

June 9, 2009

Ed MacLeod  
MacLeod Reckord  
91 Marion Street  
Seattle, Washington 98102

## **Re: Sammamish Valley Park Wetland Delineation Report**

The Watershed Company Reference Number: 080906

Dear Ed:

In April and June 2009, staff from The Watershed Company visited Sammamish Valley Park in Redmond, Washington. The purpose of the visit was to conduct a wetland delineation on the subject property. This letter summarizes the findings of this study and details applicable federal, state, and local regulations. The following attachments are included:

- Wetland Delineation Map
- Wetland Determination Data Forms
- Wetland Rating Form

### **Methods**

The study area was evaluated for wetlands using methodology from the *Washington State Wetlands Identification and Delineation Manual* (Manual) (Washington Department of Ecology [Ecology] 1997) and the *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region* (Regional Supplement) (US Army Corps of Engineers [Corps] April 2008). Wetland boundaries were determined on the basis of an examination of vegetation, soils, and hydrology. Areas meeting the criteria set forth in the Manual and Regional Supplement were determined to be wetland. Soil, vegetation, and hydrologic parameters were sampled at several locations along the wetland boundaries to make the determination. We recorded data at six of these locations. Data points on-site are marked with yellow- and black-striped flags. On-site wetland boundaries are marked with pink- and black-striped flags. Only those wetland areas on-site were delineated as a part of this study.

Delineated wetlands were classified using the *Western Washington Wetland Rating System* (Ecology, Aug 2004, version 2).

## Findings

Sammamish Valley Park is located at the intersection of NE 116th Street and Willows Road NE in the City of Redmond. The property is a relatively flat field that lies within the 100-year floodplain of the Sammamish River. Surrounding the park are agricultural areas to the north, residential areas to the west, a golf course to the south, and an undeveloped field containing wetland and non-wetland areas to the east. The subject property contains one wetland, Wetland A (see below), which encompasses the majority of the property. There is one stream, Stream A (see below), located just off-site, adjacent to the southwestern and southern property borders. The dominant vegetation in the non-wetland areas, located in the northwest, northeast and southwest portions of the property (see sketch), are field grasses, meadow foxtail, and reed canarygrass, with some Himalayan blackberry present along the edges of the property.

### *Wetland A*

Wetland A is a depressional wetland with an emergent vegetation class. The wetland encompasses the entire center portion of the subject property and extends north and east on to the neighboring properties. The primary source of hydrology for Wetland A comes from a high groundwater table. Hydrology is supplemented by precipitation and by a culvert carrying Stream A (see below) in the southwest portion of the property along Willows Road that discharges into Wetland A. The approximately three-foot wide, concrete culvert extends westward beneath Willows Road and connects to a ditch that parallels the west side of the road. Some of the drainage from the culvert discharges into Wetland A, while the remainder is carried along a ditched Stream A channel southward along the east side of Willows Road then eastward along the north side of NE 116<sup>th</sup> Street (see below). During flood events, Wetland A likely drains directly into Stream A along NE 116<sup>th</sup> Street, near the southeast corner of the subject property. A large ponded area, in the form of an old oxbow that is hydrologically connected to Wetland A, is located on the parcel to the east of the subject property.

The soil of Wetland A is a very dark brown (10YR 2/2) silt with a high organic content. A sulfidic odor was detected at several locations, an indicator of prolonged inundation. The vegetation of Wetland A is a reed canarygrass monoculture. There are some field grasses and meadow foxtail also present throughout Wetland A.

### *Stream A*

Stream A originates from the confluence of several Class IV drainages originating on the slopes extending upwards west of Willows Road. Downstream of the Sammamish Valley Park site, the stream continues eastward along an artificial, ditch-like channel along the north side of NE 116<sup>th</sup> Street past an adjoining parcel to join the Sammamish River on its west bank immediately downstream of NE 116<sup>th</sup> Street. Stream flow was

very low at the time of our April 2009 visit and completely dry by the time of our June 1, 2009 visit. It is likely that Stream A has no flow during all or nearly all of the peak dry season. Where it flows southward in a roadside ditch along the *west* side of Willows Road, the stream appears as though it could carry a low level of flow perennially from springs along the toe of the slope, based on observations of the flows and the types of aquatic vegetation present. During our June 1, 2009 site visit, this flow was discharged to the site, passing first through a culvert under Willows Road and then through a second culvert under some railroad tracks. On that date, all of the flow, less than 0.1 cubic foot per second, dispersed into Wetland A, extending eastward across the site, and none of it remained within or re-entered the ditched channel extending first southward along Willows Road then eastward along NE 116<sup>th</sup> Street to the Sammamish River. This artificial channel was dry along its entire length on June 1, 2009, consisting primarily of a reed canarygrass-choked swale with evidence of flow or at least standing water having been present during wetter periods. At the river, any flow would pass through a 36-inch CMP through the levee along the river to be discharged down a steep, rocky riverbank, typically 4 to 5 feet vertically above the river surface under low or base flow conditions. Since Stream A is located outside the subject property, it was not flagged as a part of this study.

### Local Regulations

Streams and wetlands in Redmond are regulated under Chapter 20D of the Redmond Community Development Guide (RCDG). Under the guide, wetlands are rated as one of four categories based on water quality functions, hydrologic functions, and habitat functions. Wetland A scored 30 points for water quality functions, 16 points for hydrologic functions, and 13 points for habitat functions for a total of 59 points. This score qualifies Wetland A as a Category II wetland. Buffer widths for Category II wetlands are dependent upon the habitat score, the water quality score, and the intensity of the proposed land use. Potential buffer widths are described in the table below.

Wetland Category and Characteristics	Standard Buffer Width (feet) by Impact of Land Use		
Category II with a score of 24-32 points for water quality; score of less than 20 points for habitat.	High: 100	Medium: 75	Low: 50

Table 1. Per RCDG 20D.140.30-020

Per RCDG 20D.140.30-020(2)

- a) *High impact land uses include: commercial, industrial, institutional, retail sales, high intensity recreation (golf courses, ball fields), and residential uses with a density of more than one dwelling unit per acre.*
- b) *Medium impact land uses include: residential uses with a density of one unit per acre or less, moderate-intensity open space (parks), and paved trails.*
- c) *Low impact land uses include: low-intensity open space (such as passive recreation and natural resource preservation) and unpaved trails.*

Standard buffer widths may be altered through buffer reduction or buffer averaging. Buffer reduction can be used to reduce the standard buffer width associated with high impact land use to that required for moderate impact land use. In the case of Wetland A, which scored less than 20 points for habitat functions, buffer reduction may be allowed on a case by case basis if measures to reduce the impacts on the wetland are applied. Measures such as focusing lights and noise away from buffer areas, removing invasive vegetation and installing native vegetation, installing habitat features such as standing snags and woody debris, and installing grass swales around buffer edges can all help increase the function of buffers, thus reducing the impacts to the wetland [RCDG 20D.140.30-020(5)]. Due to the presence of a monotypical vegetation class dominated by an invasive species (reed canarygrass), there are extensive opportunities for enhancing both the buffer and the wetland itself.

