ECOLOGICAL LAND SERVICES, INC.

Stan Firestone
P.O. Box 61928
Vancouver, Washington 98666

Re: SE 40th Street (Valley View Estates Subdivision) Wetland Determination Addendum

Dear Mr. Firestone,

Ecological Land Services, Inc. (ELS) prepared a wetland determination detailing onsite conditions at the Valley View Estates Subdivision (Clark County Parcel Numbers 125646-000, 125634-000, and 125635-000) in October 2007 (*Wetland Determination Report for the Southeast 40th Site*). Onsite wetland conditions have not changed since the 2007 site investigation; there are no wetlands onsite. This addendum addresses off-site conditions within 300 feet of the property boundaries and meets the requirement for a critical areas report pursuant to CMC 16.53.030 as described in the June 27, 2013 pre-application summary.

One wetland is located offsite to the southwest. The northern boundary of the wetland is approximately 120 feet from the southern property boundary. A residential subdivision is under construction in the buffer of the wetland. The wetland was rated based on observations from your property and aerial photography using the *Wetland Rating Form for Western Washington* (Hruby; attached). The wetland appears to be a Category IV slope wetland. The City of Camas assigns a maximum 50-foot regulatory buffer to Category IV wetlands.

The buffer of the offsite wetland is estimated to be 50 feet. Because the wetland boundary is approximately 120 feet from the property boundary, no wetlands or wetland buffers extend onto your property from offsite.

If you have any questions, please contact me at lisa@eco-land.com or (360) 835-9082.

Sincerely,

Lisa F. Willis

Lisa F. Willis
Professional Biologist

Figure 1 | Valley View Estates Subdivision Adjacent Wetlands

Legend

- Parcels
- Roads
- Alley
- Arterial
- DNR
- DNR (Private Land)
- Driveway
- Interstate
- Interstate Ramp
- Primary Arterial
- Private Roads
- Private Roads w/o Names
- Public Roads
- SR Ramp
- State Route
- 2 Foot Contours
- Waterbodies
- Rural Centers
- City Boundaries
- Urban Growth Boundaries
- County Boundary

0 350 700 1050 ft.

Scale: 1:3,735

Map center: 1137196, 99654

This map was generated by Clark County's "Maps Online" website. Clark County does not warrant the accuracy, reliability or timeliness of any information on this map, and shall not be held liable for losses caused by using this information.

Wetland rating based on observations from the project site and aerial photography using the Wetland Rating Form for Western Washington (revised)

Wetland name or number_____

WETLAND RATING FORM – WESTERN WASHINGTON

Version 2 – Updated July 2006 to increase accuracy and reproducibility among users
Updated Oct 2008 with new WDFW definitions for priority habitats

Name of wetland (if known): Offsite_____ Date of site visit:_____10/3/13__

Rated by M.McGraw Trained by Ecology? Yes ☒ No ☐ Date of Training: _____2006

SECTION: 8 TWNSHIP: 1N RNGE: 3E Is S/T/R in Appendix D? Yes☐No☒

Map of wetland unit: Figure 1 Estimated size unknown

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland

I ☐ II ☐ III ☐ IV ☒

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

Score for Water Quality Functions	8
Score for Hydrologic Functions	2
Score for Habitat Functions	9
TOTAL Score for functions	**19**

Category based on SPECIAL CHARACTERISTICS of wetland

I ☐ II ☐ Does not Apply ☒

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

Summary of basic information about the wetland unit

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

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

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

Check List for Wetlands That May Need Additional Protection (in addition to the protection recommended for its category)	YES	NO
SP1. *Has the wetland been documented as a habitat for any Federally listed Threatened or Endangered **animal** or **plant** species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.	☐	☒
SP2. *Has the wetland unit been documented as habitat for any State listed Threatened or Endangered **animal** species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category 1 Natural Heritage Wetlands (see p. 19 of data form).	☐	☒
SP3. *Does the wetland contain individuals of Priority species listed by the WDFW for the state?*	☐	☒
SP4. *Does the wetland have a local significance in addition to its functions?* For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.	☐	☒

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

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

Classification of Wetland Units in Western Washington

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

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

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

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

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

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

☒NO – go to 3 ☐**YES** – The wetland class is **Flats**

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

3. Does the wetland **meet both** of the following criteria?

☐ The vegetated part of the wetland is on the shores of a body of open water (without any vegetation on the surface) at least 20 acres (8 ha) in size;

☐ At least 30% of the open water area is deeper than 6.6 ft (2 m)?

