

C. Gary Schulz

Wetland/Forest Ecologist

7700 S. Lakeridge Drive
Seattle, Washington 98178-3135
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September 19, 2016

Mr. John Priebe
Raging River Mining, LLC

**Re: Wetland Determination for the Raging River Quarry (Revised):
(Parcel # 2224079011) King County, WA.**

Dear Mr. Priebe:

A wetland determination was conducted on the Raging River Quarry Property located west of Preston-Fall City Road S.E. at the intersection with Carmichael Road in unincorporated King County (Parcel # 2224079011). The Property is situated along the west side of the Raging River and has a total area of 365,304 square feet (8.38 acres). A previous wetland study was conducted on the Property more than 5 years ago (Wetland Review – Raging River Mine, Habitat Technologies 4/14/09). This letter report is a **Revision** to the 2015 report submitted for the Raging River Quarry (Wetland Determination for the Raging River Quarry: (Parcel # 2224079011) King County, WA, 8/5/15 Schulz).

Background

This wetland determination is a site-specific wetland study to delineate the extent of two wetland areas and characterize them for regulatory ratings. Wetland boundaries were field-delineated and professionally surveyed by Core Design. The wetland exhibit (Figure 1) shows the surveyed wetlands and associated buffer areas prepared for this letter report (Core Design 2015). In addition, please refer to two drawings included in the permit submittal that have pertinent wetland information (Existing Conditions – Raging River Quarry, Sheet C1.02 of 6 and Excavation Plan – Raging River Quarry, Sheet C3.01 of 6 Core Design, July 2015). These plan sheets show the wetlands relative to the property boundaries and the proposed mining plan. The Initial Phase of mining is located on the subject parcel.

Based on King County review comments additional site investigations were conducted after the first wetland report was submitted. The additional information and evaluations were provided in a letter to King County (Critical Area Information – Letter to Fred White & Laura Casey, 2/23/16 Core Design) (Attachment A). The Critical Area Information letter identified new findings from additional survey work on the site. The wetland drainage pattern was previously assumed to flow east towards the Raging River.

The Core Design survey and evaluation work concluded the wetland drainage slowly flows north. As a result of this new information and County review comments the wetland ratings for both Wetland A and Wetland B have been revised and are attached to this report (Attachment B). To keep this report complete the original wetland data forms are also attached (Attachment C).

Site Description

The subject Property is undeveloped land with the majority being forest habitat. The Raging River Quarry is located on the eastern portion of the Property. The upper bench area reviewed is above and west of the quarry. This area gently slopes down to the top of the quarry and then transitions to steep slopes extending down to the Raging River corridor. The southern portion of this parcel has been clear-cut logged years ago. The clear cut is a linear area, approximately 150 feet wide located within the upper bench area. Two small wetlands are situated in the forested area adjacent to the clear cut.

Purpose / Methodology

The primary purpose of this report is to specifically identify the extent of wetland and associated buffer areas related to the extension of a grading permit and related mining activities on the Property. The updated project plan will include avoidance of direct wetland impacts.

In accordance with current State requirements, the 1987 US Army Corps of Engineers Wetlands Delineation Manual (FICWD 1987) was used for wetland determination. The methodology is based on the presence of dominant hydrophytic vegetation (i.e. plant species adapted to, or tolerant of, growing in saturated soil conditions), hydric soils, and observed wetland hydrology as described in the Manual and consistent with the Regional Supplemental to the Corps of Engineers Wetland Delineation Manual (US Army Corps of Engineers 2010).

The Washington State Wetland Rating System for Western Washington (Ecology Pub. # 04-06-025) was used to rate wetlands per the County's critical areas code (KCC Chapter 21A.24.318). The Rating System forms are attached to this report.

Data for the wetland determination was collected on the Property during the site investigation. A total of five wetland data plots were installed to document upland and wetland conditions. Wetland data plot forms are attached to this letter. Pink plastic flagging was used to mark the wetland boundary. Wetland A has a total of 27 flags and 3 data plots and Wetland B has 15 flags with 2 data plots. Figure 1 is an 8.5 x 11-inch drawing that depicts the surveyed wetland areas, data plot locations, and related buffers (Core Design 2015).

Wetland Determination

The Property was investigated on October 10 and 13, 2014. Based on the investigation of observed soils, hydrology, and dominant vegetation cover, two wetlands (A & B) were delineated on the Property. Wetland B's area is entirely on the Property but Wetland A extends off-site to the north and terminates at S.E. 58th Street. Since the initial wetland investigation there have been multiple site visits were to review wetland functions and wetland buffer habitat.

Soil

According to the King County Area - Soil Survey (US Soil Conservation Service 1973), the property is mapped as having Alderwood and Kitsap soils, very steep (AkF). The soils observed in upland areas closely resemble the Alderwood series. Alderwood soils are moderately well drained soils formed under conifers, in glacial deposits. Slopes are 0 to 70 percent. Soils that can be included in this map unit are Norma, Bellingham, Seattle, Tukwila, and Shalcar series. These are poorly drained, hydric (wetland) soils

Hydrology

Both wetlands appear to be seasonally flooded areas supported by shallow groundwater. Surface water was not observed in the wetlands during the initial investigation of October 2014. Also the soil excavations did not observe groundwater or saturation. There is an old excavated ditch on the south side of Wetland A that receives intermittent overflow during periods of high rainfall. However, evidence of surface scour and water movement was not observed. Wetland B does not have a visible outlet. The Raging River is about 800 feet to the east and there is no visible hydrologic connection associated with these wetlands. After the initial investigation new information indicates that Wetland A drains to the north based on an evaluation of spot elevations and topographic survey (Attachment A).

Wetland A

Wetland A is a linear-shaped depression area (0.45 acres on-site) that extends offsite to the north. The wetland drainage pattern was evaluated using topographic survey and the wetland surface water as controlled by elevation appears to flow to north (Attachment A).

The on-site portion of Wetland A is forested with the tree cover dominated by Western hemlock (*Tsuga heterophylla*) and Western red cedar (*Thuja plicata*). Red alder (*Alnus rubra*) and Sitka spruce (*Picea sitchensis*) trees are also growing in the wetland. The shrub cover is predominately salmonberry (*Rubus spectabilis*), red osier dogwood (*Cornus stolonifera*), and vine maple (*Acer circinatum*).

The groundcover vegetation is dominated by slough sedge (*Carex obnupta*) and piggy-back plant (*Tolmeia menziesii*). Lady fern (*Athyrium felix-femina*), nightshade (*Solanum sp.*), and speedwell (*Veronica sp.*) are also present. Sword fern (*Polystichum munitum*) is growing on hummocks inside the wetland boundary.

Dark brown, low chroma value (10YR 2/1) soil was observed within the upper layer of soil in the wetland. Gley colored silt/clay soil was also observed in the wetland soil excavations.

In accordance with the Washington State Wetland Rating System, this wetland was rated as Category III having a total score of 45 points with 18 Habitat points. On the Rating System form the scoring for Depressional wetlands in Section D - Water Quality Function includes a multiplier of 2 if "Untreated stormwater discharges to wetland". The question "Does the wetland unit have opportunity to improve water quality" is D2 on the Rating Form - Section D, page 5.

There are only two, single-family residences adjacent to Wetland A. The residences appear from aerial photography to be 100 feet or more from the wetland. Both residential lots are greater than 5 acres in size with relatively flat topography. The two lots have very limited impervious surface areas and the driveways are gravel. Wetland A is separated from the residences by lawn and forest areas. The multiplier of 2 was not applied in Section D2 because the question and condition of "Untreated stormwater discharges to wetland" is not evident and pollution generating surfaces are absent or at a distance that has no wetland impact.

Without the multiplier of 2 in Section D2, Wetland A scores as Category III. Based on the County's critical areas code, Category III wetlands with a Habitat score of less than 20 points have a standard buffer of 80 feet (KCC 21A.24.325.B.).

Wetland B

Wetland B is a small depression area (0.13 acres) that is situated just southwest of Wetland A. It appears to be an isolated feature and has no drainage outlet. The wetland is a scrub-shrub habitat with the shrub cover dominated by salmonberry. The groundcover vegetation is dominated by lady fern and piggy-back plant. The tree cover in the surrounding upland buffer is a mixture of native conifer and deciduous species.

Dark brown, low chroma value (7.5YR 3/1 & 4/1) mineral soil was observed within the upper layer of soil in the wetland. Redoximorphic indicators (mottling) were also present in wetland soil excavations.

In accordance with the Washington State Wetland Rating System, this wetland was rated as Category III having a total score of 46 points with 16 Habitat points. Based on the County's critical areas code, Category III wetlands with a Habitat score of less than 20 points have a standard buffer of 80 feet (KCC 21A.24.325.B.).

Wetland Buffer Averaging

In accordance with buffer averaging standards found in KCC 21A.24.325 C.1, a portion of Wetland A's buffer is proposed to be reduced by averaging the buffer width. The proposed buffer averaging varies in width but would not exceed a 50 percent reduction. The specific criteria that apply are listed as follows:

- the ecological structure and function of the buffer after averaging is equivalent to or greater than the structure and function before averaging;
- the total area of the buffer after averaging is equivalent to or greater than the area of the buffer before averaging;
- the additional buffer is contiguous with the standard buffer.

The south and east portions of Wetland A's buffer are proposed for a 50 percent reduction in width. The eastern portion is adjacent to the existing quarry face and the southern portion is adjacent to an area that was clear-cut logged years ago (Figure 2).

The south portion of Wetland B is also proposed for a 50 percent buffer reduction in width. The proposed buffer reduction overlaps with Wetland A's buffer and is also adjacent to and partially within the old logging clear-cut area. Reduced buffers would maintain an undisturbed forest area of 40 feet in width.

The following table identifies the existing on-site buffer areas and proposed areas of reductions and additions. Most of the reduced buffer area for Wetland B is within the old clear-cut area.

| | Existing Buffer | Existing Area | Reduced Area | Added Area |
|-----------|-----------------|----------------|----------------|----------------|
| Wetland A | 80 feet | 64,050 sq. ft. | 9,135 sq. ft. | 25,650 sq. ft. |
| Wetland B | 80 feet | 47,870 sq. ft. | 13,965 sq. ft. | 27,535 sq. ft. |

A series of on-the-ground photographs are included to show buffer areas proposed for reduction. Most of these areas have been disturbed and lack significant tree cover that is associated with the adjacent mature forest areas. Three photo points were located and flagged at a hand-taped distance of 40 feet from three selected wetland boundary locations (Wetland Flag #'s A-27, B-6, and B-4). The photographs are intended to display a panoramic view and also show the outer buffer areas are not high quality or mature forest habitat.

Wetland A

A portion of the standard buffer (80 feet) has been cleared years ago from logging activity and currently has less ecological structure and function. Also, the easternmost 80-foot buffer extends to the existing quarry face (Figure 3). The easternmost buffer has significant cover of young red alder trees due to past disturbances likely associated with quarry mining activities. The proposed buffer area to be added back to Wetland A's buffer is a more mature native forest habitat.

In addition to reducing buffer areas that were part of a logging clear-cut, the reduction on the easternmost portion of Wetland A's buffer is related to long term quarry operational needs. Because the standard buffer extends to the existing quarry face the proposed averaging to reduce it to 40 feet will permit access to the north property boundary along the quarry face. This buffer averaging is necessary to continue the Initial Phase of mining and access along the quarry face for purposes of reclamation, and the maintenance and improvement of the current safety bench. Additionally, the maintenance of the safety bench will allow, if needed in the future, the opportunity to access the northwest corner of the existing quarry for the purposes of erosion control or installation of noise mitigation measures in that area. Due to the local topography there is no other access opportunity for that portion of the Property.