Buffer averaging may be approved if all of the following are met [RCDG 20D.140.30-020.(6)]:

- a) It is determined that averaging will not reduce wetland functions.
- b) The wetland contains areas of higher sensitivity that will benefit from increased buffer widths and areas of lower sensitivity that will not be adversely impacted by reduced buffer widths.
- c) The averaged buffer area is not less than the standard buffer.
- d) No portion of the buffer is reduced more than 25 percent or 50 feet, whichever is less.

Buffer reduction and buffer averaging may be used in combination. However, no individual or combined use may result in a buffer width of less than 75 percent of the standard buffer width [RCDG 20D.140.30-020(7)].

The City of Redmond *Critical Areas Map, Streams Classification*, 2005, depicts Stream A as a Class III stream. Class III streams are those that are not Class I or II and have non-

salmonid fish use or the potential for non-salmonid fish use or are headwater streams with a surface water connection to salmon bearing or potentially salmon bearing streams. Class III streams are required to have a standard buffer width of 100 feet [RCDG 20D.140.20-020(3)]. Per RCDG 20D.140.20.020(6), Class III stream buffers may be altered through buffer averaging provided all of the following conditions are met:

- a) Stream or habitat functions are not reduced.
- b) Additional habitat protection is provided.
- c) The averaged buffer area is not less than the standard buffer area.
- d) No part of the buffer is reduced more than 25 percent or 25 feet, whichever is greater.

Activities that are exempt from the provisions of RCDG 20D include normal and routine maintenance of existing landscaping and construction of pedestrian trails which are permeable, have a maximum width of six feet, and are located in the outer 25 percent of the buffer. Existing and ongoing agricultural activities are allowed in critical areas and their buffers provided no alteration of flood storage capacity or conveyance occurs and the activity does not adversely affect critical areas. This exemption would likely not apply to the subject property, since agricultural activities have not occurred for more than five years and is therefore not ongoing [RCDG 20D.140.10-030(1)]. Additionally, stormwater management facilities including bio-infiltration swales and outfalls, but not including stormwater ponds, may be located in the outer 25 percent of the buffer, provided no other location is feasible and wetland functions will not be degraded [RCDG 20D.140.020(8)].

### **State and Federal Regulations**

Wetlands are also regulated by the U.S. Army Corps of Engineers (Corps) under section 404 of the Clean Water Act. Any filling of Waters of the State, including wetlands (except isolated wetlands), would require notification and permits from the Corps. Wetland A would likely not be considered isolated, due to its connection to the Sammamish River, a "Water of the State". Federally permitted actions that could affect endangered species (i.e. salmon or bull trout) may also require a biological assessment study and consultation with the U.S. Fish and Wildlife Service and/or the National Marine Fisheries Service. Application for Corps permits may also require an individual 401 Water Quality Certification and Coastal Zone Management Consistency determination from Ecology.

In general, neither the Corps nor Ecology regulates wetland buffers, unless direct impacts are proposed. When direct impacts are proposed, mitigated wetlands may be required to employ buffers based on Corps and Ecology joint regulatory guidance.

Please note that the findings of this letter, including wetland classification and resulting buffer width predictions, are subject to the verification and agreement of local, state and/or federal regulatory authorities.

Please call if you have any questions or if we can provide you with any additional information.

Sincerely,



Ryan Kahlo  
Ecologist



Greg Johnston  
Sr. Fisheries Biologist, CFP

Enclosures



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

### WETLAND RATING FORM – WESTERN WASHINGTON

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

Name of wetland (if known): Sammamish Valley Park Date of site visit: 4/18/09

Rated by: RMK, MKM Trained by Ecology? Yes  No  Date of Training 3/2009

SEC: 27 TOWNSHIP: 26N RANGE: 5E Is S/T/R in Appendix D? Yes  No

## 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	30
Score for Hydrologic Functions	16
Score for Habitat Functions	13
<b>TOTAL score for functions</b>	<b>59</b>

### Category based on SPECIAL CHARACTERISTICS of wetland

I  II  Does not Apply

Final Category (choose the “highest” category from above)

**II**

Check the appropriate type and class of wetland being rated.

Wetland Type	Wetland Class	
Estuarine	<input type="checkbox"/>	<input checked="" type="checkbox"/> <b>Depressional</b>
Natural Heritage Wetland	<input type="checkbox"/>	<input type="checkbox"/> <b>Riverine</b>
Bog	<input type="checkbox"/>	<input type="checkbox"/> <b>Lake-fringe</b>
Mature Forest	<input type="checkbox"/>	<input type="checkbox"/> <b>Slope</b>
Old Growth Forest	<input type="checkbox"/>	<input type="checkbox"/> <b>Flats</b>
Coastal Lagoon	<input type="checkbox"/>	<input type="checkbox"/> <b>Freshwater Tidal</b>
Interdunal	<input type="checkbox"/>	<input type="checkbox"/>
None of the above	<input checked="" type="checkbox"/>	Check if unit has multiple HGM classes present <input type="checkbox"/>



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

**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 <b>animal</b> or <b>plant</b> species (T/E species)?</i> For the purposes of this rating system, “documented” means the wetland is on the appropriate state or federal database.		X
SP2. <i>Has the wetland unit been documented as habitat for any State listed Threatened or Endangered <b>animal</b> 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).		X
SP3. <i>Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?</i>		X
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.		X

*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. Classifying the wetland first simplifies the questions needed to answer how it 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 wetland 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 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 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 types of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3ft diameter and less than a foot deep).*

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

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

5. Does the entire wetland unit **meet all** of the following criteria?
- The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river.
  - The overbank flooding occurs at least once every two years

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

**NO** - go to 6                       **YES** – The 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.

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

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

D	Depressional and Flats Wetlands	Points
<b>WATER QUALITY FUNCTIONS - Indicators that wetland functions to improve water quality</b>		
D	<b>D 1. Does the wetland have the potential to improve water quality?</b>	<i>(see p. 38)</i>
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 <b>and no obvious natural outlet</b> , and/or outlet is a man-made ditch ..... points = 1 ( <i>If ditch is not permanently flowing treat unit as “intermittently flowing”</i> )	2
D	D 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	4
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	5
D	D1.4 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 NOTE: See text for indicators of seasonal and permanent inundation.	4
D	<b>Total for D 1</b>	15
D	<b>D 2. Does the wetland unit have the opportunity to improve water quality?</b> 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? <i>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.</i> <input type="checkbox"/> Grazing in the wetland or within 150 ft <input type="checkbox"/> Untreated stormwater discharges to wetland <input type="checkbox"/> Tilled fields or orchards within 150 ft of wetland <input checked="" type="checkbox"/> A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging <input checked="" type="checkbox"/> Residential, urban areas, golf courses are within 150 ft of wetland <input type="checkbox"/> Wetland is fed by groundwater high in phosphorus or nitrogen <input type="checkbox"/> Other _____ <b>YES multiply score in D 1. by 2</b> <b>NO multiply score in D 1. by 1</b>	<i>(see p. 44)</i>  multiplier <u>2</u>
D	<b>TOTAL - Water Quality Functions</b> Multiply the score from D1 by D2	<b>30</b>
<i>Add score to table on p. 1</i>		