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

4. Does the wetland **meet all** of the following criteria?

☒ The wetland is on a slope (*slope can be very gradual*),

☒ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.

☒ The water leaves the wetland **without being impounded**?

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

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

5. Does the entire wetland unit **meet all** of the following criteria?

☐ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding

from that stream or river

☐ The overbank flooding occurs at least once every two years.

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

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

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

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

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

D	**Depressional and Flats Wetlands** **WATER QUALITY FUNCTION – Indicators that the wetland unit functions to improve water quality**	**Points** (only 1 score per box)
D	**D 1. Does the wetland have the potential to improve water quality?**	*(see p.38)*
D	D 1.1 Characteristics of surface water flows out of the wetland: Unit is a depression with no surface water leaving it (no outlet) points = 3 Unit has an intermittently flowing, OR highly constricted, permanently flowing outlet points = 2 Unit has an unconstricted, or slightly constricted, surface outlet *(permanently flowing)* points = 1 Unit is a "flat" depression (Q. 7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch points = 1 *(if ditch is not permanently flowing treat unit as "intermittently flowing")* Provide photo or drawing	**Figure**____
D	D 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic *(use NRCS definitions)* YES points = 4 NO points = 0	
D	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class): Wetland has persistent, ungrazed, vegetation > = 95% of area points = 5 Wetland has persistent, ungrazed, vegetation > = 1/2 of area points = 3 Wetland has persistent, ungrazed vegetation > = 1/10 of area points = 1 Wetland has persistent, ungrazed vegetation <1/10 of area points = 0 Map of Cowardin vegetation classes	**Figure**____
D	D1.4 Characteristics of seasonal ponding or inundation. *This is the area of the wetland that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 yrs.* Area seasonally ponded is > ½ total area of wetland points = 4 Area seasonally ponded is > ¼ total area of wetland points = 2 Area seasonally ponded is < ¼ total area of wetland points = 0 Map of Hydroperiods	**Figure**____
D	**Total for D 1** *Add the points in the boxes above*	
D	**D 2. Does the wetland have the opportunity to improve water quality?** Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland? *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.* ☐ Grazing in the wetland or within 150 ft ☐ Untreated stormwater discharges to wetland ☐ Tilled fields or orchards within 150 ft of wetland ☐ A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging ☐ Residential, urban areas, golf courses are within 150 ft of wetland ☐ Wetland is fed by groundwater high in phosphorus or nitrogen ☐ Other ____ ☐ **YES** multiplier is **2** ☐ **NO** multiplier is **1**	*(see p.44)* multiplier _____
D	**TOTAL - Water Quality Functions** Multiply the score from D1 by D2 ***Add score to table on p. 1***	