The total on-site area of buffer for Wetland A is 64,050 square feet. Per critical areas code the wetland buffer area is at least the same area and quality on the site after buffer averaging. Wetland A buffer would be expanded on the north side adjacent to the developed neighboring property. With the additional buffer of 25,650 square feet, the buffer area after averaging as proposed would be 89,700 square feet. This would provide 40 percent (25,650 sq. ft. / 64,050 sq. ft.) more wetland buffer and forest habitat contiguous with Wetland A.

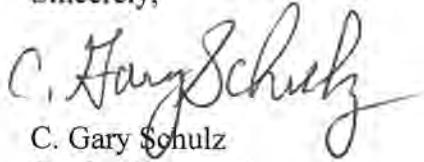
Wetland B

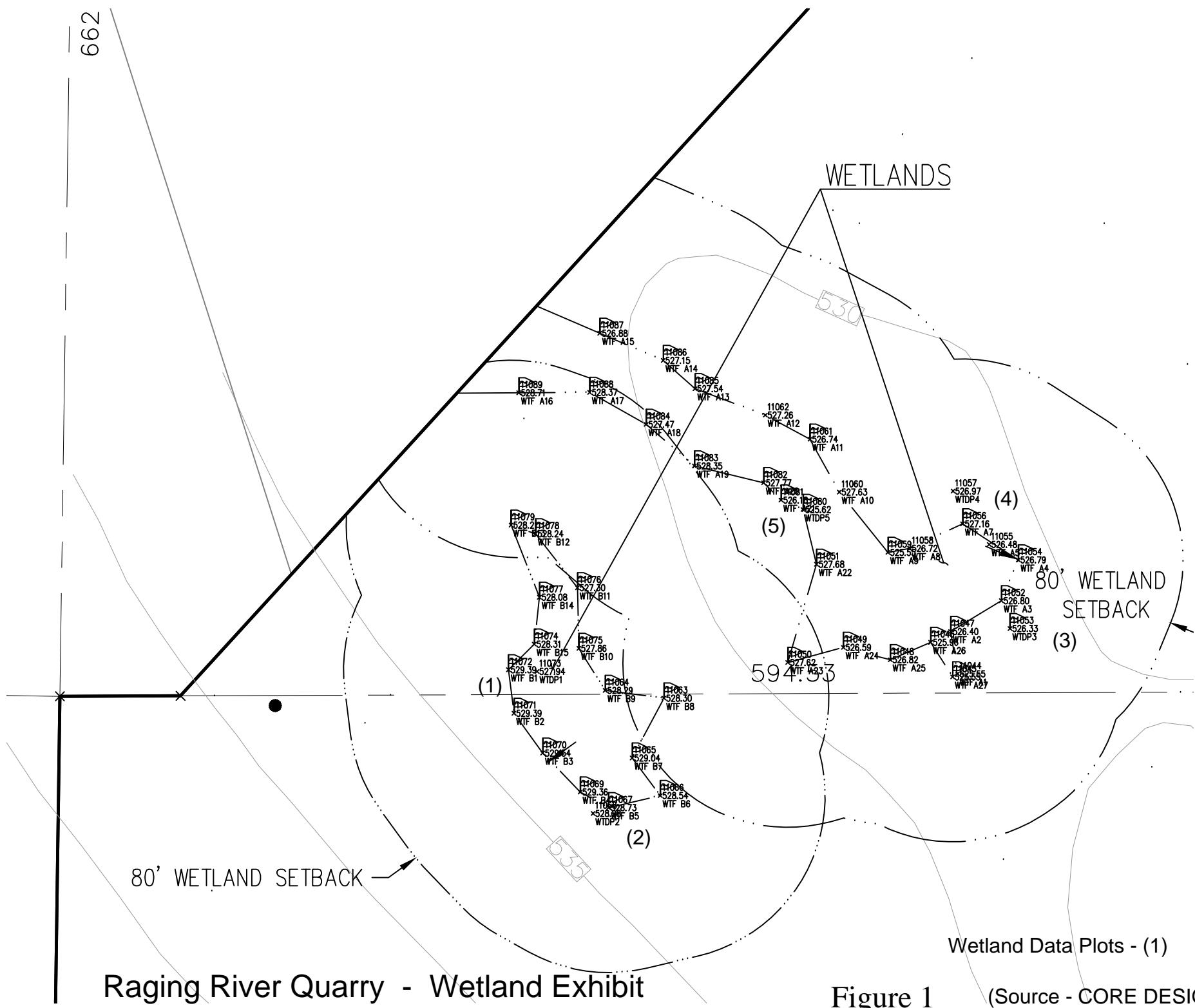
Like Wetland A, a portion of the standard buffer (80 feet) has been cleared years ago from logging activity and currently has less ecological structure and function. As shown on the Excavation Plan (Raging River Quarry, Sheet C3.01 of 6 Core Design, July 2015) the extent of grading needed to complete the Initial Phase of the Quarry mine and continue to the Expanded Phase would utilize as much of the clear-cut area as possible.

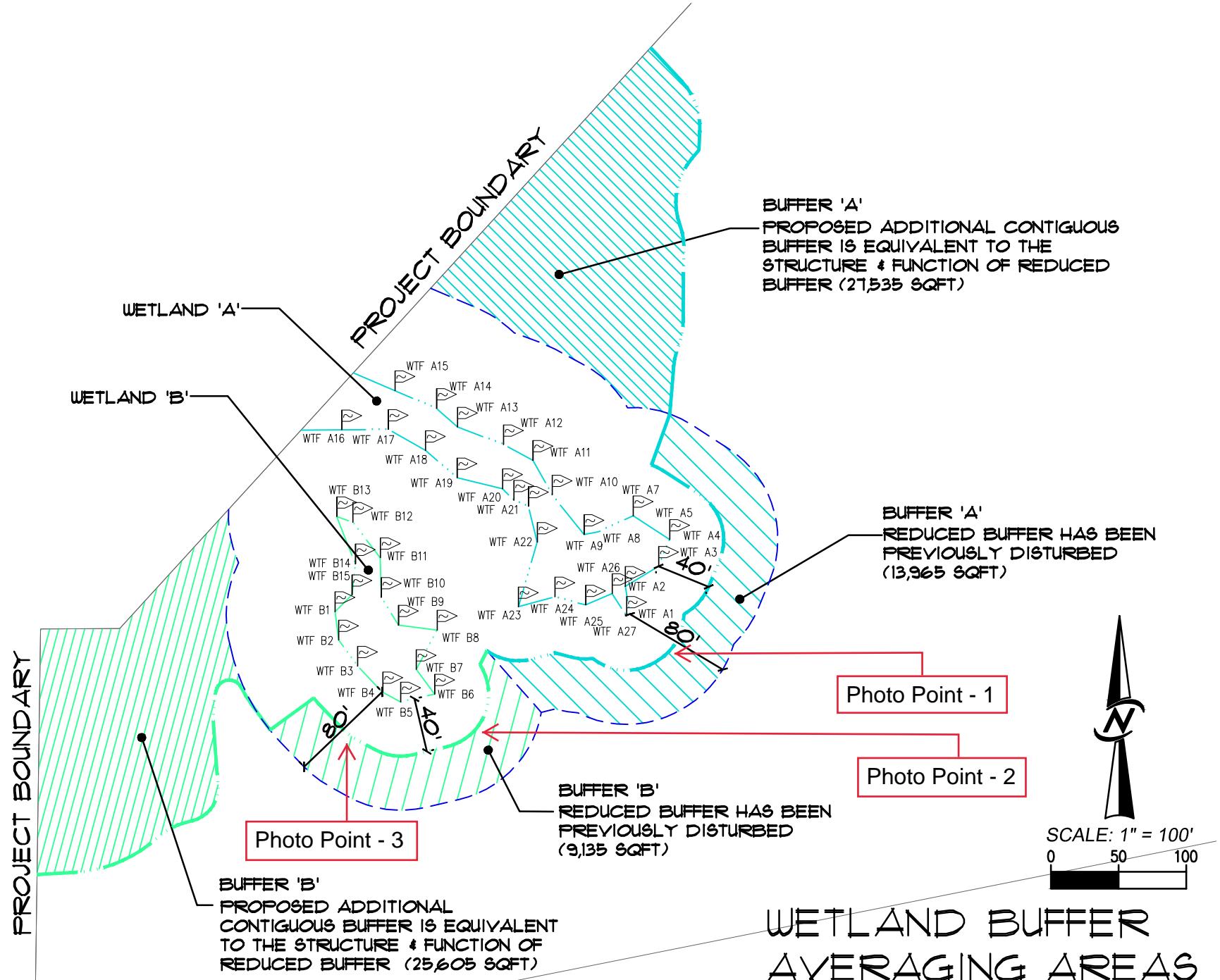
The total area of buffer for Wetland B is 47,870 square feet. Per critical areas code the wetland buffer area is at least the same area and quality on the site after buffer averaging. Wetland B buffer would be expanded on the west side adjacent to the property boundary. With the additional buffer of 27,535 square feet, the buffer area after averaging as proposed would be 75,405 square feet. This would provide 57 percent (27,535 sq. ft. / 47,870 sq. ft.) more wetland buffer and forest habitat contiguous with Wetland B.

In summary, two wetlands have been delineated and rated as Category III areas. No direct wetland impacts are proposed with the Raging River Quarry mining project. Per critical areas code, limited wetland buffer averaging is proposed for Wetlands A and B. Please contact me with any questions or concerns regarding this wetland report.

Sincerely,


C. Gary Schulz
Wetland/Forest Ecologist





* (Photo Points - Refer To Attached Photographs)

Figure 2 (Source - Core Design 2016)

Wetland A & B Buffer Photographs - 5/20/16 (Photo Point Locations Are 40 Feet From Wetland Boundary)

Photo Point 1: Wetland A Buffer

View: East at 40 feet from Flag #A-27. The outer portion of the Buffer.



Photo Point 1: Wetland A Buffer

View: Southeast at 40 feet from Flag #A-27. The outer Buffer area next to the old clearcut.



Photo Point 1: Wetland A Buffer

View: West at 40 feet from Flag #A-27. Looking at the old clearcut, pink flag on tree is 80 feet from wetland edge.



Photo Point 1: Wetland A Buffer

View: Northwest looking at the old clearcut.



Photo Point 1: Wetland A Buffer

View: North at 40 feet from Flag #A-27. Area along the edge of the old clearcut.



Photo Point 2: Wetland B Buffer

View: Southeast at a point 40 feet from Flag #B-6. Near the edge of the old clearcut.



Photo Point 2: Wetland B Buffer

View: West at 40 feet from Flag #B-6. Outer portion of the Buffer is in the old clearcut.



Photo Point 2: Wetland B Buffer

View: Southwest at 40 feet from Flag #B-6. Pink flag on left center is 80 feet from wetland boundary.



Photo Point 3: Wetland B Buffer

View: Southeast at 40 feet from Flag #B-4. Looking at the old clearcut area.



Photo Point 3: Wetland B Buffer

View: West at 40 feet from Flag #B-4. Outer portion of the Buffer is in the old clearcut.



Photo Point 3: Wetland B Buffer

View: North at 40 feet from Flag #B-4. Outer Buffer area is within the old clearcut.







Attachment A

February 23, 2016

CORE No. 10001

Fred White & Laura Casey, King County
Department of Permitting & Environmental Review
35030 SE Douglas Street, Suite 210
Snoqualmie, WA 98065-9266

RE: Clearing & Grading Permit Application GRDE15-0166, Raging River Quarry Expansion, Parcels 222407-9011 & 222407-9033, Critical Area Information

This Narrative and Exhibit is in response to the County Letter written by Laura Casey, dated February 1, 2016, with above noted subject matter. In an effort to explain the critical areas (Wetland A and Wetland B) and probable conveyance of flows, we offer the following testimonials:

Testimonial from: John Priebe, Manager of Raging River Quarry, LLC

I can indicate, that I have been aware of the existence of the excavated ditch for an extended period, however am unaware of exactly when it was built. Over the decades since the quarry was established, in 1932, there have been many operators involved, both private and King County, for the purpose of removing rock for private and municipal construction work. I can only speculate that the partial diversion of water from the wetland, resulting from the ditch, was designed to alleviate storm surge water impacting the quarry and /or other surrounding properties affected by the varying seasonal levels of the wetland. That being said, I know that the wetland ditch has no useful purpose for quarry operations and restoring the wetland to its natural condition can readily be accomplished as an integral part of our mining plan.