<b>D Depressional and Flats Wetlands</b>		
<b>HYDROLOGIC FUNCTIONS - Indicators that wetland functions to reduce flooding and stream degradation</b>		
<b>D</b>	<b>D 3. Does the wetland have the potential to reduce flooding and erosion?</b> <span style="float: right;"><i>(see p. 46)</i></span>	
<b>D</b>	<p>D 3.1 Characteristics of surface water flows out of the wetland unit</p> <p>Unit is a depression with no surface water leaving it (no outlet)..... points = 4</p> <p>Unit has an intermittently flowing, or highly constricted permanently flowing outlet... points = 2</p> <p>Unit is a “flat” depression (Q.7 on key), or in the Flats class, with permanent surface outflow <b>and no obvious natural outlet</b>, and/or outlet is a man-made ditch ..... points = 1</p> <p><i>(If ditch is not permanently flowing treat unit as “intermittently flowing”)</i></p> <p>Unit has an unconstricted, or slightly constricted, surface outlet (<i>permanently flowing</i>). points = 0</p>	2
<b>D</b>	<p>D 3.2 Depth of storage during wet periods</p> <p><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></p> <p>Marks of ponding are at least 3 ft or more above the surface or bottom of outlet..... points = 7</p> <p>The wetland is a “headwater” wetland” ..... points = 5</p> <p>Marks of ponding between 2 ft to &lt; 3 ft from surface or bottom of outlet..... points = 5</p> <p>Marks are at least 0.5 ft to &lt; 2 ft from surface or bottom of outlet ..... points = 3</p> <p>Unit is flat (yes to Q.2 or Q.7 on key) but has small depressions on the surface that trap water ..... points = 1</p> <p>Marks of ponding less than 0.5 ft..... points = 0</p>	3
<b>D</b>	<p>D 3.3 Contribution of wetland unit to storage in the watershed</p> <p><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></p> <p>The area of the basin is less than 10 times the area of the unit ..... points = 5</p> <p>The area of the basin is 10 to 100 times the area of the unit ..... points = 3</p> <p>The area of the basin is more than 100 times the area of the unit ..... points = 0</p> <p>Entire unit is in the FLATS class ..... points = 5</p>	3
<b>D</b>	<b>Total for D 3</b> <span style="float: right;"><i>Add the points in the boxes above</i></span>	8
<b>D</b>	<p><b>D 4. Does the wetland unit have the opportunity to reduce flooding and erosion?</b> <span style="float: right;"><i>(see p. 49)</i></span></p> <p>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.</p> <p><i>Note which of the following conditions apply.</i></p> <p><input type="checkbox"/> Wetland is in a headwater of a river or stream that has flooding problems</p> <p><input checked="" type="checkbox"/> Wetland drains to a river or stream that has flooding problems</p> <p><input type="checkbox"/> Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems</p> <p><input type="checkbox"/> Other _____</p> <p><input checked="" type="checkbox"/> <b>YES</b> multiplier is 2      <input type="checkbox"/> <b>NO</b> multiplier is 1</p>	multiplier <u>2</u>
<b>D</b>	<b>TOTAL - Hydrologic Functions</b> Multiply the score from D 3 by D 4 <i>Add score to table on p. 1</i>	<b>16</b>

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

<b>These questions apply to wetlands of all HGM classes.</b> <b>HABITAT FUNCTIONS - Indicators that wetland functions to provide important habitat</b>	
<b>H 1. Does the wetland have the potential to provide habitat for many species?</b>	
<p>H 1.1 <u>Vegetation structure</u> (see p. 72)            Check the types of vegetation classes present (as defined by Cowardin) if the class is 1/4 acre or covers more than 10% of the area of the wetland if unit smaller than 2.5 acres.</p> <p> <input type="checkbox"/> Aquatic bed  <input checked="" type="checkbox"/> Emergent plants  <input type="checkbox"/> Scrub/shrub (areas where shrubs have &gt;30% cover)  <input type="checkbox"/> Forested (areas where trees have &gt;30% cover)  <input type="checkbox"/> Forested areas have 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon         </p> <p>Add the number of vegetation types that qualify. If you have:</p> <p style="text-align: right;">           4 structures or more ..... points = 4            3 structures ..... points = 2            2 structures ..... points = 1            1 structure ..... points = 0         </p>	0
<p>H 1.2. <u>Hydroperiods</u> (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 1/4 acre to count. (see text for descriptions of hydroperiods)</p> <p> <input type="checkbox"/> Permanently flooded or inundated  <input checked="" type="checkbox"/> Seasonally flooded or inundated  <input 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  <input type="checkbox"/> <b>Lake-fringe wetland = 2 points</b>  <input type="checkbox"/> <b>Freshwater tidal wetland = 2 points</b> </p> <p style="text-align: right;">           4 or more types present ..... points = 3            3 types present ..... points = 2            2 types present ..... points = 1            1 types present ..... points = 0         </p>	1
<p>H 1.3. <u>Richness of Plant Species</u> (see p. 75)            Count the number of plant species in the wetland that cover at least 10 ft<sup>2</sup>. (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</p> <p style="text-align: right;">           If you counted: &gt; 19 species ..... points = 2            5 - 19 species ..... points = 1            &lt; 5 species ..... points = 0         </p> <p>List species below if you want to:</p>	1

<p><b>H 1.4. Interspersion of habitats (see p. 76)</b> 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.</p> <p>None = 0 points    Low = 1 point    Moderate = 2 points    High = 3 points</p> <p>[riparian braided channels]</p> <p>NOTE: If you have four or more vegetation types or three vegetation types and open water the rating is always "high".</p>	1
<p><b>H 1.5. Special Habitat Features: (see p. 77)</b> 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.</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Large, downed, woody debris within the wetland (&gt;4in. diameter and 6 ft long).</li> <li><input checked="" type="checkbox"/> Standing snags (diameter at the bottom &gt; 4 inches) in the wetland</li> <li><input type="checkbox"/> 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 for at least 33 ft (10m)</li> <li><input type="checkbox"/> Stable steep banks of fine material that might be used by beaver or muskrat for denning (&gt;30degree slope) OR signs of recent beaver activity are present</li> <li><input checked="" type="checkbox"/> At least ¼ acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated.(structures for egg-laying by amphibians)</li> <li><input type="checkbox"/> Invasive plants cover less than 25% of the wetland area in each stratum of plants</li> </ul> <p><i>Note: The 20% stated in early printings of the manual on page 78 is an error.</i></p>	2
<p><b>H 1. TOTAL Score - potential for providing habitat</b> Add the scores from H1.1, H1.2, H1.3, H1.4, H1.5</p>	5