D	**Depressional and Flats Wetlands** HYDROLOGIC FUNCTIONS - Indicators that wetland functions to reduce flooding and stream degradation	**Points**
	D 3. Does the wetland have the potential to reduce flooding and erosion?	*(see p.46)*
D	D 3.1 Characteristics of surface water flows out of the wetland unit Unit is a depression with no surface water leaving it (no outlet) points = 4 Unit has an intermittently flowing, OR highly constricted permanently flowing outlet points = 2 Unit is "flat" depression (Q. 7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or is a man-made ditch points = 1 *(If ditch is not permanently flowing treat unit as "intermittently flowing")* Unit has an unconstricted, or slightly constricted, surface outlet (permanently flowing) points = 0	Figure___
D	D 3.2 Depth of storage during wet periods *Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry).* Marks of ponding are 3 ft or more above the surface or bottom of outlet points = 7 The wetland is a "headwater" wetland"points = 5 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 Unit is flat (yes to Q 2 or Q. 7 on key) but has small depressions on the surface that trap water points = 1 Marks of ponding less than 0.5 ft points = 0	Figure___
D	D 3.3 Contribution of 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 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 unit is in the FLATS class points = 5	Figure___
D	**Total for D 3** *Add the points in the boxes above*	
D	**D 4. Does the wetland have the opportunity to reduce flooding and erosion?** Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity it provides, helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. *Note which of the following indicators of opportunity apply.* ☐ Wetland is in a headwater of a river or stream that has flooding problems ☐ Wetland drains to a river or stream that has flooding problems ☐ Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems ☐ Other _____ ☐ **YES** multiplier is **2** ☐ **NO** multiplier is **1**	*(see p.49)* multiplier _____
D	**TOTAL - Hydrologic Functions** Multiply the score from D 3 by D 4 ***Add score to table on p. 1***	

R	**Riverine and Freshwater Tidal Fringe Wetlands** WATER QUALITY FUNCTIONS - Indicators that wetland functions to improve water quality	**Points**
R	**R 1. Does the wetland have the <u>potential</u> to improve water quality?**	*(see p.52)*
R	R 1.1 Area of surface depressions within the riverine wetland that can trap sediments during a flooding event: Depressions cover > 3/4 area of wetland — points = 8 Depressions cover > 1/2 area of wetland — points = 4 If depressions >1/2 of area of unit draw polygons on aerial photo or map Depressions present but cover < 1/2 area of wetland — points = 2 No depressions present — points = 0	Figure__
R	R 1.2 Characteristics of the vegetation in the unit (areas with >90% cover at person height): Trees or shrub > 2/3 the area of the unit — points = 8 Trees or shrub > 1/3 area of the unit — points = 6 Ungrazed, herbaceous plants > 2/3 area of unit — points = 6 Ungrazed, herbaceous plants > 1/3/ area of unit — points = 3 Trees, shrubs, and ungrazed herbaceous < 1/3 area of unit — points = 0 Aerial photo or map showing polygons of different vegetation types	figure__
R	*Add the points in the boxes above*	
R	**R 2. Does the wetland have the <u>opportunity</u> to improve water quality?** Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland? *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.* ☐ Grazing in the wetland or within 150 ft ☐ Untreated stormwater discharges to wetland ☐ Tilled fields or orchards within 150 feet of wetland ☐ A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging ☐ Residential, urban areas, golf courses are within 150 ft of wetland ☐ The river or stream linked to the wetland has a contributing basin where human activities have raised levels of sediment, toxic compounds or nutrients in the river water above standards for water quality ☐ Other _____ ☐ **YES** multiplier is **2** ☐ **NO** multiplier is **1**	*(see p. 53)* multiplier _____
R	**<u>TOTAL</u> - Water Quality Functions** Multiply the score from R1 by R2 ***Add score to table on p. 1***	