Testimonial from: Gary Schulz, Wetland/Forest Ecologist:

I provided a wetland investigation report (Wetland Determination for the Raging River Quarry - 8/5/15 Schulz) to document the wetland delineation conducted on 10/10/14 and 10/13/14. Under the subsection in the report "Hydrology" an excavated ditch is identified on the South side of Wetland A. No surface water was present and the ditch does not exhibit scour or erosion from water flows. The report states there does not appear to be any hydrologic connection from the on-site wetlands with the Raging River. The River is located approximately 800 feet east of Wetland A.

During the wetland investigation, the entire on-site boundary of Wetland A was reviewed. Except for the excavated ditch Wetland A has no visible outlet that drains towards the Raging River. The existing topographic contours / elevations around its perimeter and wetland edge appear natural and/or unaltered for many years. The excavated ditch was dug several feet away from Wetland A's boundary / edge but does intercept intermittent overflow occurring during high rainfall events. Overflow from the Wetland into the ditch was observed during the winter season of 2015 - 2016. However, surface water



flows or a flow path was not evident that could connect Wetland A to the Raging River. Therefore is no visible flow or evidence of a historic stream channel between Wetland A and the Raging River.

Testimonial from: Kevin Vanderzanden, P.L.S., Core Design:

In the fall of 2014, Core was engaged to map the wetland flags placed by Gary Schulz. In the process of that mapping we also took ground shots to establish elevations at all of those points. In January of 2016, we performed additional mapping near the area around Wetland A, and also added more concentrated topography within the wetland itself, and Northerly to the property boundary. We were unable to map the area offsite to the North that is an extension of the wetland, but did go to the North boundary of the adjacent property on SE 58th Street and mapped what we could without trespassing and found what we believe to be the outfall. The reason for this work was to further understand the natural drainage course for waters leaving the wetland. We found that there is positive slope to the North. We also looked at the area in the vicinity of the drainage ditch adjacent to the wetland. The topography surrounding the wetland would indicate that there was clear evidence that the naturally occurring elevated topographic feature had been breached by excavation of the ditch. As a result, in some extreme storm events, standing water could back up and flow to the ditch. But for the breach, water would not drain in that direction as the area is a naturally elevated topographic feature as much as 3 feet in height and thus eliminates possible flow to the South.

Testimonial from: Stacia Bloom, P.E., Core Design:

Both wetlands appear to be perched in relation to the adjacent grades, leading to the conclusion that these wetlands are probably the result of an artesian effect with a confining aquifer subsurface. To understand the process in which these wetlands drain, the best evidence collected is historical. The movement could occur at the surface and/or below the surface (subsurface). Surface movement of is dependent upon an elevation drop across a linear length, we would look for the most probable direction for movement through a downhill slope. Subsurface movement of water is highly dependent upon the permeability of the soil matrix below the surface, we would look for the most likely direction that would promote movement through permeability.

Analysis to the South:

From the analysis of the survey data collected in the field, evidence confirms that Wetland A is mostly restricted at the surface by means of elevated topography at the Southern perimeter. It would suggest that this wetlands is unable, but for an excavated breach in elevated topography, to make connection to the man-made ditch to the South by surface flows. The Raging River Quarry operation to the Southeast contains densely packed rock. The rock is so dense that the mining operation excavates rock in a vertical manner. Each vertical wall able to withstand a height of 40-feet before inducing a horizontal bench. It is unlikely that the perched wetlands are penetrating through this densely packed rock towards the Southeastern direction.

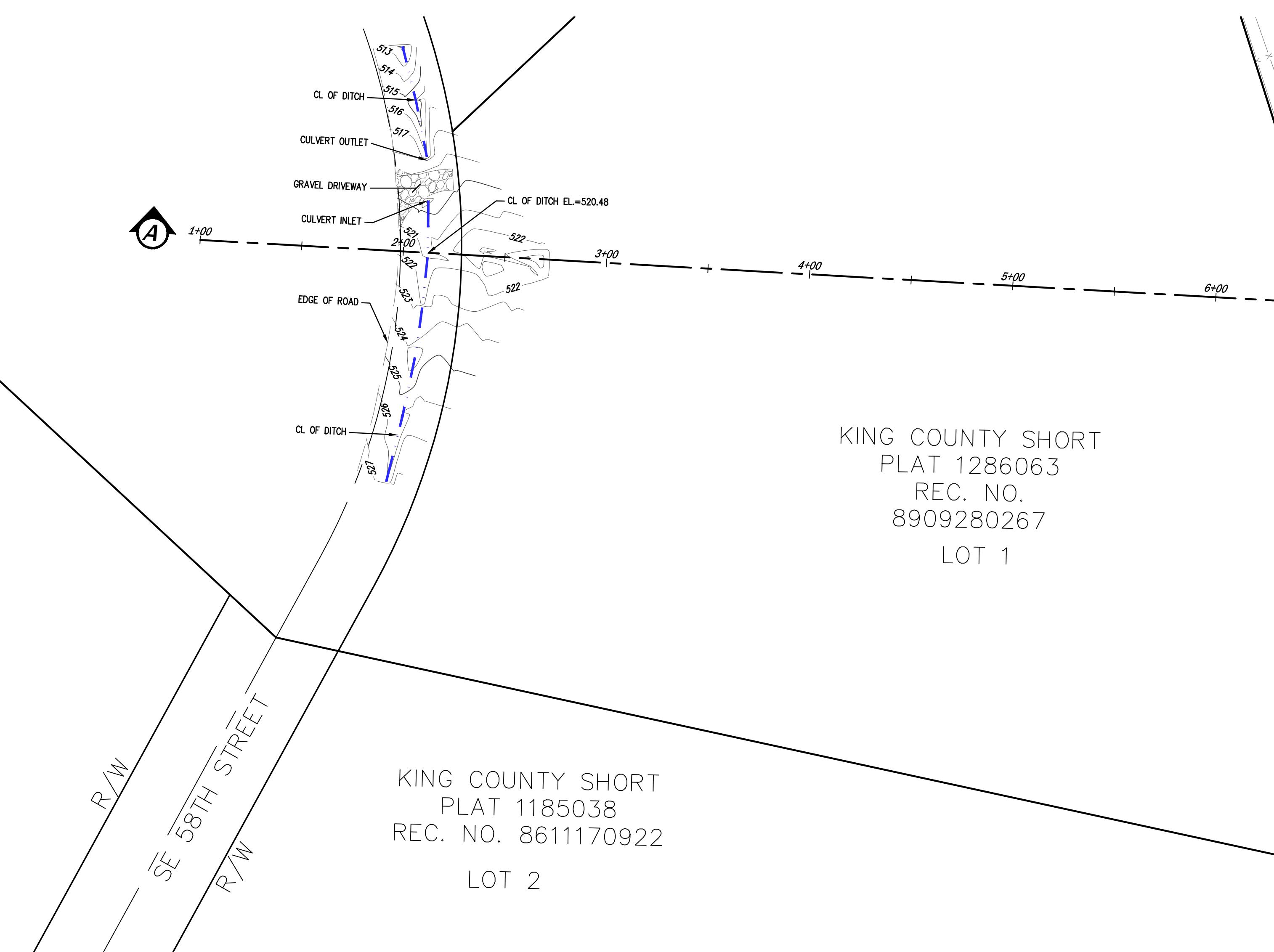
Analysis to the North:

The aforementioned elevated topography along the Southern perimeter could conceivably form a type of containment, which indicates that a natural gravitational migration of surface water could occur to the