<b>H 2. Does the wetland have the opportunity to provide habitat for many species?</b>	
<p><b>H 2.1 Buffers</b> (<i>see p. 80</i>)  <i>Choose the description that best represents condition of buffer of wetland. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed."</i></p> <p><input type="checkbox"/> 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water &gt;95% of circumference. No developed areas within undisturbed part of buffer. (relatively undisturbed also means no-grazing) ..... Points = 5</p> <p><input checked="" type="checkbox"/> 100 m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water &gt; 50% circumference..... <b>Points = 4</b></p> <p><input type="checkbox"/> 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water &gt;95% circumference..... Points = 4</p> <p><input type="checkbox"/> 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water &gt; 25% circumference..... Points = 3</p> <p><input type="checkbox"/> 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water for &gt; 50% circumference..... Points = 3</p> <p style="text-align: center;"><b>If buffer does not meet any of the criteria above</b></p> <p><input type="checkbox"/> No paved areas (except paved trails) or buildings within 25 m (80ft) of wetland &gt; 95% circumference. Light to moderate grazing, or lawns are OK..... Points = 2</p> <p><input type="checkbox"/> No paved areas or buildings within 50m of wetland for &gt;50% circumference. Light to moderate grazing, or lawns are OK..... Points = 2</p> <p><input type="checkbox"/> Heavy grazing in buffer. .... Points = 1</p> <p><input type="checkbox"/> Vegetated buffers are &lt;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</p> <p><input type="checkbox"/> Buffer does not meet any of the criteria above. Points = 1</p>	4
<p><b>H 2.2 Corridors and Connections</b> (<i>see p. 81</i>)</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 style="text-align: center;">YES = <b>4 points</b> (<i>go to H 2.3</i>)      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? <b>OR a Lake-fringe wetland</b>, if it does not have an undisturbed corridor as in the question above?</p> <p style="text-align: center;">YES = <b>2 points</b> (<i>go to H 2.3</i>)      NO = H 2.2.3</p> <p>H 2.2.3 Is the wetland:</p> <p style="padding-left: 40px;">within 5 mi (8km) of a brackish or salt water estuary OR</p> <p style="padding-left: 40px;"><b>within 3 mi of a large field or pasture (&gt;40 acres) OR</b></p> <p style="padding-left: 40px;">within 1 mi of a lake greater than 20 acres?</p> <p style="text-align: center;">YES = <b>1 point</b>      NO = <b>0 points</b></p>	1



<p>H 2.3 <u>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 <a href="http://wdfw.wa.gov/hab/phslist.htm">http://wdfw.wa.gov/hab/phslist.htm</a>)</u></p> <p>Which of the following priority habitats are within 330ft (100m) of the wetland? (NOTE: the connections do not have to be relatively undisturbed)</p> <p><input type="checkbox"/> <b>Aspen Stands:</b> Pure or mixed stands of aspen greater than 0.4 ha (1 acres).</p> <p><input type="checkbox"/> <b>Biodiversity Areas and Corridors:</b> Areas of habitat that are relatively important to various species of native fish and wildlife (full description in WDFW PHS report p. 152)</p> <p><input type="checkbox"/> <b>Herbaceous Balds:</b> Variable size patches of grass and forbs on shallow soils over bedrock.</p> <p><input type="checkbox"/> <b>Old-growth/Mature forests:</b> (<u>Old-growth west of Cascade crest</u>) 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) &gt; 81 cm (32 in) dbh or &gt; 200 years of age. (<u>Mature forests.</u>) 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.</p> <p><input type="checkbox"/> <b>Oregon white Oak:</b> 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.)</p> <p><input type="checkbox"/> <b>Riparian:</b> The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.</p> <p><input type="checkbox"/> <b>Westside Prairies:</b> 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)</p> <p><input type="checkbox"/> <b>Instream:</b> The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.</p> <p><input type="checkbox"/> <b>Nearshore:</b> 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.)</p> <p><input type="checkbox"/> <b>Caves:</b> 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.</p> <p><input type="checkbox"/> <b>Cliffs:</b> Greater than 7.6 m (25 ft) high and occurring below 5000 ft.</p> <p><input type="checkbox"/> <b>Talus:</b> 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.</p> <p><input type="checkbox"/> <b>Snags and Logs:</b> 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 &gt;51 cm (20 in) in western Washington and are &gt; 2 m (6.5 ft) in height. Priority logs are &gt; 30cm (12 in) in diameter at the largest end, and &gt; 6m (20 ft) long.</p> <p style="padding-left: 40px;">If wetland has <b>3 or more</b> priority habitats = <b>4 points</b>          If wetland has <b>2</b> priority habitats = <b>3 points</b>          If wetland has <b>1</b> priority habitat = <b>1 point</b>          No habitats = <b>0 points</b></p> <p><i>Note: All vegetated wetland are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H2.4.</i></p>	<p>0</p>
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Wetland name or number \_\_\_\_\_

<p>H 2.4 <u>Wetland Landscape</u> (<i>choose the <b>one</b> description of the landscape around the wetland that best fits</i>)  <i>(see p. 84)</i>          There are at least 3 other wetlands within ½ mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development. .... points = 5          The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within ½ mile ..... points = 5          There are at least 3 other wetlands within ½ mile, BUT the connections between them are disturbed ..... <b>points = 3</b>          The wetland is Lake-fringe on a lake <b>with</b> disturbance and there are 3 other lake-fringe wetland within ½ mile ..... points = 3          There is at least 1 wetland within ½ mile. .... points = 2          There are no wetlands within ½ mile ..... points = 0</p>	3
<p><b>H 2. TOTAL Score</b> - opportunity for providing habitat  <i>Add the scores from H2.1, H2.2, H2.3, H2.4</i></p>	8
<p>TOTAL for H1 from page 14</p>	5
<p><b>Total Score for Habitat Functions</b> – add the points for H 1, H 2 and record the result on p. 1</p>	13

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

**CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS**

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

<b>Wetland Type</b> <i>Check off any criteria that apply to the wetland. Circle the Category when the appropriate criteria are met.</i>	<b>Category</b>
<p><b>SC 1.0 Estuarine wetlands (see p. 86)</b>            Does the wetland unit meet the following criteria for Estuarine wetlands?</p> <p><input type="checkbox"/> The dominant water regime is tidal,  <input type="checkbox"/> Vegetated, and  <input type="checkbox"/> With a salinity greater than 0.5 ppt.</p> <p>YES = Go to SC 1.1                      NO <input checked="" type="checkbox"/></p>	
<p>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 332-151?</p> <p><input type="checkbox"/> YES = Category I                      <input type="checkbox"/> NO = go to SC 1.2</p>	<p><b>Cat. I</b></p>
<p>SC 1.2 Is the wetland unit at least 1 acre in size and meets at least two of the following three conditions?</p> <p><input type="checkbox"/> YES = Category I                      <input type="checkbox"/> NO = Category II</p> <p><input type="checkbox"/> The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. If the non-native <i>Spartina</i> spp. are the only species that cover more than 10% of the wetland, then the wetland should be given a dual rating (I/II) The are aof <i>Spartina</i> would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category I. Do not, however, exclude the area of <i>Spartina</i> in determining the size threshold of 1 acre.</p> <p><input type="checkbox"/> At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed wetland.</p> <p><input type="checkbox"/> The wetland has at least 2 or the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.</p>	<p><b>Cat. I</b></p> <p><b>Cat. II</b></p> <p><b>Dual rating I/II</b></p>