R	Riverine and Freshwater Tidal Fringe Wetlands HYDROLOGIC FUNCTIONS - Indicators that wetland functions to reduce flooding and stream erosion	Points (only 1 score per box))
R	**R 3. Does the wetland have the <u>potential</u> to reduce flooding and erosion?**	*(see p. 54)*
R	R 3.1 Characteristics of the overbank storage the wetland provides: *Estimate the average width of the wetland perpendicular to the direction of the flow and the width of the stream or river channel (distance between banks). Calculate the ratio: (average width of unit)/(width of stream between banks).* If the ratio is more than 20 points = 9 If the ratio is between 10-20 points = 6 If the ratio is 5- <10 points = 4 If the ratio is 1- <5 points = 2 If the ration is <1 points = 1 Aerial photo or map showing polygons of different vegetation types	Figure__
R	R 3.2 Characteristics vegetation that slow down water velocities during floods: *Treat large woody debris as "forest or shrub". Choose the points appropriate for the best description.* Forest or shrub for >1/3 area OR herbaceous plants >2/3 area points = 7 Forest or shrub > 1/10 area OR herbaceous plants >1/3 area points = 4 Vegetation does not meet above criteria points = 0 Aerial photo or map showing polygons of different vegetation types	Figure__
R	*Add the points in the boxes above*	
R	**R 4. Does the wetland have the <u>opportunity</u> to reduce flooding and erosion?** Answer YES if the wetland is in a location in the watershed where the flood storage, or reduction in water velocity it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. *Note which of the following conditions apply.* ☐ There are human structures and activities downstream (roads, buildings, bridges, farms) that can be damaged by flooding. ☐ There are natural resources downstream (e.g. salmon redds) that can be damaged by flooding ☐ Other _____ *(Answer NO if the major source of water to the wetland is controlled by a reservoir or the wetland is tidal fringe along the sides of a dike.)* ☐**YES** multiplier is **2** ☐**NO** multiplier is **1**	*(see p. 57)* multiplier _____
R	**TOTAL – Hydrologic Functions** Multiply the score from R3 by R4 ***Add score to table on p. 1***	

Comments

L	**Lake-Fringe Wetlands** WATER QUALITY FUNCTIONS - Indicators that wetland functions to improve water quality	**Points** (only 1 score per box)
L	**L 1. Does the wetland have the <u>potential</u> to improve water quality?**	*(see p. 59)*
L	L 1.1 Average width of vegetation along the lakeshore: Vegetation is more than 33ft (10m) wide — points = 6 Vegetation is more than 16 (5m) wide and <33ft — points = 3 Vegetation is more than 6ft (2m) wide and <16 ft — points = 1 Vegetation is less than 6 ft wide — points = 0	Figure__
L	L 1.2 Characteristics of the vegetation in the wetland: *choose the appropriate description that results in the highest points, and do not include any open water in your estimate of coverage. In this case the herbaceous plants can be either the dominant form or forest community .These are not Cowardin classes. Area of Cover is total cover in the unit, but can be in patches. Note: Herbaceous does not include aquatic bed.* Cover of herbaceous plants cover >90% of the vegetated area — points = 6 Cover of herbaceous plants cover >2/3 of the vegetated area — points = 4 Cover of herbaceous plants cover >1/3 of the vegetated area — points = 3 Other vegetation that is not aquatic bed in > 2/3 vegetated area — points = 3 Other vegetation that is not aquatic bed in > 1/3 vegetated area — points = 1 Aquatic bed vegetation and open water cover > 2/3 of the vegetated area — points = 0 Map with polygons of different vegetation types	Figure__
L	*Add the points in the boxes above*	
L	**L 2. Does the wetland have the <u>opportunity</u> to improve water quality?** Answer YES if you know or believe there are pollutants in the lake water, or polluted surface water flowing through the unit to the lake. *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity* ☐ Wetland is along the shores of a lake or reservoir that does not meet water quality standards ☐ Grazing in the wetland or within 150ft ☐ Polluted water discharges to wetland along upland edge ☐ Tilled fields or orchards within 150 feet of wetland ☐ Residential or urban areas are within 150 ft of wetland ☐ Parks with grassy areas that are maintained, ballfields, golf courses (all within 150 ft. of lake shore) ☐ Power boats with gasoline or diesel engines use the lake ☐ Other _____ ☐**YES** multiplier is **2** ☐**NO** multiplier is **1**	*(see p. 61)* multiplier _____
L	**<u>TOTAL</u> - Water Quality Functions** Multiply the score from L1 by L2 ***Add score to table on p. 1***	