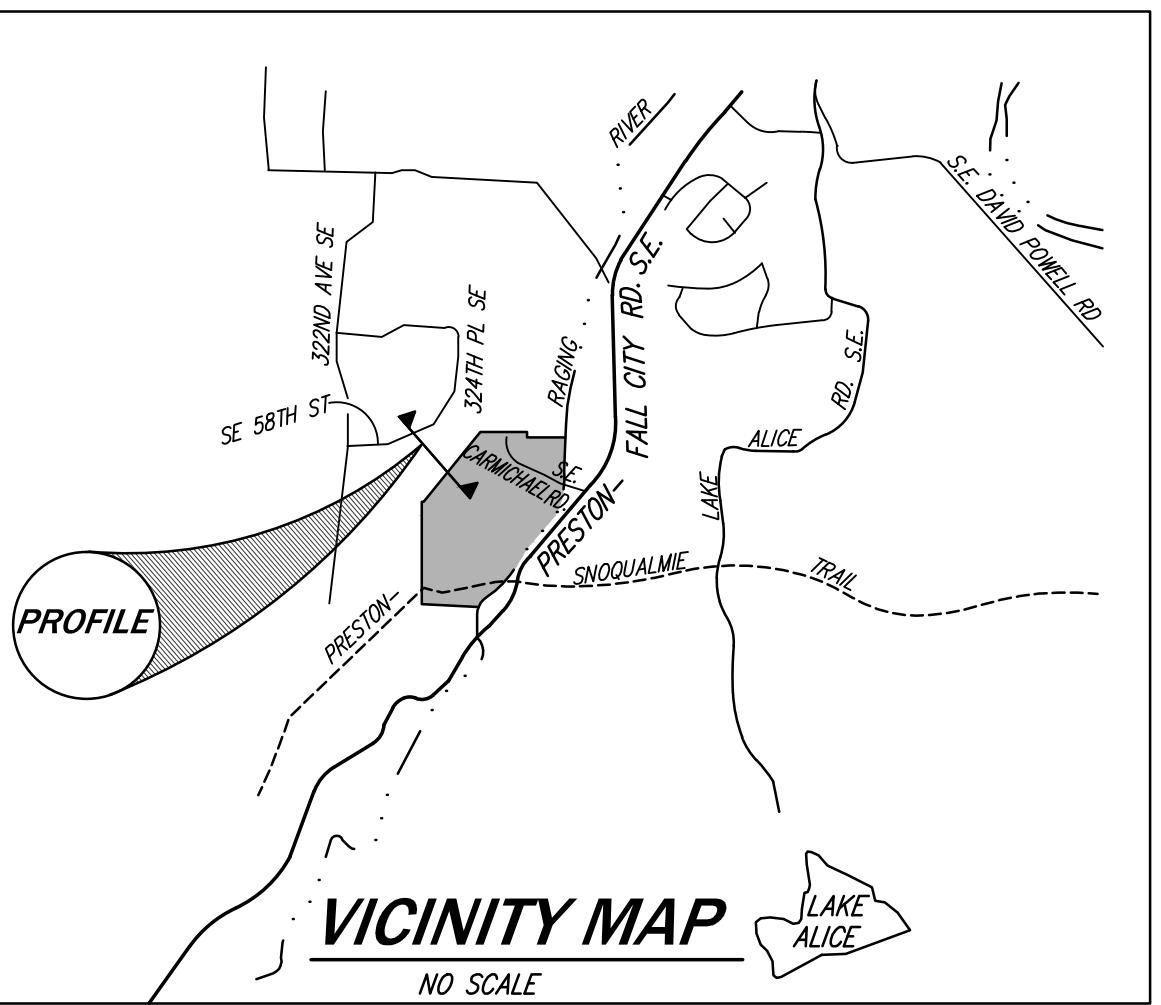
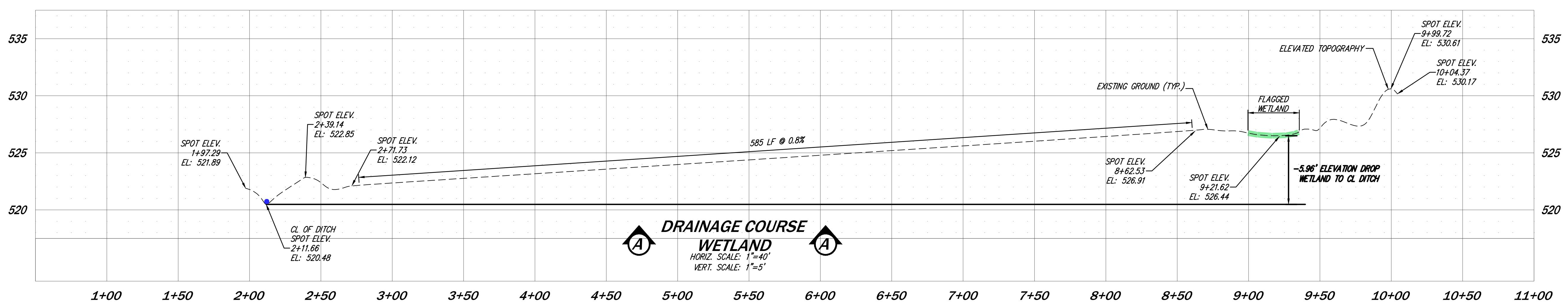
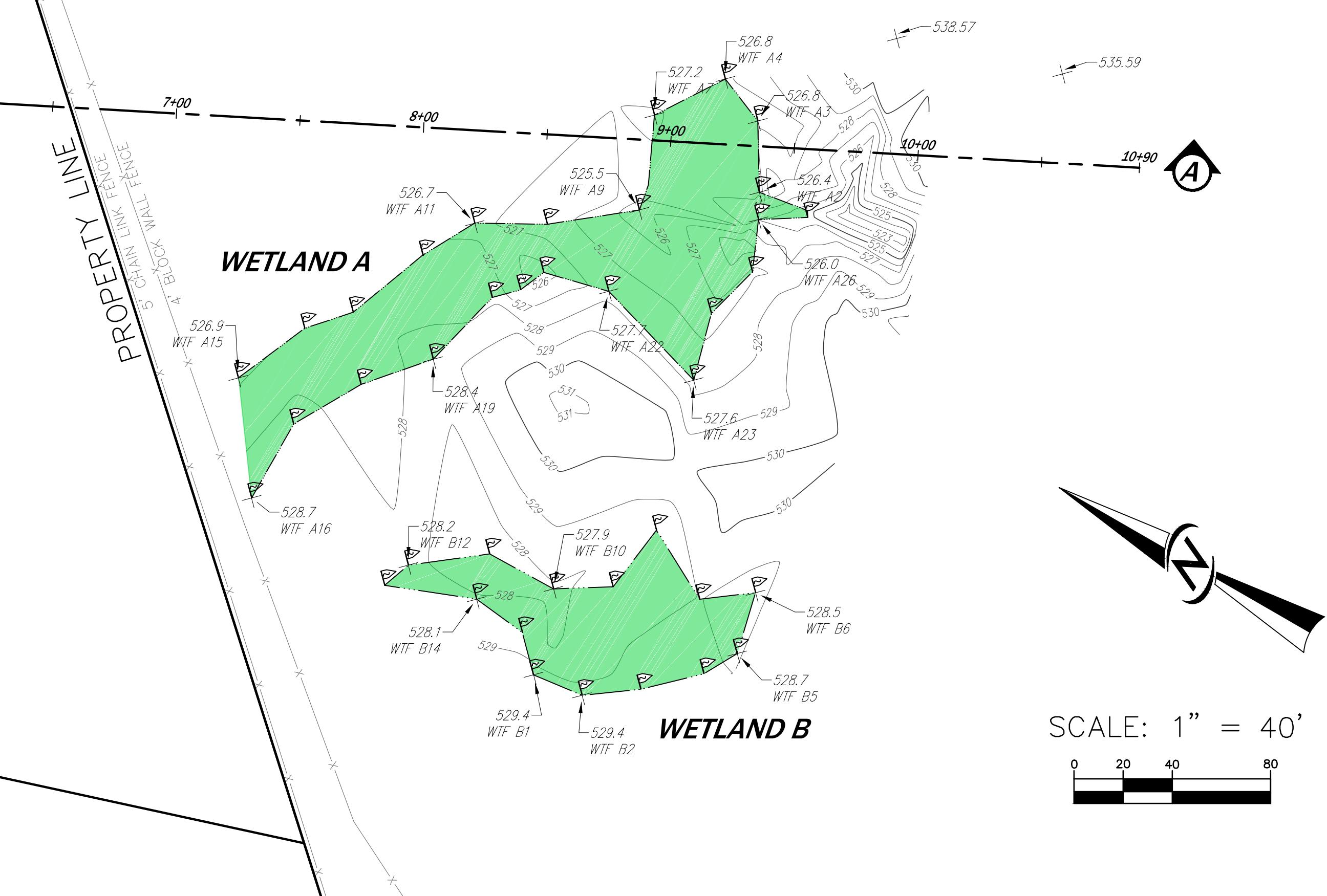


North. From analysis of the survey data collected in the field, there is an elevation drop of roughly 6-feet from Wetland A to a roadside ditch in SE 58th Street, in the Northerly direction. According to the Natural Resource Conservation Service, to get a general sense of the soil matrix, the regions to the North are mapped with Alderwood/Kitsap Soils (AkF) and Kitsap Silt Loam (KpB). These soils types are classified King County's Surface Water Design Manual as Till Soils with a Hydrologic Soil Group "C." Both of these soils would suggest that subsurface movement could occur, but would occur rather slowly. This might be a good indicator of how the wetlands were created - slow movement of a perched water system.

Please accept these testimonials and refer to the attached Exhibit. Should you have any questions regarding this matter, please feel free to contact Kevin Vanderzanden at 425-885-7877.



RAGING RIVER QUARRY PROPERTY



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Bellevue, Washington 98007
425.885.7377 Fax 425.885.7963



ENGINEERING • PLANNING • SURVEYING
3132 NE HARRISON ST
ISSACOAH, WA 98029

DRAINAGE COURSE EXHIBIT RAGING RIVER QUARRY

JOHN PRIEBE ET AL.

| DATE | FEBRUARY 2016 |
|-----------------|-----------------------|
| DESIGNED | SLB |
| DRAWN | SLB |
| APPROVED | SLB |
| PROJECT NUMBER | 10001 |
| PROJECT MANAGER | KEVIN J. VANDERZENDEN |
| REVISIONS | |
| NO. | |
| DATE | |

Wetland name or number A*Revised 9/8/16***WETLAND RATING FORM – WESTERN WASHINGTON**

Version 2 - Updated July 2006 to increase accuracy and reproducibility among users

Updated Oct 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): Raging River - A Date of site visit: 10/13/14Rated by Gary Schwartz Trained by Ecology? Yes No Date of training 5/15SEC: 22 TWNSHP: 24N RNGE: 7E Is S/T/R in Appendix D? Yes No Map of wetland unit: Figure _____ Estimated size 0.45 ac.**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
 Score for Hydrologic Functions
 Score for Habitat Functions
TOTAL score for Functions

| |
|----|
| 11 |
| 16 |
| 18 |
| 45 |

Category based on SPECIAL CHARACTERISTICS of wetlandI II Does not Apply**Final Category** (choose the "highest" category from above)

| |
|-----|
| /// |
|-----|

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 |

Wetland name or number A

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 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. <i>Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered animal or plant species (T/E species)?</i> For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database. | | ✓ |
| SP2. <i>Has the wetland unit been documented as habitat for any State listed Threatened or Endangered animal species?</i> 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 I Natural Heritage Wetlands (see p. 19 of data form). | | ✓ |
| SP3. <i>Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?</i> | | ✓ |
| SP4. <i>Does the wetland unit have a local significance in addition to its functions?</i> 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 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 (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 entire wetland unit **meet all** of the following criteria?

The wetland is on a slope (*slope can be very gradual*),
 The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
 The water leaves the wetland **without being impounded**?

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**

A5. 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 entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year. *This means that any outlet, if present, is higher than the interior of the wetland.*

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

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

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

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within 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 if 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 FUNCTIONS - Indicators that the wetland unit functions to improve water quality | | Points (only 1 score per box) |
|--------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------|
| D | D 1. Does the wetland unit have the <u>potential</u> 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 (<i>permanently flowing</i>) 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") | Figure <u>2</u> |
| D | S 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (<i>use NRCS definitions</i>) YES points = 4 NO points = 0 | Provide photo or drawing <u>○</u> |
| 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 | Figure <u>5</u> Map of Cowardin vegetation classes |
| D | D 1.4 Characteristics of seasonal ponding or inundation. <i>This is the area of the wetland unit 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.</i> 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 | Figure <u>4</u> Map of Hydroperiods |
| D | Total for D 1 | Add the points in the boxes above <u>11</u> |
| D | D 2. Does the wetland unit 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 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 _____ | (see p. 44) |
| D | YES multiplier is 2 NO multiplier is 1 | <u>2 Rural Lots (See Report)</u> / <u>1</u> multiplier |
| D | TOTAL - Water Quality Functions | Multiply the score from D1 by D2 Add score to table on p. 1 <u>11</u> |

| D Depressional and Flats Wetlands | | Points (only 1 score per box) |
|--------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|
| HYDROLOGIC FUNCTIONS - Indicators that the wetland unit functions to reduce flooding and stream degradation | | |
| D | D 3. Does the wetland unit have the <u>potential</u> 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 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 <i>(If ditch is not permanently flowing treat unit as "intermittently flowing")</i> Unit has an unconstricted, or slightly constricted, surface outlet (<i>permanently flowing</i>) points = 0 | 2 |
| D | D 3.2 Depth of storage during wet periods <i>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).</i> 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 | 3 |
| D | D 3.3 Contribution of wetland unit to storage in the watershed <i>Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.</i> 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 | 3 |
| D | Total for D 3 | Add the points in the boxes above 8 |
| D | D 4. Does the wetland unit have the <u>opportunity</u> 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 _____ | (see p. 49) multiplier 2 |
| D | YES multiplier is 2 NO multiplier is 1 | |
| D | TOTAL - Hydrologic Functions Multiply the score from D 3 by D 4 Add score to table on p. 1 | 16 |

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that unit functions to provide important habitat

Points

(only 1 score per box)

H 1. Does the wetland unit have the potential to provide habitat for many species?**H 1.1 Vegetation structure (see p. 72)**

Check the types of vegetation classes present (as defined by Cowardin) - Size threshold for each class is $\frac{1}{4}$ 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:

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

Add the number of vegetation structures that qualify. If you have:

| | | |
|------------------------------------|----------------------|------------|
| Map of Cowardin vegetation classes | 4 structures or more | points = 4 |
| | 3 structures | points = 2 |
| | 2 structures | points = 1 |
| | 1 structure | points = 0 |

Figure **H 1.2. Hydroperiods (see p. 73)**

Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or $\frac{1}{4}$ acre to count. (see text for descriptions of hydroperiods)

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

Map of hydroperiods

Figure **H 1.3. Richness of Plant Species (see p. 75)**

Count the number of plant species in the wetland that cover at least 10 ft². (different patches of the same species can be combined to meet the size threshold)

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

List species below if you want to: 5 - 19 species points = 1

< 5 species points = 0

3

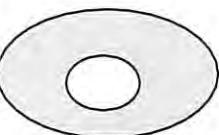
Total for page

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 the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.