<p><b>SC 2.0 Natural Heritage Wetlands (see p. 87)</b></p> <p>Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species.</p> <p>SC 2.1 Is the wetland being rated in a Section/Township/Range that contains a Natural Heritage wetland? <i>(this question is used to screen out most sites before you need to contact WNHP/DNR)</i>          S/T/R information from Appendix D <input type="checkbox"/> or accessed from WNHP/DNR web site <input type="checkbox"/>          YES <input type="checkbox"/> – contact WNHP/DNR (see p. 79) and go to SC 2.2      NO <input checked="" type="checkbox"/></p> <p>SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as or as a site with state threatened or endangered plant species?          YES = Category I      NO <input checked="" type="checkbox"/> Not a Heritage Wetland</p>	<p><b>Cat. I</b></p>
<p><b>SC 3.0 Bogs (see p. 87)</b></p> <p>Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? <i>Use the key below to identify if the wetland is a bog. If you answer yes, you will still need to rate the wetland based on its functions.</i></p> <ol style="list-style-type: none"> <li>1. Does the wetland have organic soils horizons (i.e. layers of organic soil), either peats or mucks, that compose 16” or more of the first 32 inches of the soil profile? (See Appendix B for a field key to identify organic soils.)              Yes - go to Q.3      NO - go to Q.2</li> <li>2. Does the wetland have organic soils, either peats or mucks, that are less than 16 inches deep over bedrock or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond?              Yes - go to Q.3      NO <input checked="" type="checkbox"/> is not a bog for purpose of rating</li> <li>3. Does the wetland have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the “bog” species listed in Table 3 as a significant component of the vegetation (more than 30% of the total shrub and herbaceous cover consists species in Table 3)?              Yes – Is a bog for purpose of rating      NO - go to Q.4  <i>NOTE: If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16” deep. If the pH is less than 5.0 and the “bog” plant species in Table 3 are present, the wetland is a bog.</i></li> <li>4. Is the wetland forested (&gt;30% cover) with sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemann’s spruce, or western white pine, WITH any of the species (or combination of species) on the bog species plant list in Table 3 as a significant component of the ground cover (&gt;30% coverage of the total shrub/herbaceous cover)?              YES = Category I      NO <input type="checkbox"/> is not a bog for purpose of rating</li> </ol>	<p><b>Cat. I</b></p>



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

<p><b>SC 6.0 Interdunal Wetlands (see p. 93)</b>          Is the wetland unit west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)?          YES – go to SC 6.1      NO <input checked="" type="checkbox"/> not an interdunal wetland for rating  <i>If you answer yes you will still need to rate the wetland based on its functions.</i>          In practical terms that means the following geographic areas:              – Long Beach Peninsula – lands west of SR 103              – Grayland-Westport – lands west of SR 105              – Ocean Shores-Copalis – lands west of SR 115 and SR 109          SC 6.1 Is the wetland 1 acre or larger, or is it in a mosaic of wetlands that is 1 acre or larger?              YES = Category II      NO – go to SC 6.2          SC 6.2 Is the unit between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre?              YES = Category III</p>	<p><b>Cat. II</b></p> <p><b>Cat. III</b></p>
<p><b>Category of wetland based on Special Characteristics</b>  <i>Choose the “highest” rating if wetland falls into several categories, and record on p. 1 .</i>          If you answered NO for all types enter “Not Applicable” on p.1.</p>	<p><b>N/A</b></p>

DP-1

Project Site: <b>Sammamish Valley Park</b>		Sampling Date: <b>4/15/09</b>
Applicant/Owner: <b>City of Redmond</b>		Sampling Point: <b>DP- 1</b>
Investigator: <b>MKM, CS</b>		City/County: <b>Redmond/King</b>
Sect., Township, Range: <b>S 27 T 26N R5E</b>		State: <b>WA</b>
Landform (hillslope, terrace, etc): <b>flat</b>	Slope (%):	Local relief (concave, convex, none): <b>none</b>
Subregion (LRR): <b>A</b>	Lat:	Long:
Soil Map Unit Name: <b>Tuckwila muck</b>		Datum:
Soil NWI classification: <b>PEMC</b>		
Are climatic/hydrologic conditions on the site typical for this time of year? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Are "Normal Circumstances" present on the site? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Are Vegetation <input type="checkbox"/> , Soil <input type="checkbox"/> , or Hydrology <input type="checkbox"/> significantly disturbed? Are Vegetation <input type="checkbox"/> , Soil <input type="checkbox"/> , or Hydrology <input type="checkbox"/> naturally problematic?		(If no, explain in remarks.)  (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is this Sampling Point within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Hydric Soils Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Remarks: <b>slight topographic rise</b>	

**VEGETATION – Use scientific names of plants.**

Tree Stratum (Plot size 5m diam. )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet																					
1.				Number of Dominant Species that are OBL, FACW, or FAC: <b>1</b> (A) Total Number of Dominant Species Across All Strata: <b>1</b> (B) Percent of Dominant Species that are OBL, FACW, or FAC: <b>100</b> (A/B)																					
2.																									
3.																									
4.																									
_____ = Total Cover																									
Sapling/Shrub Stratum (Plot size 3m diam. )	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index Worksheet																					
1.				<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="2">Total % Cover of</th> <th>Multiply by</th> </tr> <tr> <td>OBL species</td> <td></td> <td>x 1 =</td> </tr> <tr> <td>FACW species</td> <td></td> <td>x 2 =</td> </tr> <tr> <td>FAC species</td> <td></td> <td>x 3 =</td> </tr> <tr> <td>FACU species</td> <td></td> <td>x 4 =</td> </tr> <tr> <td>UPL species</td> <td></td> <td>x 5 =</td> </tr> <tr> <td>Column totals</td> <td>(A)</td> <td>(B)</td> </tr> </table>	Total % Cover of		Multiply by	OBL species		x 1 =	FACW species		x 2 =	FAC species		x 3 =	FACU species		x 4 =	UPL species		x 5 =	Column totals	(A)	(B)
Total % Cover of		Multiply by																							
OBL species		x 1 =																							
FACW species		x 2 =																							
FAC species		x 3 =																							
FACU species		x 4 =																							
UPL species		x 5 =																							
Column totals	(A)	(B)																							
2.																									
3.																									
4.																									
5.																									
_____ = Total Cover																									
Herb Stratum (Plot size 1m diam. )	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index Worksheet																					
1. <b><i>Phalaris arundinacea</i></b>	<b>100</b>	<b>Y</b>	<b>FACW</b>	Prevalence Index = B / A =																					
2.																									
3.				<b>Hydrophytic Vegetation Indicators</b> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>Yes</th> <th>Dominance test is &gt; 50%</th> </tr> <tr> <td></td> <td>Prevalence test is ≤ 3.0 *</td> </tr> <tr> <td></td> <td>Morphological Adaptations * (provide supporting data in remarks or on a separate sheet)</td> </tr> <tr> <td></td> <td>Wetland Non-Vascular Plants *</td> </tr> <tr> <td></td> <td>Problematic Hydrophytic Vegetation * (explain)</td> </tr> </table> * Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic	Yes	Dominance test is > 50%		Prevalence test is ≤ 3.0 *		Morphological Adaptations * (provide supporting data in remarks or on a separate sheet)		Wetland Non-Vascular Plants *		Problematic Hydrophytic Vegetation * (explain)											
Yes	Dominance test is > 50%																								
	Prevalence test is ≤ 3.0 *																								
	Morphological Adaptations * (provide supporting data in remarks or on a separate sheet)																								
	Wetland Non-Vascular Plants *																								
	Problematic Hydrophytic Vegetation * (explain)																								
4.																									
5.																									
6.																									
7.																									
8.																									
9.																									
10.																									
11.																									
<b>100</b> = Total Cover																									
Woody Vine Stratum (Plot size )	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present?																					
1.				Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>																					
2.																									
_____ = Total Cover																									
% Bare Ground in Herb Stratum																									
Remarks: <b><i>Rubus armeniacus</i> approximately 15 feet east of data point on slight topographic rise.</b>																									

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 <sup>1</sup>	Loc <sup>2</sup>		
0-16	10YR 4/3	90	10YR 4/6	10			silty clay loam	dry

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains    <sup>2</sup>Loc: PL=Pore Lining, M=Matrix

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

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

**Indicators for Problematic Hydric Soils<sup>3</sup>**

- 2cm Muck (A10)
- Red Parent Material (TF2)
- Other (explain in remarks)

<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if present):

Type: \_\_\_\_\_

Depth (inches): \_\_\_\_\_

Hydric soil present?