Comments

L	**Lake-Fringe Wetlands**	**Points** (only 1 score per box)
	HYDROLOGIC FUNCTIONS - Indicators that wetland unit functions to reduce shoreline erosion	
L	**L 3. Does the wetland have the potential to reduce shoreline erosion?**	*(see p. 62)*
L	L 3 Distance along shore and average width of Cowardin classes along the lakeshore (**do not** include aquatic bed): (*choose the highest scoring description that matches conditions in the wetland*): >¾ of distance is shrubs or forest at least 33 ft (10m) wide points = 6 >¾ of distance is shrubs or forest at least 6 ft. (2m) wide points = 4 >¼ of distance is shrubs or forest at least 33 ft (10m) wide points = 4 Vegetation is at least 6 ft (2m) wide (any type except aquatic bed) points = 2 Vegetation is less than 6 ft (2m) wide (any type except aquatic bed) points = 0 Aerial photo or map with Cowardin vegetation classes	Figure__
L	*Record the points from the box above*	
L	**L 4. Does the wetland unit have the opportunity to reduce erosion?** Are there features along the shore which will be impacted if the shoreline erodes? *Note which of the following conditions apply.* ☐ There are human structures and activities along the upland edge of the wetland (buildings, fields) that can be damaged by erosion. ☐ There are undisturbed natural resources along the upland edge of the wetland (e.g. mature forests other than wetland) that can be damaged by shoreline erosion ☐ Other _____ ☐**YES** multiplier is **2** ☐**NO** multiplier is **1**	*(see p. 63)* multiplier _____
L	**TOTAL – Hydrologic Functions** Multiply the score from L 3 by L 4 ***Add score to table on p. 1***	

Comments

S	Slope Wetlands **WATER QUALITY FUNCTIONS - Indicators that wetland unit functions to improve water quality**	**Points** (only 1 score per box)
S	**S 1. Does the wetland have the potential to improve water quality?**	*(see p. 64)*
S	S 1.1 Characteristics of average slope of wetland: Slope is 1% or less *(a 1% slope has a 1 foot vertical drop in elevation for every 100 ft horizontal distance)*.....points = 3 Slope is 1% - 2% points = 2 Slope is 2% - 5% points = 1 Slope is greater than 5% points = 0	**1**
S	S 1.2 The soil 2 inches below the surface (or duff layer) is clay organic*(use NRCS definitions)* YES = 3 points NO = 0 points	**0**
S	S 1.3 Characteristics of the vegetation in the wetland that traps sediments and pollutants: *Choose the points appropriate for the description that best fits the vegetation in the wetland. Dense vegetation means you have trouble seeing the soil surface. (<75% cover), and uncut means not grazed or mowed and plants are higher than 6 inches.* Dense, ungrazed, herbaceous vegetation > 90% of wetland area points = 6 Dense, ungrazed, herbaceous vegetation > ½ of area points = 3 Dense, woody vegetation > ½ of area points = 2 Dense, ungrazed, herbaceous vegetation > ¼ of area points = 1 Does not meet any of the criteria above for vegetation points = 0 Aerial photo or map with vegetation polygons	Figure__ **3**
S	**Total for S 1** *Add the points in the boxes above*	**4**
S	**S 2. Does the wetland have the opportunity to improve water quality?** Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland? *Note which of the following conditions provide the sources of pollutants A unit may have pollutants coming form several sources, but any single source would qualify as opportunity..* ☐ Grazing in the wetland or within 150 ft ☐ Untreated stormwater discharges to wetland ☐ Tilled fields or orchards within 150 feet of wetland ☒ Residential, urban areas, or golf courses are within 150 ft upslope of wetland ☐ Other _____ ☐ **YES** multiplier is **2** ☐ **NO** multiplier is **1**	*(see p. 67)* multiplier **2**
S	**TOTAL - Water Quality Functions** Multiply the score from S1 by S2 ***Add score to table on p. 1***	**8**