Figure 

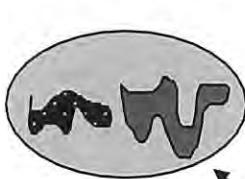
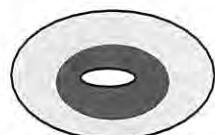
None = 0 points



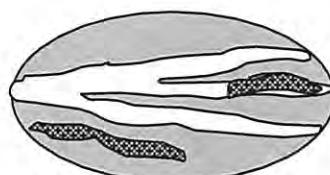
Low = 1 point



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 the 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 (>30degree slope) OR signs of recent beaver activity are present (*cut shrubs or trees that have not yet turned grey/brown*)

At least $\frac{1}{4}$ 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

4

8

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

Comments

| | | |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|---------------------|
| H 2. Does the wetland unit have the opportunity to provide habitat for many species? | | |
| H 2.1 Buffers (see p. 80) | | Figure _____ |
| <p><i>Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed."</i></p> <ul style="list-style-type: none"> — 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 | | |
| <p>If buffer does not meet any of the criteria above</p> <ul style="list-style-type: none"> — 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 | 3 | |
| Aerial photo showing buffers | | |
| H 2.2 Corridors and Connections (see p. 81) | | |
| <p>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? (<i>dams in riparian corridors, heavily used gravel roads, paved roads, are considered breaks in the corridor</i>).</p> | | |
| <p>YES = 4 points (go to H 2.3) NO = go to H 2.2.2</p> | | |
| <p>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?</p> | | |
| <p>YES = 2 points (go to H 2.3) NO = H 2.2.3</p> | | |
| <p>H 2.2.3 Is the wetland:</p> <ul style="list-style-type: none"> 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? | | 2 |
| <p>YES = 1 point NO = 0 points</p> | | |

Total for page 5

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 than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.
- Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158*).
- 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 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**

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)

Wetland name or number _____

| | |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|
| H 2.4 <u>Wetland Landscape</u> (<i>choose the one description of the landscape around the wetland that best fits</i>) (<i>see p. 84</i>) | |
| There are at least 3 other wetlands within $\frac{1}{2}$ 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 $\frac{1}{2}$ mile | points = 5 |
| There are at least 3 other wetlands within $\frac{1}{2}$ mile, BUT the connections between them are disturbed | points = 0 |
| The wetland is Lake-fringe on a lake with disturbance and there are 3 other lake-fringe wetland within $\frac{1}{2}$ mile | points = 3 |
| There is at least 1 wetland within $\frac{1}{2}$ mile. | points = 2 |
| There are no wetlands within $\frac{1}{2}$ mile. | points = 0 |
| H 2. TOTAL Score - opportunity for providing habitat <i>Add the scores from H2.1, H2.2, H2.3, H2.4</i> | |
| TOTAL for H 1 from page 14 | |
| Total Score for Habitat Functions – add the points for H 1, H 2 and record the result on p. 1 | |

3
10
8
18

Wetland name or number

A

N/A

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. Circle the Category when the appropriate criteria are met. | Category |
|--------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|-------------|
| SC 1.0 Estuarine wetlands (see p. 86) | | |
| Does the wetland unit meet the following criteria for Estuarine wetlands? | | |
| <ul style="list-style-type: none"> — The dominant water regime is tidal, | | |
| <ul style="list-style-type: none"> — Vegetated, and | | |
| <ul style="list-style-type: none"> — With a salinity greater than 0.5 ppt. | | |
| YES = Go to SC 1.1 | NO _____ | |
| SC 1.1 Is the wetland unit 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? | | Cat. I |
| YES = Category I | NO go to SC 1.2 | |
| SC 1.2 Is the wetland unit at least 1 acre in size and meets at least two of the | | |
| following three conditions? YES = Category I NO = Category II | | Cat. I |
| <ul style="list-style-type: none"> — The wetland is relatively undisturbed (has no diking, ditching, filling, | | |
| <ul style="list-style-type: none"> cultivation, grazing, and has less than 10% cover of non-native plant | | |
| <ul style="list-style-type: none"> species. If the non-native <i>Spartina</i> spp. are the only species that cover | | |
| <ul style="list-style-type: none"> more than 10% of the wetland, then the wetland should be given a dual | | |
| <ul style="list-style-type: none"> rating (I/II). The area of <i>Spartina</i> would be rated a Category II while the | | |
| <ul style="list-style-type: none"> relatively undisturbed upper marsh with native species would be a | | |
| <ul style="list-style-type: none"> Category I. Do not, however, exclude the area of <i>Spartina</i> in | | |
| <ul style="list-style-type: none"> determining the size threshold of 1 acre. | | |
| <ul style="list-style-type: none"> — At least $\frac{3}{4}$ of the landward edge of the wetland has a 100 ft buffer of | | |
| <ul style="list-style-type: none"> shrub, forest, or un-grazed or un-mowed grassland. | | |
| <ul style="list-style-type: none"> — The wetland has at least 2 of the following features: tidal channels, | | |
| <ul style="list-style-type: none"> depressions with open water, or contiguous freshwater wetlands. | | Dual rating |
| | | I/II |

Wetland name or number B

WETLAND RATING FORM – WESTERN WASHINGTON
Version 2 - Updated July 2006 to increase accuracy and reproducibility among users
Updated Oct 2008 with the new WDFW definitions for priority habitats

Revised
9/8/16

Name of wetland (if known): Raging River-B Date of site visit: 10/13/14

Rated by Gary Schultz Trained by Ecology? Yes No Date of training 5/15

SEC: 22 TWNSHP: 24N RNGE: 7E Is S/T/R in Appendix D? Yes No

Map of wetland unit: Figure _____ Estimated size 0.13 ac.

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
Score for Hydrologic Functions
Score for Habitat Functions
TOTAL score for Functions

10
20
16
46

Category based on SPECIAL CHARACTERISTICS of wetland

I II Does not Apply

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

III

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 |

Wetland name or number B

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 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. <i>Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered animal or plant species (T/E species)?</i> For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database. | | ✓ |
| SP2. <i>Has the wetland unit been documented as habitat for any State listed Threatened or Endangered animal species?</i> 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 I Natural Heritage Wetlands (see p. 19 of data form). | | ✓ |
| SP3. <i>Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?</i> | | ✓ |
| SP4. <i>Does the wetland unit have a local significance in addition to its functions?</i> 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 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 (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 entire wetland unit **meet all** of the following criteria?

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

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

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

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

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

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

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

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within 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 if you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.

| D Depressional and Flats Wetlands | | Points (only 1 score per box) |
|------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|
| WATER QUALITY FUNCTIONS - Indicators that the wetland unit functions to improve water quality | | |
| D | D 1. Does the wetland unit 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 (<i>permanently flowing</i>) 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 <i>(If ditch is not permanently flowing treat unit as "intermittently flowing")</i> Provide photo or drawing | Figure _____ 3 |
| D | S 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (<i>use NRCS definitions</i>) YES points = 4 NO points = 0 | 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 _____ 5 |
| D | D 1.4 Characteristics of seasonal ponding or inundation. <i>This is the area of the wetland unit 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.</i> 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 _____ 2 10 |
| D | Total for D 1 Add the points in the boxes above | |
| D | D 2. Does the wetland unit 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) |
| D | TOTAL - Water Quality Functions Multiply the score from D1 by D2 Add score to table on p. 1 | multiplier 1 10 |

| D Depressional and Flats Wetlands | | Points (only 1 score per box) |
|-------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|
| HYDROLOGIC FUNCTIONS - Indicators that the wetland unit functions to reduce flooding and stream degradation | | |
| D | D 3. Does the wetland unit have the <u>potential</u> 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 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 <i>(If ditch is not permanently flowing treat unit as "intermittently flowing")</i> Unit has an unconstricted, or slightly constricted, surface outlet (<i>permanently flowing</i>) points = 0 | <i>4</i> |
| D | D 3.2 Depth of storage during wet periods <i>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).</i> 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 | <i>3</i> |
| D | D 3.3 Contribution of wetland unit to storage in the watershed <i>Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.</i> 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 | <i>3</i> |
| D | Total for D 3 <i>Add the points in the boxes above</i> | <i>10</i> |
| D | D 4. Does the wetland unit have the <u>opportunity</u> 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. <i>Note which of the following indicators of opportunity apply.</i> — 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) <i>multiplier</i> <i>2</i> |
| D | TOTAL - Hydrologic Functions Multiply the score from D 3 by D 4 <i>Add score to table on p. 1</i> | <i>20</i> |

| These questions apply to wetlands of all HGM classes. | | Points (only 1 score per box) | | | | | | | | | | | | |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|-----------------------------------------|----------------------|------------|--|----------------|------------|--|--------------|------------|----------------------------------|-------------|------------|---------------------|
| HABITAT FUNCTIONS - Indicators that unit functions to provide important habitat | | | | | | | | | | | | | | |
| H 1. Does the wetland unit have the potential to provide habitat for many species? | | | | | | | | | | | | | | |
| H 1.1 Vegetation structure (see p. 72) <i>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.</i> <ul style="list-style-type: none"> <input type="checkbox"/> Aquatic bed <input checked="" type="checkbox"/> Emergent plants <input checked="" type="checkbox"/> Scrub/shrub (areas where shrubs have >30% cover) <input type="checkbox"/> Forested (areas where trees have >30% cover) <i>If the unit has a forested class check if:</i> <ul style="list-style-type: none"> <input type="checkbox"/> The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon <i>Add the number of vegetation structures that qualify. If you have:</i> <table style="margin-left: auto; margin-right: auto;"> <tr> <td style="width: 15%;">Map of Cowardin vegetation classes</td> <td style="width: 15%;">4 structures or more</td> <td style="width: 15%;">points = 4</td> </tr> <tr> <td></td> <td>3 structures</td> <td>points = 2</td> </tr> <tr> <td></td> <td>2 structures</td> <td>points = 1</td> </tr> <tr> <td></td> <td>1 structure</td> <td>points = 0</td> </tr> </table> | | Map of Cowardin vegetation classes | 4 structures or more | points = 4 | | 3 structures | points = 2 | | 2 structures | points = 1 | | 1 structure | points = 0 | Figure _____ |
| Map of Cowardin vegetation classes | 4 structures or more | points = 4 | | | | | | | | | | | | |
| | 3 structures | points = 2 | | | | | | | | | | | | |
| | 2 structures | points = 1 | | | | | | | | | | | | |
| | 1 structure | points = 0 | | | | | | | | | | | | |
| H 1.2. Hydroperiods (see p. 73) <i>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 descriptions of hydroperiods)</i> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Permanently flooded or inundated <input checked="" type="checkbox"/> Seasonally flooded or inundated <input type="checkbox"/> Occasionally flooded or inundated <input checked="" type="checkbox"/> Saturated only <input type="checkbox"/> Permanently flowing stream or river in, or adjacent to, the wetland <input type="checkbox"/> Seasonally flowing stream in, or adjacent to, the wetland <p><i>Lake-fringe wetland = 2 points</i></p> <p><i>Freshwater tidal wetland = 2 points</i></p> | | Figure _____ | | | | | | | | | | | | |
| H 1.3. Richness of Plant Species (see p. 75) <i>Count the number of plant species in the wetland that cover at least 10 ft². (different patches of the same species can be combined to meet the size threshold)</i> <i>You do not have to name the species.</i> <i>Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle</i> <table style="margin-left: auto; margin-right: auto;"> <tr> <td style="width: 15%;">If you counted:</td> <td style="width: 15%;">> 19 species</td> <td style="width: 15%;">points = 2</td> </tr> <tr> <td></td> <td>5 - 19 species</td> <td>points = 1</td> </tr> <tr> <td></td> <td>< 5 species</td> <td>points = 0</td> </tr> </table> <p><i>List species below if you want to:</i></p> | | If you counted: | > 19 species | points = 2 | | 5 - 19 species | points = 1 | | < 5 species | points = 0 | Map of hydroperiods _____ | | | |
| If you counted: | > 19 species | points = 2 | | | | | | | | | | | | |
| | 5 - 19 species | points = 1 | | | | | | | | | | | | |
| | < 5 species | points = 0 | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |

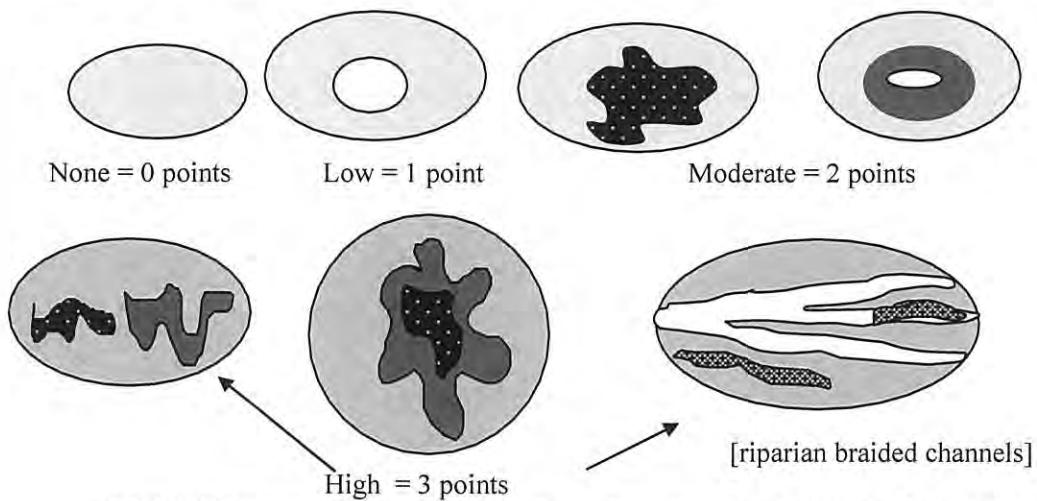
Total for page 3

Wetland name or number B

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 the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.