Yes

No

Remarks:

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

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

Secondary Indicators (2 or more required):

- Water-Stained Leaves (B9) (MLRA 1, 2, 4A & 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

**Field Observations**

- |  |                              |  |             |
|--|------------------------------|--|-------------|
| Surface Water Present?                             | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No | Depth (in): |
| Water Table Present?                               | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No | Depth (in): |
| Saturation Present?<br>(includes capillary fringe) | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No | Depth (in): |

Wetland Hydrology Present?

Yes

No

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

Remarks:



DP-2

Project Site: <b>Sammamish Valley Park</b>		Sampling Date: <b>4/15/09</b>	
Applicant/Owner: <b>City of Redmond</b>		Sampling Point: <b>DP- 2</b>	
Investigator: <b>MKM, CS</b>		City/County: <b>Redmond/King</b>	
Sect., Township, Range: <b>S 27 T 26N R 5E</b>		State: <b>WA</b>	
Landform (hillslope, terrace, etc): <b>flat</b>		Slope (%): _____	
Local relief (concave, convex, none): <b>none</b>		Subregion (LRR): <b>A</b>	
Soil Map Unit Name: <b>Tuckwila muck</b>		Long: _____ Datum: _____	
NW1 classification: <b>PEMC</b>		Are climatic/hydrologic conditions on the site typical for this time of year? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Are "Normal Circumstances" present on the site? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		(If no, explain in remarks.)	
Are Vegetation <input type="checkbox"/> , Soil <input type="checkbox"/> , or Hydrology <input type="checkbox"/> significantly disturbed?		(If needed, explain any answers in Remarks.)	
Are Vegetation <input type="checkbox"/> , Soil <input type="checkbox"/> , or Hydrology <input type="checkbox"/> naturally problematic?			

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

Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is this Sampling Point within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soils Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Remarks: <b>in-pit</b>	

**VEGETATION – Use scientific names of plants.**

Tree Stratum (Plot size 5m diam. )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet																					
1.				Number of Dominant Species that are OBL, FACW, or FAC: <b>1</b> (A) Total Number of Dominant Species Across All Strata: <b>1</b> (B) Percent of Dominant Species that are OBL, FACW, or FAC: <b>100</b> (A/B)																					
2.																									
3.																									
4.																									
_____ = Total Cover																									
Sapling/Shrub Stratum (Plot size 3m diam. )	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index Worksheet																					
1.				<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="2">Total % Cover of</th> <th>Multiply by</th> </tr> <tr> <td>OBL species</td> <td></td> <td>x 1 =</td> </tr> <tr> <td>FACW species</td> <td></td> <td>x 2 =</td> </tr> <tr> <td>FAC species</td> <td></td> <td>x 3 =</td> </tr> <tr> <td>FACU species</td> <td></td> <td>x 4 =</td> </tr> <tr> <td>UPL species</td> <td></td> <td>x 5 =</td> </tr> <tr> <td>Column totals</td> <td>(A)</td> <td>(B)</td> </tr> </table>	Total % Cover of		Multiply by	OBL species		x 1 =	FACW species		x 2 =	FAC species		x 3 =	FACU species		x 4 =	UPL species		x 5 =	Column totals	(A)	(B)
Total % Cover of		Multiply by																							
OBL species		x 1 =																							
FACW species		x 2 =																							
FAC species		x 3 =																							
FACU species		x 4 =																							
UPL species		x 5 =																							
Column totals	(A)	(B)																							
2.																									
3.																									
4.																									
5.																									
_____ = Total Cover																									
Herb Stratum (Plot size 1m diam. )	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index Worksheet																					
1. <b>Phalaris arundinacea</b>	<b>100</b>	<b>Yes</b>	<b>FACW</b>	Prevalence Index = B / A = _____																					
2.																									
3.				<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="2">Hydrophytic Vegetation Indicators</th> </tr> <tr> <td><b>Yes</b></td> <td>Dominance test is &gt; 50%</td> </tr> <tr> <td></td> <td>Prevalence test is ≤ 3.0 *</td> </tr> <tr> <td></td> <td>Morphological Adaptations * (provide supporting data in remarks or on a separate sheet)</td> </tr> <tr> <td></td> <td>Wetland Non-Vascular Plants *</td> </tr> <tr> <td></td> <td>Problematic Hydrophytic Vegetation * (explain)</td> </tr> </table>	Hydrophytic Vegetation Indicators		<b>Yes</b>	Dominance test is > 50%		Prevalence test is ≤ 3.0 *		Morphological Adaptations * (provide supporting data in remarks or on a separate sheet)		Wetland Non-Vascular Plants *		Problematic Hydrophytic Vegetation * (explain)									
Hydrophytic Vegetation Indicators																									
<b>Yes</b>	Dominance test is > 50%																								
	Prevalence test is ≤ 3.0 *																								
	Morphological Adaptations * (provide supporting data in remarks or on a separate sheet)																								
	Wetland Non-Vascular Plants *																								
	Problematic Hydrophytic Vegetation * (explain)																								
4.																									
5.																									
6.																									
7.																									
8.																									
9.																									
10.																									
11.																									
<b>100</b> = Total Cover																									
Woody Vine Stratum (Plot size )	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present?																					
1.				Yes <input type="checkbox"/> No <input type="checkbox"/>																					
2.																									
_____ = Total Cover																									
% Bare Ground in Herb Stratum _____																									
Remarks: <b>monoculture throughout eastern property area</b>																									

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 <sup>1</sup>	Loc <sup>2</sup>		
0-16	10YR 3/2	100					silty organic loam	slight sulfidic odor

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains    <sup>2</sup>Loc: 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) <b>(except MLRA 1)</b> |
| <input checked="" type="checkbox"/> Hydrogen Sulfide (A4)  | <input type="checkbox"/> Loamy Gleyed Matrix (F2)                        |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3)                            |
| <input type="checkbox"/> Thick Dark Surface (A12)          | <input type="checkbox"/> Redox Dark Surface (F6)                         |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)          | <input type="checkbox"/> Depleted Dark Surface (F7)                      |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4)          | <input type="checkbox"/> Redox Depressions (F8)                          |

**Indicators for Problematic Hydric Soils<sup>3</sup>**

- 2cm Muck (A10)
- Red Parent Material (TF2)
- Other (explain in remarks)

<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if present):

Type: \_\_\_\_\_

Depth (inches): \_\_\_\_\_

Hydric soil present?

