity for providing habitat Add the scores from H2.1, H2.2, H2.3, H2.4 10 TOTAL for H 1 from page 14 8 Total Score for Habitat Functions - add the points for H 1, H 2 and record the result on 18

Wetland name or number \_\_\_\_\_

#### CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

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

Wetland Type. Check off any exteria that apply to the wetland. Circle the Category when the appropriate ordering are met.	Category
Sci 10 Structure welland Science, 89     Does the welland unit meet the following outsria for Estuarine wellands?     — The dominant water regime is tidal,     _ Vegetated, and     _ With a alinity greater than 0.5 ppt.     YEE - Go to SC 1.1 NO	4
SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Arcz Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? YES = Category I NO go to SC 1.2	Cat. I
<ul> <li>SC1.2 Is the wedand unit at least 1 acre in size and meets at least two of the following three conditions? YES ~ Category II</li> <li>The welland is relatively undisturied (has no dixing, dishing, filling, cultivation, grazing, and has leas than 10% cover of non-naive plant species. If the non-naive Sparrine sp. are the only peoless that cover more than 10% of the welland, then the welland should be given a dual rating (UD). The serve of Sparrine synum be hard to extra synum the size of the server strategory I while the relatively undisturbed upper marsh with native species would be a Category I. Do not, however, exclude the sear of Sparrine avoid be a category I. No where the setulation the sat 100 ft buffer of shruh, forest, or un-grazed or un-moved grashand.</li> <li>The welland has at least 2 of the following features: fidal channels, depressions with open valuer, or configuous frestwater wellands.</li> </ul>	Cet. I Cot. II Dual rating I/II

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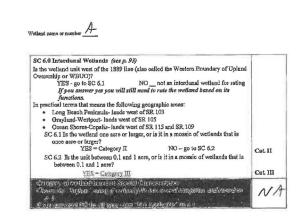
Wetland narro or number \_\_\_\_\_\_A SC 2.0 Natural Heritage Wellands (see p. 87) Natural Heritage wellands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wellands or wellands that support Cat. I state Threatened, Endangered, or Sensitive plant species. SC 2. 1 is the wediand unit being rated in a Section/Township/Range that contains a Natural Heritage welland and being interface in a container towners ready time containers Natural Heritage welland? (this guestion is used to screen out most sites before you need to contact WNEP/DNR) STIR information from Appendix D\_\_\_\_ or accessed from WNEP/DNR web site \_\_\_\_\_ YES - contact WNHP/DNR (see p. 79) and go to SC 2.2 NO\_\_\_\_ SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as or as a site with state threatened or endangered plant species? YES = Calegory I NO \_\_\_\_\_not a Hentage Wetland SC 3.0 Bogs (see p. 67) Does the welland unit (or any part of the unit) meet both the criterie for soils and vegetation in bogs? Use the key below to identify if the welland is a bog. If you answer yes you will still need to rate the welland based on its functions. 1. Does the unit have organic soli horizons (i.e. layers of organic soil), either posts or mucics, that compose 16 inches or more of the first 32 inches of the soil profile? (See Appendix B for # Self type to dontify organic soils)? Yes ge to Q.3 2. Does the unit have organio soils, either peaks or mucks that are less than 16 inches deep over bodrock, or an impermetable hardpan such as clay or volcenzo ash, or that are floating on a lake as pend? Votesno sil, of that are liceting on a late point Yes - go to Q. 3 3. Does the unit have more than 70% cover of mosses a ground evel, AND other plants, if present, consist of the 'bog' species listed in Table 3 as a significant component of the vogetation (once than 30% of the total shrub and herbaceous cover consists of species in Table 3)? Yes - Is a bog for purpose of rating No - go to Q. 4 NOTE: If you are uncertain about the extent of mosses in the understory NV LTD: If you are uncertain about the extent of modes in the indefinity you may substitute that oriterion by measuring the pH of the water that seeps into a hole dug at least 16" deep. If the pH is less than 5.0 and the "bog" plant species in Table 3 are present, the wetland is a bog. I. Is the unit forested (> 30% cover) with sitks spruce, subalpine fir, western as use out accesses (~2005 outres) with an any spring accessing the second seco 2. YES = Category I No Is not a bog for purpose of rating Cat. I Wetland Rating Form - western Washington 19 version 2 Updated with new WDFW definitions Oct. 2008 August 2004 19