Figure _____



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 the 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 (>30degree slope) OR signs of recent beaver activity are present (*cut shrubs or trees that have not yet turned grey/brown*)
- At least $\frac{1}{4}$ 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

2

6

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

Comments

| | |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|
| H 2. Does the wetland unit have the opportunity to provide habitat for many species? | Figure _____ |
| <p>H 2.1 Buffers (see p. 80) <i>Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed."</i></p> <ul style="list-style-type: none"> — 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 <p>If buffer does not meet any of the criteria above</p> <ul style="list-style-type: none"> — 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 <u>3</u> |
| <p>H 2.2 Corridors and Connections (see p. 81)</p> <p>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? (<i>dams in riparian corridors, heavily used gravel roads, paved roads, are considered breaks in the corridor</i>).</p> <p>YES = 4 points (go to H 2.3) NO = go to H 2.2.2</p> <p>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?</p> <p>YES = 2 points (go to H 2.3) NO = H 2.2.3</p> <p>H 2.2.3 Is the wetland:</p> <p>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?</p> <p>YES = 1 point NO = 0 points</p> | <u>2</u> |
| | Total for page <u>5</u> |

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 than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.
- Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158*).
- 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 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**

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.)

2

Wetland name or number B

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 $\frac{1}{2}$ 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 $\frac{1}{2}$ mile points = 5

There are at least 3 other wetlands within $\frac{1}{2}$ mile, BUT the connections between them are disturbed points = 0

The wetland is Lake-fringe on a lake **with** disturbance and there are 3 other lake-fringe wetland within $\frac{1}{2}$ mile points = 3

There is at least 1 wetland within $\frac{1}{2}$ mile. points = 2

There are no wetlands within $\frac{1}{2}$ mile. points = 0

H 2. TOTAL Score - opportunity for providing habitat

Add the scores from H2.1, H2.2, H2.3, H2.4

TOTAL for H 1 from page 14

Total Score for Habitat Functions – add the points for H 1, H 2 and record the result on p. 1

Wetland name or number B

B

N/A

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

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

| Wetland Type | Category |
|--------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|
| Check off any criteria that apply to the wetland. Circle the Category when the appropriate criteria are met. | |
| SC 1.0 Estuarine wetlands (see p. 86) | |
| Does the wetland unit meet the following criteria for Estuarine wetlands? | |
| <ul style="list-style-type: none"> — The dominant water regime is tidal, | |
| <ul style="list-style-type: none"> — Vegetated, and | |
| <ul style="list-style-type: none"> — With a salinity greater than 0.5 ppt. | |
| YES = Go to SC 1.1 | NO _____ |
| SC 1.1 Is the wetland unit 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? | Cat. I |
| YES = Category I | NO go to SC 1.2 |
| SC 1.2 Is the wetland unit at least 1 acre in size and meets at least two of the | |
| following three conditions? YES = Category I NO = Category II | Cat. I |
| <ul style="list-style-type: none"> — The wetland is relatively undisturbed (has no diking, ditching, filling, | Cat. II |
| <ul style="list-style-type: none"> cultivation, grazing, and has less than 10% cover of non-native plant | |
| <ul style="list-style-type: none"> species. If the non-native <i>Spartina</i> spp. are the only species that cover | |
| <ul style="list-style-type: none"> more than 10% of the wetland, then the wetland should be given a dual | |
| <ul style="list-style-type: none"> rating (I/II). The area of <i>Spartina</i> would be rated a Category II while the | |
| <ul style="list-style-type: none"> relatively undisturbed upper marsh with native species would be a | |
| <ul style="list-style-type: none"> Category I. Do not, however, exclude the area of <i>Spartina</i> in | |
| <ul style="list-style-type: none"> determining the size threshold of 1 acre. | |
| <ul style="list-style-type: none"> — At least $\frac{3}{4}$ of the landward edge of the wetland has a 100 ft buffer of | Dual rating |
| <ul style="list-style-type: none"> shrub, forest, or un-grazed or un-mowed grassland. | |
| <ul style="list-style-type: none"> — The wetland has at least 2 of the following features: tidal channels, | |
| <ul style="list-style-type: none"> depressions with open water, or contiguous freshwater wetlands. | I/II |

Attachment C

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

| | | | | | | | | | | |
|--------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|------|--|----------------------------------------------|-------------------------------------|-----------------|--------------------------|------------------------------|-------------------------------------|-----------------------------|
| Project Site: | <u>Raging River Quarry</u> | | | City/County: | <u>/King</u> | | Sampling Date: | <u>10/10/14</u> | | |
| Applicant/Owner: | <u>John Priebe</u> | | | State: | <u>WA</u> | Sampling Point: | <u>1</u> | | | |
| Investigator(s): | <u>Gary Schulz</u> | | | Section, Township, Range: | | | | <u>22, 24N, 7E</u> | | |
| Landform (hillslope, terrace, etc.): | <u>terrace</u> | | | Local relief (concave, convex, none): | | | <u>none</u> | | Slope (%): <u>0</u> | |
| Subregion (LRR): | <u>A</u> | Lat: | | | Long: | | | Datum: | | |
| Soil Map Unit Name: | <u>Alderwood & Kitsap (AkF)</u> | | | NWI classification: | | | | | | |
| Are climatic / hydrologic conditions on the site typical for this time of year? | | | | Yes | <input checked="" type="checkbox"/> | No | <input type="checkbox"/> | (If no, explain in Remarks.) | | |
| Are Vegetation <input type="checkbox"/> , Soil <input type="checkbox"/> , or Hydrology <input type="checkbox"/> , significantly disturbed? | | | | Are "Normal Circumstances" present? | | | | Yes | <input checked="" type="checkbox"/> | No <input type="checkbox"/> |
| Are Vegetation <input type="checkbox"/> , Soil <input type="checkbox"/> , or Hydrology <input type="checkbox"/> , naturally problematic? | | | | (If needed, explain any answers in Remarks.) | | | | | | |

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

| | | | | |
|---------------------------------------------|---------------------------------------------------------------------|------------------------------------------|---------------------------------------------------------------------|--|
| Hydrophytic Vegetation Present? | Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> | Is the Sampled Area within a Wetland? | Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> | |
| Hydric Soil Present? | Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> | | | |
| Wetland Hydrology Present? | Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> | | | |
| Remarks: Plot is in Wetland B at Flag #B-1. | | | | |

VEGETATION – Use scientific names of plants

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

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

| Depth (inches) | Matrix | | Redox Features | | | | | Remarks |
|-------------------|-----------------|-----------|-----------------|-----------|-------------------|------------------|-------------------|------------|
| | Color (moist) | % | Color (moist) | % | Type ¹ | Loc ² | Texture | |
| 11 | <u>7.5YR3/1</u> | <u>80</u> | — | — | — | — | <u>sandy loam</u> | <u>dry</u> |
| — | <u>7.5YR4/1</u> | <u>20</u> | — | — | — | — | — | — |
| 20 | <u>10YR6/2</u> | <u>90</u> | <u>7.5YR4/4</u> | <u>10</u> | C | M | <u>sandy loam</u> | <u>dry</u> |
| — | — | — | — | — | — | — | — | — |
| — | — | — | — | — | — | — | — | — |
| — | — | — | — | — | — | — | — | — |
| — | — | — | — | — | — | — | — | — |
| — | — | — | — | — | — | — | — | — |
| — | — | — | — | — | — | — | — | — |

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

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

Indicators for Problematic Hydric Soils³:

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

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

Type: —

Depth (inches): —

Hydric Soils Present?

Yes No

Remarks:

HYDROLOGY**Wetland Hydrology Indicators:**

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

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

Secondary Indicators (2 or more required)

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

Field Observations:Surface Water Present? Yes No Depth (inches): —Water Table Present? Yes No Depth (inches): —Saturation Present?
(includes capillary fringe) Yes No Depth (inches): —Wetland Hydrology Present? Yes No

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

Remarks: Assumed by hydric soil.

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

| | | | | | | | | | | |
|--------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|------|----------|----------------------------------------------|-------------------------------------|-----------------|--------------------------|------------------------------|-------------------------------------|-----------------------------|
| Project Site: | <u>Raging River Quarry</u> | | | City/County: | <u>/King</u> | | Sampling Date: | <u>10/10/14</u> | | |
| Applicant/Owner: | <u>John Priebe</u> | | | State: | <u>WA</u> | Sampling Point: | <u>2</u> | | | |
| Investigator(s): | <u>Gary Schulz</u> | | | Section, Township, Range: | | | | <u>22, 24N, 7E</u> | | |
| Landform (hillslope, terrace, etc.): | <u>terrace</u> | | | Local relief (concave, convex, none): | | | <u>none</u> | | Slope (%): <u>0</u> | |
| Subregion (LRR): | <u>A</u> | Lat: | <u> </u> | | Long: | <u> </u> | | Datum: | <u> </u> | |
| Soil Map Unit Name: | <u>Alderwood & Kitsap (AkF)</u> | | | | | | | NWI classification: <u> </u> | | |
| Are climatic / hydrologic conditions on the site typical for this time of year? | | | | Yes | <input checked="" type="checkbox"/> | No | <input type="checkbox"/> | (If no, explain in Remarks.) | | |
| Are Vegetation <input type="checkbox"/> , Soil <input type="checkbox"/> , or Hydrology <input type="checkbox"/> , significantly disturbed? | | | | Are "Normal Circumstances" present? | | | | Yes | <input checked="" type="checkbox"/> | No <input type="checkbox"/> |
| Are Vegetation <input type="checkbox"/> , Soil <input type="checkbox"/> , or Hydrology <input type="checkbox"/> , naturally problematic? | | | | (If needed, explain any answers in Remarks.) | | | | | | |

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

| | | | |
|---------------------------------------|---------------------------------------------------------------------|--------------------------------------------------|---------------------------------------------------------------------|
| Hydrophytic Vegetation Present? | Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> | Is the Sampled Area within a Wetland? | Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> |
| Hydric Soil Present? | Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> | | |
| Wetland Hydrology Present? | Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> | | |
| Remarks: Wetland B outside Flag #B-5. | | | |