Comments

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

Comments

These questions apply to wetlands of all HGM classes HABITAT FUNCTIONS – Indicators that wetland functions to provide important habitat	**Points** (only 1 score per box)
H 1. Does the wetland have the <u>potential</u> to provide habitat for many species?	
H 1.1 <u>Vegetation structure</u> ***(see p. 72)***	Figure__
Check the types of vegetation classes present (as defined by Cowardin)- Size threshold for each class is ¼ acre or more than 10% of the area if unit is smaller than 2.5 acres.	
☐ Aquatic bed ☒ Emergent plants ☐ Scrub/shrub (areas where shrubs have >30% cover) ☒ Forested (areas where trees have >30% cover)	
If the unit has a forested class check if: ☐ Forested areas have 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon	**1**
Add the number of vegetation types that qualify. If you have: 4 types or more — points = 4 3 types — points = 2 2 types — points = 1 1 type — points = 0 Map of Cowardin vegetation classes	
H 1.2 <u>Hydroperiods</u> ***(see p. 73)***	Figure__
Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ acre to count. (See text for description of hydroperiods.)	
☐ Permanently flooded or inundated — 4 or more types present — points = 3 ☒ Seasonally flooded or inundated — 3 types present — points = 2 ☐ Occasionally flooded or inundated — 2 types present — points = 1 ☒ Saturated only	**1**
☐ Permanently flowing stream or river in, or adjacent to, the wetland ☐ Seasonally flowing stream or river in, or adjacent to, the wetland ☐ ***Lake-fringe wetland* = 2 points** ☐ ***Freshwater tidal wetland* = 2 points**	
H 1.3 <u>Richness of Plant Species</u> ***(see p. 75)***	
Count the number of plant species in the wetland that cover at least 10 ft^2. *(Different patches of the same species can be combined to meet the size threshold.)* *You do not have to name the species.* *Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle.*	
If you counted: > 19 species — points = 2 5 - 19 species — points = 1 *List species below if you want to:* <5 species — points = 0	**2**

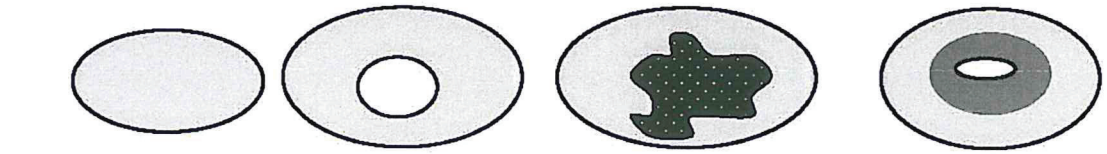
Total for page: **4**

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

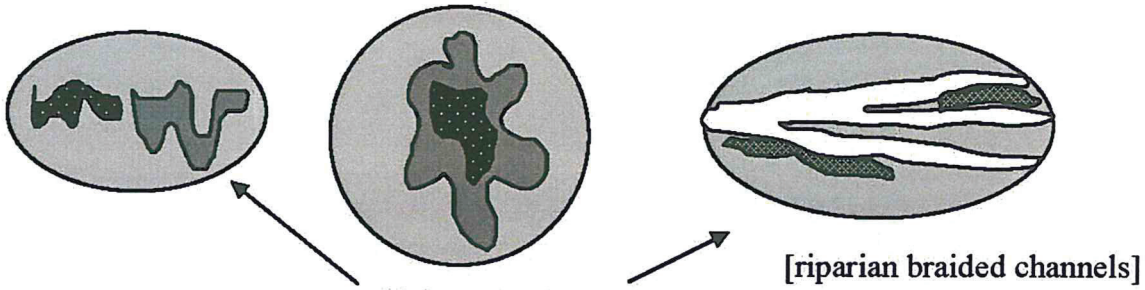
Decide from the diagrams below whether interspersion between Cowardin vegetation classes (described in H 1.1), or classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.