Wetland name or number A

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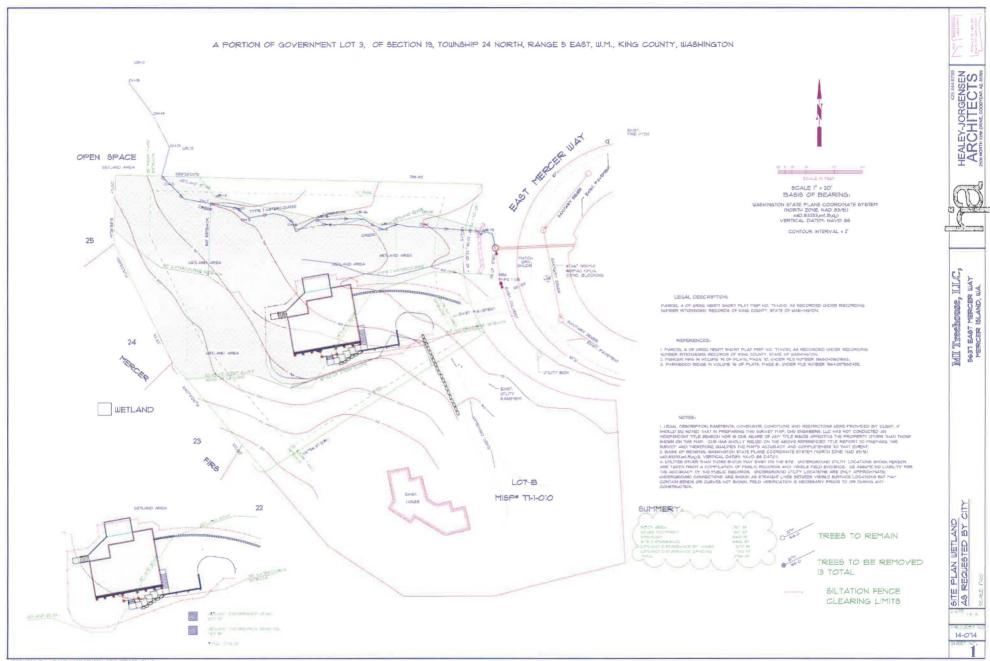
SC 4.0 Forested Wellands (see p. 90) Does the welland unit have at least 1 acro of foreat that meet one of these oriteria for the Department of Fish and Wildlith's forests as priority habitats? If your answer yes you will still need to rate the welland based on its functions. — Old-growth forest: (west of Cascade curvel) Stands of at least two tree species, forming a multi-layered canopy with cocasional small openings, with at least 8 trees/nor (20 trees/notarc) that ne at least 200 years of tage OR have a diameter at breast height (bdb) of 23 intoks (81 cm) or more.	
NOTE: The oriterion for dbh is based on measurements for upland forests. Two-hundred year old troes in wellands will often have a smaller dbh because their growth rates are often slower. The DFW oriterion is and "OR" so old-growth forests do not necessarily have to have brees of this diameter.	
<ul> <li>Mature forests: (west of the Cassade Creut) Standa where the largest trees are 80-200 years old OR have average diameters (dbh) exceeding 21 inches (33cm); forwa cover may be less list 100%; decay, decadence, numbers of mansy, and quality of large downed material is generally less than that found in old-growth.</li> </ul>	Cat. I
YES = Category I NO <u>No</u> to a forested wetland with special characteristics	CHLI
SC 5.0 Wetlands in Coastal Lagoons (see p. 91)	
Does the welland meet all of the following criteria of a welland in a constal lagoon? — The welland lies in a depression edjacent to marine waters that is wholly or purtially separated from marine waters by and bunks, gravel banks, abingie, or, less frequently, rocks — The lagoon in which the welland is located contains surface water that is saline or brackish (> 0.5 ppi) during most of the year in at least a portion of the lagoon (needs to be measured upse for the obtain) YES = Go to SC 5.1 NOC not a welland in a coastal lagoon	
SC 5.1 Does the wetland meets all of the following three conditiona? — The wetland is relatively undisturbed (has no diking, diching, filing, outivation, grazing), and has less that 20% cover of invasive plant species (see list of invarive species on p. 74).	
<ul> <li>At least % of the landward edge of the wetland has a 100 ft buffer of shrub, foreat, or un-grazed or un-mowed grassland.</li> <li>The wetland is larger than 1/10 acre (4350 square feet)</li> </ul>	Cat. I
YES - Category I NO = Category II	Cat II

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# EXHIBIT C



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