VEGETATION – Use scientific names of plants

| <u>Tree Stratum</u> (Plot size: 1/100 th acre) | | | | Absolute % Cover | Dominant Species? | Indicator Status | Dominance Test Worksheet: | | |
|--------------------------------------------------------------------|-------|---------------|-------|------------------|-------------------|------------------|----------------------------------------------------------------------------------------------------------------|--------------|--|
| 1. <u><i>Alnus rubra</i></u> | 5 | no | FAC | | | | Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) | | |
| 2. _____ | _____ | _____ | _____ | | | | Total Number of Dominant Species Across All Strata: <u>2</u> (B) | | |
| 3. _____ | _____ | _____ | _____ | | | | Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B) | | |
| 4. _____ | _____ | _____ | _____ | | | | | | |
| 50% = _____, 20% = _____ | 5 | = Total Cover | | | | | | | |
| <u>Sapling/Shrub Stratum</u> (Plot size: 1/100 th acre) | | | | 60 | yes | FAC | Prevalence Index worksheet: | | |
| 1. <u><i>Rubus spectabilis</i></u> | 5 | no | FACU | | | | Total % Cover of: | Multiply by: | |
| 2. <u><i>Acer circinatum</i></u> | _____ | _____ | _____ | | | | OBL species _____ | x1 = _____ | |
| 3. _____ | _____ | _____ | _____ | | | | FACW species _____ | x2 = _____ | |
| 4. _____ | _____ | _____ | _____ | | | | FAC species _____ | x3 = _____ | |
| 5. _____ | _____ | _____ | _____ | | | | FACU species _____ | x4 = _____ | |
| 50% = _____, 20% = _____ | 65 | = Total Cover | | | | | UPL species _____ | x5 = _____ | |
| <u>Herb Stratum</u> (Plot size: 1/100 th acre) | | | | | | | Column Totals: _____ (A) | (B) | |
| 1. <u><i>Athyrium felix-femina</i></u> | 15 | no | FACW | | | | Prevalence Index = B/A = _____ | | |
| 2. <u><i>Tolmeia menziesii</i></u> | 80 | yes | FAC | | | | | | |
| 3. <u><i>Polystichum munitum</i></u> | 15 | no | FACU | | | | | | |
| 4. _____ | _____ | _____ | _____ | | | | | | |
| 5. _____ | _____ | _____ | _____ | | | | | | |
| 6. _____ | _____ | _____ | _____ | | | | | | |
| 7. _____ | _____ | _____ | _____ | | | | | | |
| 8. _____ | _____ | _____ | _____ | | | | | | |
| 9. _____ | _____ | _____ | _____ | | | | | | |
| 10. _____ | _____ | _____ | _____ | | | | | | |
| 11. _____ | _____ | _____ | _____ | | | | | | |
| 50% = _____, 20% = _____ | 110 | = Total Cover | | | | | | | |
| <u>Woody Vine Stratum</u> (Plot size: _____) | | | | | | | 1 ^{Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.} | | |
| 1. _____ | _____ | _____ | _____ | | | | | | |
| 2. _____ | _____ | _____ | _____ | | | | | | |
| 50% = _____, 20% = _____ | _____ | = Total Cover | | | | | | | |
| % Bare Ground in Herb Stratum _____ | | | | | | | Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> | | |
| Remarks: | | | | | | | | | |

Project Site: Raging River Quarry

Sampling Point: 2

SOIL

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

| Depth (inches) | Matrix | | Redox Features | | | | | Remarks |
|-------------------|---------------|-----|----------------|---|-------------------|------------------|------------|---------|
| | Color (moist) | % | Color (moist) | % | Type ¹ | Loc ² | Texture | |
| 12 | 10YR3/2 | 100 | — | — | — | — | sandy loam | dry |
| 18 | 10YR4/2 | 100 | — | — | — | — | sandy loam | dry |
| — | — | — | — | — | — | — | — | — |
| — | — | — | — | — | — | — | — | — |
| — | — | — | — | — | — | — | — | — |
| — | — | — | — | — | — | — | — | — |
| — | — | — | — | — | — | — | — | — |
| — | — | — | — | — | — | — | — | — |
| — | — | — | — | — | — | — | — | — |

¹Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleayed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1) (except MLRA 1)
- Loamy Gleayed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: —

Depth (inches): —

Hydric Soils Present?

Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes No Depth (inches): —

Water Table Present? Yes No Depth (inches): —

Saturation Present?
(includes capillary fringe) Yes No Depth (inches): —

Wetland Hydrology Present? Yes No

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

Remarks:

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

| | | | | | | | | | | | | |
|--------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|------|----------|----------------------------------------------|-------------------------------------|--------------------|------------------------------|------------------------------|---------------------|-------------------------------------|----|--------------------------|
| Project Site: | <u>Raging River Quarry</u> | | | City/County: | <u>/King</u> | | Sampling Date: | <u>10/13/14</u> | | | | |
| Applicant/Owner: | <u>John Priebe</u> | | | State: | <u>WA</u> | Sampling Point: | <u>3</u> | | | | | |
| Investigator(s): | <u>Gary Schulz</u> | | | Section, Township, Range: | | <u>22, 24N, 7E</u> | | | | | | |
| Landform (hillslope, terrace, etc.): | <u>terrace</u> | | | Local relief (concave, convex, none): | | | <u>none</u> | | Slope (%): <u>0</u> | | | |
| Subregion (LRR): | <u>A</u> | Lat: | <u> </u> | | Long: | <u> </u> | | Datum: | <u> </u> | | | |
| Soil Map Unit Name: | <u>Alderwood & Kitsap (AkF)</u> | | | | | | NWI classification: <u> </u> | | | | | |
| Are climatic / hydrologic conditions on the site typical for this time of year? | | | | Yes | <input checked="" type="checkbox"/> | No | <input type="checkbox"/> | (If no, explain in Remarks.) | | | | |
| Are Vegetation <input type="checkbox"/> , Soil <input type="checkbox"/> , or Hydrology <input type="checkbox"/> , significantly disturbed? | | | | Are "Normal Circumstances" present? | | | | | Yes | <input checked="" type="checkbox"/> | No | <input type="checkbox"/> |
| Are Vegetation <input type="checkbox"/> , Soil <input type="checkbox"/> , or Hydrology <input type="checkbox"/> , naturally problematic? | | | | (If needed, explain any answers in Remarks.) | | | | | | | | |

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

| | | | |
|---------------------------------------|---------------------------------------------------------------------|--------------------------------------------------|---------------------------------------------------------------------|
| Hydrophytic Vegetation Present? | Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> | Is the Sampled Area within a Wetland? | Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> |
| Hydric Soil Present? | Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> | | |
| Wetland Hydrology Present? | Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> | | |
| Remarks: Wetland A outside Flag #A-3. | | | |

VEGETATION – Use scientific names of plants

| Tree Stratum (Plot size: 1/100 th acre) | | | | Dominance Test Worksheet: | | | |
|-------------------------------------------------------------|------------------|-------------------|------------------|---------------------------------------------------------------------------------------------------------------------------------|-----------|-----------|-------|
| | Absolute % Cover | Dominant Species? | Indicator Status | | | | |
| 1. <u>Alnus rubra</u> | <u>10</u> | <u>no</u> | <u>FAC</u> | Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) | | | |
| 2. _____ | _____ | _____ | _____ | Total Number of Dominant Species Across All Strata: <u>2</u> (B) | | | |
| 3. _____ | _____ | _____ | _____ | Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50</u> (A/B) | | | |
| 4. _____ | _____ | _____ | _____ | | | | |
| 50% = _____, 20% = _____ | <u>10</u> | = Total Cover | | | | | |
| Sapling/Shrub Stratum (Plot size: 1/100 th acre) | | | | Prevalence Index worksheet: | | | |
| 1. <u>Rubus spectabilis</u> | <u>15</u> | <u>no</u> | <u>FAC</u> | Total % Cover of: | | | |
| 2. <u>Acer circinatum</u> | <u>20</u> | <u>yes</u> | <u>FACU</u> | Multiply by: | | | |
| 3. _____ | _____ | _____ | _____ | OBL species | _____ | x1 = | _____ |
| 4. _____ | _____ | _____ | _____ | FACW species | _____ | x2 = | _____ |
| 5. _____ | _____ | _____ | _____ | FAC species | _____ | x3 = | _____ |
| 50% = _____, 20% = _____ | <u>45</u> | = Total Cover | | FACU species | _____ | x4 = | _____ |
| Herb Stratum (Plot size: 1/100 th acre) | | | | UPL species | _____ | x5 = | _____ |
| 1. <u>Urtica dioica</u> | <u>5</u> | <u>no</u> | <u>FAC</u> | Column Totals: | _____ (A) | _____ (B) | |
| 2. <u>Tolmeia menziesii</u> | <u>60</u> | <u>yes</u> | <u>FAC</u> | Prevalence Index = B/A = _____ | | | |
| 3. <u>Polystichum munitum</u> | <u>5</u> | <u>no</u> | <u>FACU</u> | Hydrophytic Vegetation Indicators: | | | |
| 4. _____ | _____ | _____ | _____ | <input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation | | | |
| 5. _____ | _____ | _____ | _____ | <input checked="" type="checkbox"/> 2 - Dominance Test is >50% | | | |
| 6. _____ | _____ | _____ | _____ | <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ | | | |
| 7. _____ | _____ | _____ | _____ | <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) | | | |
| 8. _____ | _____ | _____ | _____ | <input type="checkbox"/> 5 - Wetland Non-Vascular Plants ¹ | | | |
| 9. _____ | _____ | _____ | _____ | <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) | | | |
| 10. _____ | _____ | _____ | _____ | 1 ^{Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.} | | | |
| 11. _____ | _____ | _____ | _____ | | | | |
| 50% = _____, 20% = _____ | <u>70</u> | = Total Cover | | | | | |
| Woody Vine Stratum (Plot size: _____) | | | | Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> | | | |
| 1. _____ | _____ | _____ | _____ | | | | |
| 2. _____ | _____ | _____ | _____ | | | | |
| 50% = _____, 20% = _____ | _____ | = Total Cover | | | | | |
| % Bare Ground in Herb Stratum _____ | | | | | | | |
| Remarks: | | | | | | | |

Project Site: Raging River Quarry

Sampling Point: 3

SOIL

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

| Depth (inches) | Matrix | | Redox Features | | | | | Remarks |
|-------------------|---------------|-----|----------------|---|-------------------|------------------|------------|-------------------|
| | Color (moist) | % | Color (moist) | % | Type ¹ | Loc ² | Texture | |
| 12 | 10YR2/2 | 100 | — | — | — | — | sandy loam | dry |
| 14 | 10YR4/2 | 100 | — | — | — | — | sandy loam | dry, many cobbles |
| — | — | — | — | — | — | — | — | — |
| — | — | — | — | — | — | — | — | — |
| — | — | — | — | — | — | — | — | — |
| — | — | — | — | — | — | — | — | — |
| — | — | — | — | — | — | — | — | — |
| — | — | — | — | — | — | — | — | — |
| — | — | — | — | — | — | — | — | — |

¹Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleayed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1) (except MLRA 1)
- Loamy Gleayed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: —

Depth (inches): —

Hydric Soils Present?

Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes No Depth (inches): —

Water Table Present? Yes No Depth (inches): —

Saturation Present?
(includes capillary fringe) Yes No Depth (inches): —

Wetland Hydrology Present? Yes No

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

Remarks:

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

Project Site: Raging River Quarry City/County: /King Sampling Date: 10/13/14
 Applicant/Owner: John Priebe State: WA Sampling Point: 4
 Investigator(s): Gary Schulz Section, Township, Range: 22, 24N, 7E
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 0
 Subregion (LRR): A Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: Alderwood & Kitsap (AkF) NWI classification: _____
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

| | | | |
|---------------------------------------|---------------------------------------------------------------------|------------------------------------------|---------------------------------------------------------------------|
| Hydrophytic Vegetation Present? | Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> | Is the Sampled Area within a Wetland? | Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> |
| Hydric Soil Present? | Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> | | |
| Wetland Hydrology Present? | Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> | | |
| Remarks: Wetland A outside Flag #A-6. | | | |

VEGETATION – Use scientific names of plants

| Tree Stratum (Plot size: 1/100 th acre) | | | | Dominance Test Worksheet: | | | |
|-------------------------------------------------------------|-------------------|---------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|----------------------------------------------------------------------------------------------------------------|-----------|-------|--|
| | Absolute % Cover | Dominant Species? | Indicator Status | Number of Dominant Species That Are OBL, FACW, or FAC: | 1 | (A) | |
| 1. <u>Thuja plicata</u> | <u>10</u> | <u>no</u> | <u>FAC</u> | | | | |
| 2. _____ | _____ | _____ | _____ | | | | |
| 3. _____ | _____ | _____ | _____ | | | | |
| 4. _____ | _____ | _____ | _____ | | | | |
| 50% = _____, 20% = _____ | <u>10</u> | = Total Cover | | Total Number of Dominant Species Across All Strata: | <u>2</u> | (B) | |
| | | | | Percent of Dominant Species That Are OBL, FACW, or FAC: | <u>50</u> | (A/B) | |
| Sapling/Shrub Stratum (Plot size: 1/100 th acre) | | | | Prevalence Index worksheet: | | | |
| | Total % Cover of: | Multiply by: | | | | | |
| 1. <u>Rubus spectabilis</u> | <u>50</u> | OBL species | _____ | x1 = | _____ | | |
| 2. <u>Acer circinatum</u> | <u>15</u> | FACW species | _____ | x2 = | _____ | | |
| 3. _____ | _____ | FAC species | _____ | x3 = | _____ | | |
| 4. _____ | _____ | FACU species | _____ | x4 = | _____ | | |
| 5. _____ | _____ | UPL species | _____ | x5 = | _____ | | |
| 50% = _____, 20% = _____ | <u>65</u> | Column Totals: _____ (A) | | Prevalence Index = B/A = _____ | (B) | | |
| Herb Stratum (Plot size: 1/100 th acre) | | | | Hydrophytic Vegetation Indicators: | | | |
| | Total % Cover of: | Multiply by: | | | | | |
| 1. <u>Athyrium felix-femina</u> | <u>1</u> | OBL species | _____ | x1 = | _____ | | |
| 2. <u>Tolmeia menziesii</u> | <u>15</u> | FACW species | _____ | x2 = | _____ | | |
| 3. <u>Polystichum munitum</u> | <u>25</u> | FAC species | _____ | x3 = | _____ | | |
| 4. _____ | _____ | FACU species | _____ | x4 = | _____ | | |
| 5. _____ | _____ | UPL species | _____ | x5 = | _____ | | |
| 6. _____ | _____ | Column Totals: _____ (A) | | Prevalence Index = B/A = _____ | (B) | | |
| 7. _____ | _____ | Hydrophytic Vegetation Indicators: | | | | | |
| 8. _____ | _____ | <input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation | | | | | |
| 9. _____ | _____ | <input checked="" type="checkbox"/> 2 - Dominance Test is >50% | | | | | |
| 10. _____ | _____ | <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ | | | | | |
| 11. _____ | _____ | <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) | | | | | |
| 50% = _____, 20% = _____ | <u>40</u> | <input type="checkbox"/> 5 - Wetland Non-Vascular Plants ¹ | | | | | |
| | | | | ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. | | | |
| Woody Vine Stratum (Plot size: _____) | | | | Hydrophytic Vegetation Present? | | | |
| 1. _____ | _____ | Yes <input type="checkbox"/> | No <input checked="" type="checkbox"/> | | | | |
| 2. _____ | _____ | | | | | | |
| 50% = _____, 20% = _____ | _____ | = Total Cover | | | | | |
| % Bare Ground in Herb Stratum _____ | | | | | | | |

Remarks:

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

| Depth (inches) | Matrix | | Redox Features | | | | Texture | Remarks |
|-------------------|---------------|-----|----------------|---|-------------------|------------------|------------|------------------------------------|
| | Color (moist) | % | Color (moist) | % | Type ¹ | Loc ² | | |
| 12 | 10YR3/2 | 100 | — | — | — | — | sandy loam | dry |
| 14 | 10YR5/4 | 80 | — | — | — | — | sandy loam | dry, restricted, dense from gravel |
| — | 10YR5/5 | 20 | — | — | — | — | — | — |
| — | — | — | — | — | — | — | — | — |
| — | — | — | — | — | — | — | — | — |
| — | — | — | — | — | — | — | — | — |
| — | — | — | — | — | — | — | — | — |
| — | — | — | — | — | — | — | — | — |
| — | — | — | — | — | — | — | — | — |

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

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleayed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1) (except MLRA 1)
- Loamy Gleayed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

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

Type: —

Depth (inches): —

Hydric Soils Present?

Yes No

Remarks:

HYDROLOGY**Wetland Hydrology Indicators:**

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

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

Secondary Indicators (2 or more required)

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

Field Observations:Surface Water Present? Yes No Depth (inches): —Water Table Present? Yes No Depth (inches): —Saturation Present?
(includes capillary fringe) Yes No Depth (inches): —Wetland Hydrology Present? Yes No

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

Remarks:

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

| | | | | | | | | | | | |
|--------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|------|----------|----------------------------------------------|-------------------------------------|-----------------|--------------------------|------------------------------|-------------------------------------|----|--------------------------|
| Project Site: | <u>Raging River Quarry</u> | | | City/County: | <u>/King</u> | | Sampling Date: | <u>10/13/14</u> | | | |
| Applicant/Owner: | <u>John Priebe</u> | | | State: | <u>WA</u> | Sampling Point: | <u>5</u> | | | | |
| Investigator(s): | <u>Gary Schulz</u> | | | Section, Township, Range: | | | | <u>22, 24N, 7E</u> | | | |
| Landform (hillslope, terrace, etc.): | <u>terrace</u> | | | Local relief (concave, convex, none): | | | <u>none</u> | | Slope (%): <u>0</u> | | |
| Subregion (LRR): | <u>A</u> | Lat: | <u> </u> | | Long: | <u> </u> | | Datum: | <u> </u> | | |
| Soil Map Unit Name: | <u>Alderwood & Kitsap (AkF)</u> | | | | | | | NWI classification: <u> </u> | | | |
| Are climatic / hydrologic conditions on the site typical for this time of year? | | | | Yes | <input checked="" type="checkbox"/> | No | <input type="checkbox"/> | (If no, explain in Remarks.) | | | |
| Are Vegetation <input type="checkbox"/> , Soil <input type="checkbox"/> , or Hydrology <input type="checkbox"/> , significantly disturbed? | | | | Are "Normal Circumstances" present? | | | | Yes | <input checked="" type="checkbox"/> | No | <input type="checkbox"/> |
| Are Vegetation <input type="checkbox"/> , Soil <input type="checkbox"/> , or Hydrology <input type="checkbox"/> , naturally problematic? | | | | (If needed, explain any answers in Remarks.) | | | | | | | |

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

| | | | | |
|---------------------------------------|---------------------------------------------------------------------|--------------------------------------------------|---------------------------------------------------------------------|--|
| Hydrophytic Vegetation Present? | Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> | Is the Sampled Area within a Wetland? | Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> | |
| Hydric Soil Present? | Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> | | | |
| Wetland Hydrology Present? | Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> | | | |
| Remarks: Wetland A inside Flag #A-21. | | | | |

VEGETATION – Use scientific names of plants

| <u>Tree Stratum</u> (Plot size: 1/100 th acre) | | | | Absolute % Cover | Dominant Species? | Indicator Status | Dominance Test Worksheet: | | |
|--------------------------------------------------------------------|-----------|---------------|-------------|------------------|-------------------|------------------|---------------------------------------------------------|--------------|-------|
| 1. <u><i>Thuja plicata</i></u> | <u>30</u> | <u>yes</u> | <u>FAC</u> | | | | Number of Dominant Species That Are OBL, FACW, or FAC: | <u>3</u> | (A) |
| 2. _____ | _____ | _____ | _____ | | | | Total Number of Dominant Species Across All Strata: | <u>3</u> | (B) |
| 3. _____ | _____ | _____ | _____ | | | | Percent of Dominant Species That Are OBL, FACW, or FAC: | <u>100</u> | (A/B) |
| 4. _____ | _____ | _____ | _____ | | | | | | |
| 50% = _____, 20% = _____ | <u>30</u> | = Total Cover | | | | | | | |
| <u>Sapling/Shrub Stratum</u> (Plot size: 1/100 th acre) | | | | n/a* | = | FACU | Prevalence Index worksheet: | | |
| 1. _____ | _____ | n/a* | = | | | | Total % Cover of: | Multiply by: | |
| 2. <u><i>Acer circinatum</i></u> | <u>I</u> | <u>no</u> | <u>FACU</u> | | | | OBL species | x1 = | _____ |
| 3. _____ | _____ | _____ | _____ | | | | FACW species | x2 = | _____ |
| 4. _____ | _____ | _____ | _____ | | | | FAC species | x3 = | _____ |
| 5. _____ | _____ | _____ | _____ | | | | FACU species | x4 = | _____ |
| 50% = _____, 20% = _____ | _____ | = Total Cover | | | | | UPL species | x5 = | _____ |
| <u>Herb Stratum</u> (Plot size: 1/100 th acre) | | | | I | no | FACW | Column Totals: _____ (A) _____ (B) | | |
| 1. <u><i>Athyrium felix-femina</i></u> | <u>I</u> | <u>no</u> | <u>FACW</u> | | | | Prevalence Index = B/A = _____ | | |
| 2. <u><i>Cardamine sp.</i></u> | <u>20</u> | <u>yes</u> | <u>FACW</u> | | | | | | |
| 3. <u><i>Polystichum munitum</i></u> | <u>10</u> | <u>no</u> | <u>FACU</u> | | | | | | |
| 4. <u><i>Veronica sp.</i></u> | <u>5</u> | <u>no</u> | <u>FACW</u> | | | | | | |
| 5. <u><i>Moss sp.</i></u> | <u>40</u> | <u>yes</u> | <u>FAC</u> | | | | | | |
| 6. _____ | _____ | _____ | _____ | | | | | | |
| 7. _____ | _____ | _____ | _____ | | | | | | |
| 8. _____ | _____ | _____ | _____ | | | | | | |
| 9. _____ | _____ | _____ | _____ | | | | | | |
| 10. _____ | _____ | _____ | _____ | | | | | | |
| 11. _____ | _____ | _____ | _____ | | | | | | |
| 50% = _____, 20% = _____ | <u>75</u> | = Total Cover | | | | | | | |
| <u>Woody Vine Stratum</u> (Plot size: _____) | | | | | | | | | |
| 1. _____ | _____ | _____ | _____ | | | | | | |
| 2. _____ | _____ | _____ | _____ | | | | | | |
| 50% = _____, 20% = _____ | _____ | = Total Cover | | | | | | | |
| % Bare Ground in Herb Stratum _____ | | | | | | | | | |
| | | | | | | | | | |
| Remarks: | | | | | | | | | |

Project Site: Raging River Quarry

Sampling Point: 5

SOIL

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

| Depth (inches) | Matrix | | Redox Features | | | | Texture | Remarks |
|-------------------|---------------|-----|----------------|---|-------------------|------------------|-----------|----------------------------|
| | Color (moist) | % | Color (moist) | % | Type ¹ | Loc ² | | |
| 14 | 10YR2/1 | 100 | — | — | — | — | silt loam | moist with organic content |
| 16 | 7N Gley 1 | 100 | — | — | — | — | silt/clay | — |
| — | — | — | — | — | — | — | — | — |
| — | — | — | — | — | — | — | — | — |
| — | — | — | — | — | — | — | — | — |
| — | — | — | — | — | — | — | — | — |
| — | — | — | — | — | — | — | — | — |
| — | — | — | — | — | — | — | — | — |
| — | — | — | — | — | — | — | — | — |
| — | — | — | — | — | — | — | — | — |

¹Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleayed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1) (except MLRA 1)
- Loamy Gleayed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: —

Depth (inches): —

Hydric Soils Present?

Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes No Depth (inches): —

Water Table Present? Yes No Depth (inches): —

Saturation Present?
(includes capillary fringe) Yes No Depth (inches): —

Wetland Hydrology Present? Yes No

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

Remarks: Assumed by hydric soil.