Figure__

1



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



High = 3 points [riparian braided channels]

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

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

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

- ☐ Large, downed, woody debris within the wetland (>4in. diameter and 6 ft long).
- ☐ Standing snags (diameter at bottom >4 inches) in the wetland
- ☐ Undercut banks are present for at least 6.6 ft. (2m) and/or overhanging vegetation extends at least 3.3 ft (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft (10m)
- ☐ Stable steep banks of fine material that might be used by beaver or muskrat for denning (>30 degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet turned grey/brown)*
- ☐ At least ¼ acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated *(structures for egg-laying by amphibians)*
- ☒ Invasive plants cover less than 25% of the wetland area in each stratum of plants

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

1

H 1. TOTAL Score – potential for providing habitat
Add the scores from H1.1, H1.2, H1.3, H1.4, H1.5

6

Comments:

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

Total for page: **2**

H 2.3 Near or adjacent to other priority habitats listed by WDFW ***(see new and complete descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report http://wdfw.wa.gov/hab/phslist.htm)*** Which of the following priority habitats are within 330ft (100m) of the wetland unit? *NOTE: the connections do not have to be relatively undisturbed.* ☐ **Aspen Stands:** Pure or mixed stands of aspen greater than 0.4 ha (1 acre). ☐ **Biodiversity Areas and Corridors:** Areas of habitat that are relatively important to various species of native fish and wildlife *(full descriptions in WDFW PHS report p. 152).* ☐ **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock. ☐ **Old-growth/Mature forests:** (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age. (Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less than 100%; crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest. ☐ **Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important *(fill descriptions in WLDFW PHS report p. 158).* ☒ **Riparian:** The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other. ☐ **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie *(full descriptions in WDFW PHS report p. 161).* ☐ **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources. ☐ **Nearshore:** Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. *(full descriptions of habitats and the definition of relatively undisturbed are in WDFW report.' pp. 167-169 and glossary in Appendix A).* ☐ **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human. ☐ **Cliffs:** Greater than 7.6 m (25 ft) high and occurring below 5000 ft. ☐ **Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs. ☐ **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (20 if) long. If wetland has **3 or more** priority habitats = **4 points** If wetland has **2** priority habitats = **3 points** If wetland has **1** priority habitat = **1 point** No habitats = 0 points *Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4)*	**1**

H 2.4 Wetland Landscape *(choose the **one** description of the landscape around the wetland that best fits)* ***(see p. 84)*** ☐ There are at least 3 other wetlands within ½ mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development. points = 5 ☐ The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within ½ mile points = 5 ☐ There are at least 3 other wetlands within ½ mile, BUT the connections between them are disturbed points = 3 ☐ The wetland is Lake-fringe on a lake **with** disturbance and there are 3 other lake-fringe wetlands within ½ mile points = 3 ☐ There is at least 1 wetland within ½ mile. points = 2 ☒ There are no wetlands within ½ mile. points = 0	**0**
H 2. TOTAL Score -opportunity for providing habitat *Add the scores in the column above*	**3**
TOTAL for H 1 from page 14	**6**
Total Score for Habitat Functions – add the points for H 1, H 2 and record the result on p. 1	**9**

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

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

Wetland Type *Check off any criteria that apply to the wetland. Select the appropriate Category (from dropdown menu in Category column) when the appropriate criteria are met.*	**Category**
SC 1.0 Estuarine wetlands *(see p. 86)* 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	
SC 1.1 Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? ☐YES = Category I ☒NO go to SC 1.2	Cat. I
SC 1.2 Is the wetland at least 1 acre in size and meets at least two of the following three conditions? YES = Category I NO = Category II ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. If the non-native *Spartina* spp. are the only species that cover more than 10% of the wetland, then the wetland should be given a dual rating (I/II). The area of Spartina would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category I. Do not, however, exclude the area of Spartina in determining the size threshold of 1 acre. ☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. ☐ The wetland has at least 2 of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.	Cat. I Cat. II Dual rating I/II

SC 2.0 Natural Heritage Wetlands *(see p. 87)* Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species. SC 2.1 Is the wetland being rated in a Section/Township/Range that contains a Natural Heritage wetland? *(this question is used to screen out most sites before you need to contact WNHP/DNR)* S/T/R information from Appendix D ☐ or accessed from WNHP/DNR web site ☒ YES ☐ – contact WNHP/DNR (see p. 79) and go to SC 2.2 NO ☒ SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as or as a site with state threatened or endangered plant species? ☐YES = Category I ☐NO__not in a Heritage Wetland	Cat. I
SC 3.0 Bogs *(see p. 87)* Does the wetland unit (**or part of the unit**) meet both the criteria for soils and vegetation in bogs? *Use the key below to identify if the wetland is a bog.* ***If you answer yes you will still need to rate the wetland based on its functions.*** 1. Does the unit have organic soil horizons (i.e. layers of organic soil), either peats or mucks, that compose 16 inches or more of the first 32 inches of the soil profile? (See Appendix B for a field key to identify organic soils) Yes ☐ - go to Q. 3 No ☒ go to Q. 2 2. Does the unit have organic soils, either peats or mucks that are less than 16 inches deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on a lake or pond? Yes ☐ - go to Q. 3 No ☒ - Is not a bog for purpose of rating 3. Does the unit have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the "bog" species listed in Table 3 as a significant component of the vegetation (more than 30% of the total shrub and herbaceous cover consists of species in Table 3)? Yes ☐– Is a bog for purpose of rating No ☐-go to Q. 4 NOTE: If you are uncertain about the extent of mosses in the understory you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16" deep. If the pH is less than 5.0 and the "bog" plant species in Table 3 are present, the wetland is a bog. 4. Is the unit forested (> 30% cover) with sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemann's spruce, or western white pine, WITH any of the species (or combination of species) on the bog species plant list in Table 3 as a significant component of the ground cover *(> 30% coverage of the total shrub/herbaceous cover)?* YES ☐ = Category I NO ☐ Is not a bog for purpose of rating	**Cat. I**

SC 4.0 Forested Wetlands *(see p. 90)* Does the wetland unit have at least 1 acre of forest that meets one of these criteria for the Department of Fish and Wildlife's forests as priority habitats? *If you answer yes you will still need to rate the wetland based on its functions.* ☐ **Old-growth forests**: (west of Cascade crest) Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20 trees/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm) or more. NOTE: The criterion for dbh is based on measurements for upland forests. Two-hundred year old trees in wetlands will often have a smaller dbh because their growth rates are often slower. The DFW criterion is and "OR" so old-growth forests do not necessarily have to have trees of this diameter. ☐ **Mature forests**: (west of the Cascade Crest) Stands where the largest trees are 80 – 200 years old OR have average diameters (dbh) exceeding 21 inches (53cm); crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth. ☐YES = Category I ☒ NO not a forested wetland with special characteristics	**Cat. I**
SC 5.0 Wetlands in Coastal Lagoons *(see p. 91)* Does the wetland meet all of the following criteria of a wetland in a coastal lagoon? ☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks ☐ The lagoon in which the wetland is located contains surface water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon *(needs to be measured near the bottom)* ☐ YES = Go to SC 5.1 NO ☒ 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 invasive plant species (see list of invasive species on p. 74). ☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. ☐ The wetland is larger than 1/10 acre (4350 square feet) YES ☐= Category I NO ☐= Category II	**Cat. I** **Cat. II**

SC 6.0 Interdunal Wetlands *(see p. 93)* Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ☐ YES = Go to SC 6.1 ☒NO -- not an interdunal wetland for rating ***If you answer yes you will still need to rate the wetland based on its functions.*** In practical terms that means the following geographic areas: • Long Beach Peninsula – lands west of SR103 • Grayland-Westport- lands west of SR 105 • Ocean Shores-Copalis- lands west of SR 115 and SR 109 SC 6.1 Is the wetland one acre or larger, or is it in a mosaic of wetlands that is one acre or larger? ☐ YES = Category II ☐ NO go to SC 6.2 SC 6.2 Is the wetland between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre,? ☐ YES = Category III	**Cat.II** **Cat.III**
Category of wetland based on Special Characteristics *Choose the "highest" rating if wetland falls into several categories, and record on p. 1.* If you answered NO for all types enter "Not Applicable" on p. 1.	**N/A**

Comments