Yes

No

Remarks:

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

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

Secondary Indicators (2 or more required):

- Water-Stained Leaves (B9) **(MLRA 1, 2, 4A & 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

**Field Observations**

- |  |   |                             |             |     |
|--|---|-----------------------------|-------------|-----|
| Surface Water Present?                             | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | Depth (in): | 1/4 |
| Water Table Present?                               | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | Depth (in): | 0   |
| Saturation Present?<br>(includes capillary fringe) | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | Depth (in): | 0   |

Wetland Hydrology Present?

Yes

No

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

Remarks: **Ponded depressions throughout the area, up to 4" inundation. Surface water present is checked "no" above...is that right? If water table is at 0, isn't that surface water?**

DP-3

Project Site: <b>Sammamish Valley Park</b>		Sampling Date: <b>4/15/09</b>
Applicant/Owner: <b>City of Redmond</b>		Sampling Point: <b>DP- 3</b>
Investigator: <b>MKM, CS</b>		City/County: <b>Redmond/King</b>
Sect., Township, Range: <b>S 27 T 26N R 5E</b>		State: <b>WA</b>
Landform (hillslope, terrace, etc): <b>flat</b>	Slope (%):	Local relief (concave, convex, none): <b>concave</b>
Subregion (LRR): <b>A</b>	Lat:	Long:
Soil Map Unit Name: <b>Tuckwila muck</b>		NWI classification: <b>PEMC</b>
Are climatic/hydrologic conditions on the site typical for this time of year? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		(If no, explain in remarks.)
Are "Normal Circumstances" present on the site? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		
Are Vegetation <input type="checkbox"/> , Soil, <input type="checkbox"/> , or Hydrology <input type="checkbox"/> significantly disturbed?		
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? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Is this Sampling Point within a Wetland?</b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soils Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		
Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		
Remarks: <b>Slight depression near north property boundary</b>		

**VEGETATION – Use scientific names of plants.**

Tree Stratum (Plot size 5m diam. )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet																					
1.				Number of Dominant Species that are OBL, FACW, or FAC: <b>1</b> (A)																					
2.																									
3.																									
4.																									
_____ = Total Cover				Total Number of Dominant Species Across All Strata: <b>1</b> (B)																					
				Percent of Dominant Species that are OBL, FACW, or FAC: <b>100</b> (A/B)																					
Sapling/Shrub Stratum (Plot size 3m diam. )				Prevalence Index Worksheet																					
1.				<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="2" style="text-align: center;">Total % Cover of</th> <th style="text-align: center;">Multiply by</th> </tr> <tr> <td>OBL species</td> <td></td> <td>x 1 =</td> </tr> <tr> <td>FACW species</td> <td></td> <td>x 2 =</td> </tr> <tr> <td>FAC species</td> <td></td> <td>x 3 =</td> </tr> <tr> <td>FACU species</td> <td></td> <td>x 4 =</td> </tr> <tr> <td>UPL species</td> <td></td> <td>x 5 =</td> </tr> <tr> <td>Column totals</td> <td style="text-align: center;">(A)</td> <td style="text-align: center;">(B)</td> </tr> </table>	Total % Cover of		Multiply by	OBL species		x 1 =	FACW species		x 2 =	FAC species		x 3 =	FACU species		x 4 =	UPL species		x 5 =	Column totals	(A)	(B)
Total % Cover of		Multiply by																							
OBL species		x 1 =																							
FACW species		x 2 =																							
FAC species		x 3 =																							
FACU species		x 4 =																							
UPL species		x 5 =																							
Column totals	(A)	(B)																							
2.																									
3.																									
4.																									
5.																									
_____ = Total Cover																									
Herb Stratum (Plot size 1m diam. )				Prevalence Index = B / A =																					
1. <b><i>Phalaris arundinacea</i></b>	<b>90</b>	<b>Yes</b>	<b>FACW</b>	Prevalence Index = B / A =																					
2. <b><i>Alopecurus pratensis</i></b>	<b>10</b>	<b>Yes</b>	<b>FACW</b>																						
3.																									
4.																									
_____ = Total Cover																									
Woody Vine Stratum (Plot size )				Hydrophytic Vegetation Indicators																					
1.				<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td><b>Yes</b></td> <td>Dominance test is &gt; 50%</td> </tr> <tr> <td></td> <td>Prevalence test is ≤ 3.0 *</td> </tr> <tr> <td></td> <td>Morphological Adaptations * (provide supporting data in remarks or on a separate sheet)</td> </tr> <tr> <td></td> <td>Wetland Non-Vascular Plants *</td> </tr> <tr> <td></td> <td>Problematic Hydrophytic Vegetation * (explain)</td> </tr> </table> <p>* Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic</p>	<b>Yes</b>	Dominance test is > 50%		Prevalence test is ≤ 3.0 *		Morphological Adaptations * (provide supporting data in remarks or on a separate sheet)		Wetland Non-Vascular Plants *		Problematic Hydrophytic Vegetation * (explain)											
<b>Yes</b>	Dominance test is > 50%																								
	Prevalence test is ≤ 3.0 *																								
	Morphological Adaptations * (provide supporting data in remarks or on a separate sheet)																								
	Wetland Non-Vascular Plants *																								
	Problematic Hydrophytic Vegetation * (explain)																								
2.																									
3.																									
4.																									
5.																									
6.																									
7.																									
8.																									
9.																									
10.																									
11.																									
<b>100</b> = Total Cover																									
% Bare Ground in Herb Stratum				Hydrophytic Vegetation Present?																					
1.				Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>																					
2.																									
_____ = Total Cover																									
Remarks:																									

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 <sup>1</sup>	Loc <sup>2</sup>		
0-8.5	10YR 3/3	100					silty organic loam	
8.5-11	10YR 7/2	70	10YR 5/8	30			silt	
11-16	10YR 2/1	100					organic loam	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains    <sup>2</sup>Loc: 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) <b>(except MLRA 1)</b>
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input checked="" type="checkbox"/> Depleted Matrix (F3)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)

**Indicators for Problematic Hydric Soils<sup>3</sup>**

<input type="checkbox"/> 2cm Muck (A10)
<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Other (explain in remarks)
<input type="checkbox"/>

<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if present):  
 Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

**Hydric soil present?**    Yes     No

Remarks:

**HYDROLOGY**

**Wetland Hydrology Indicators:**  
*Primary Indicators (minimum of one required: check all that apply):*

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

*Secondary Indicators (2 or more required):*

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

**Field Observations**

Surface Water Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Depth (in):	
Water Table Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Depth (in):	8.5
Saturation Present? (includes capillary fringe)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Depth (in):	8.5

**Wetland Hydrology Present?**    Yes     No

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

Remarks:

DP-4

Project Site: <b>Sammamish Valley Park</b>		Sampling Date: <b>4/16/09</b>
Applicant/Owner: <b>City of Redmond</b>		Sampling Point: <b>DP- 4</b>
Investigator: <b>RMK, MKM</b>		City/County: <b>Redmond/King</b>
Sect., Township, Range: <b>S 27 T 26N R 5E</b>		State: <b>WA</b>
Landform (hillslope, terrace, etc): <b>none</b>	Slope (%):	Local relief (concave, convex, none): <b>none</b>
Subregion (LRR): <b>A</b>	Lat:	Long:
Soil Map Unit Name: <b>Tuckwila muck</b>		NWI classification: <b>PEMC</b>
Are climatic/hydrologic conditions on the site typical for this time of year? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Are "Normal Circumstances" present on the site? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Are Vegetation <input type="checkbox"/> , Soil <input type="checkbox"/> , or Hydrology <input type="checkbox"/> significantly disturbed? Are Vegetation <input type="checkbox"/> , Soil <input type="checkbox"/> , or Hydrology <input type="checkbox"/> naturally problematic?		(If no, explain in remarks.)  (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Is this Sampling Point within a Wetland?</b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soils Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		
Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		
Remarks:		

**VEGETATION – Use scientific names of plants.**

Tree Stratum (Plot size 5m diam. )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet										
1.				Number of Dominant Species that are OBL, FACW, or FAC: <b>1</b> (A) Total Number of Dominant Species Across All Strata: <b>1</b> (B) Percent of Dominant Species that are OBL, FACW, or FAC: <b>100</b> (A/B)										
2.														
3.														
4.														
_____ = Total Cover														
Sapling/Shrub Stratum (Plot size 3m diam. )	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index Worksheet										
1.				Total % Cover of <span style="float: right;">Multiply by</span> OBL species _____ x 1 = FACW species _____ x 2 = FAC species _____ x 3 = FACU species _____ x 4 = UPL species _____ x 5 = Column totals (A) _____ (B) _____  Prevalence Index = B / A =										
2.														
3.														
4.														
5.														
_____ = Total Cover														
Herb Stratum (Plot size 1m diam. )	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators										
1.	<b>100</b>	<b>Yes</b>	<b>FACW</b>	<table border="1" style="width:100%; border-collapse: collapse;"> <tr><td><b>Yes</b></td><td>Dominance test is &gt; 50%</td></tr> <tr><td></td><td>Prevalence test is ≤ 3.0 *</td></tr> <tr><td></td><td>Morphological Adaptations * (provide supporting data in remarks or on a separate sheet)</td></tr> <tr><td></td><td>Wetland Non-Vascular Plants *</td></tr> <tr><td></td><td>Problematic Hydrophytic Vegetation * (explain)</td></tr> </table>	<b>Yes</b>	Dominance test is > 50%		Prevalence test is ≤ 3.0 *		Morphological Adaptations * (provide supporting data in remarks or on a separate sheet)		Wetland Non-Vascular Plants *		Problematic Hydrophytic Vegetation * (explain)
<b>Yes</b>	Dominance test is > 50%													
	Prevalence test is ≤ 3.0 *													
	Morphological Adaptations * (provide supporting data in remarks or on a separate sheet)													
	Wetland Non-Vascular Plants *													
	Problematic Hydrophytic Vegetation * (explain)													
2.	<b>10</b>	<b>No</b>	<b>FAC</b>											
3.														
4.														
5.														
6.														
7.														
8.														
9.														
10.														
11.														
<b>110</b> = Total Cover														
Woody Vine Stratum (Plot size )	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present?										
1.				Yes <input type="checkbox"/> No <input type="checkbox"/>										
2.														
_____ = Total Cover														
% Bare Ground in Herb Stratum _____														
Remarks:														

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 <sup>1</sup>	Loc <sup>2</sup>		
0-8	10YR 2/2	100					silty organic	
8-16	10YR 2/1	100					organic	very black

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains      <sup>2</sup>Loc: PL=Pore Lining, M=Matrix

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

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

**Indicators for Problematic Hydric Soils<sup>3</sup>**

- 2cm Muck (A10)
- Red Parent Material (TF2)
- Other (explain in remarks)

<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if present):

Type: \_\_\_\_\_

Depth (inches): \_\_\_\_\_

Hydric soil present?

Yes

No

Remarks:

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

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

Secondary Indicators (2 or more required):

- Water-Stained Leaves (B9) (MLRA 1, 2, 4A & 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

**Field Observations**

- |   |   |  |             |   |
|---|---|--|-------------|---|
| Surface Water Present?                          | <input type="checkbox"/> Yes            | <input checked="" type="checkbox"/> No | Depth (in): |   |
| Water Table Present?                            | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No            | Depth (in): | 7 |
| Saturation Present? (includes capillary fringe) | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No            | Depth (in): | 7 |

Wetland Hydrology Present?

Yes

No

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

Remarks:

DP-5

Project Site: <b>Sammamish Valley Park</b>		Sampling Date: <b>4/17/09</b>	
Applicant/Owner: <b>City of Redmond</b>		Sampling Point: <b>DP- 5</b>	
Investigator: <b>RMK, MKM</b>		City/County: <b>Redmond/King</b>	
Sect., Township, Range: <b>S 27 T 26N R 5E</b>		State: <b>WA</b>	
Landform (hillslope, terrace, etc): <b>hillslope</b>		Slope (%): <b>10</b>	
Subregion (LRR): <b>A</b>	Lat	Long	Datum
Soil Map Unit Name: <b>Indianola loamy fine sand 0 to 4 percent slopes</b>		NW1 classification: <b>none</b>	
Are climatic/hydrologic conditions on the site typical for this time of year? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		(If no, explain in remarks.)	
Are "Normal Circumstances" present on the site? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			
Are Vegetation <input type="checkbox"/> , Soil <input type="checkbox"/> , or Hydrology <input type="checkbox"/> significantly disturbed?			
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? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Is this Sampling Point within a Wetland?</b>	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Hydric Soils Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			
Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
Remarks:			

**VEGETATION – Use scientific names of plants.**

Tree Stratum (Plot size 5m diam. )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet																					
1.				Number of Dominant Species that are OBL, FACW, or FAC: <b>2</b> (A)																					
2.																									
3.																									
4.																									
_____ = Total Cover				Total Number of Dominant Species Across All Strata: <b>2</b> (B)																					
				Percent of Dominant Species that are OBL, FACW, or FAC: <b>100</b> (A/B)																					
Sapling/Shrub Stratum (Plot size 3m diam. )				Prevalence Index Worksheet																					
1.				<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="2" style="text-align: center;">Total % Cover of</th> <th style="text-align: center;">Multiply by</th> </tr> <tr> <td>OBL species</td> <td></td> <td>x 1 =</td> </tr> <tr> <td>FACW species</td> <td></td> <td>x 2 =</td> </tr> <tr> <td>FAC species</td> <td></td> <td>x 3 =</td> </tr> <tr> <td>FACU species</td> <td></td> <td>x 4 =</td> </tr> <tr> <td>UPL species</td> <td></td> <td>x 5 =</td> </tr> <tr> <td>Column totals</td> <td style="text-align: center;">(A)</td> <td style="text-align: center;">(B)</td> </tr> </table>	Total % Cover of		Multiply by	OBL species		x 1 =	FACW species		x 2 =	FAC species		x 3 =	FACU species		x 4 =	UPL species		x 5 =	Column totals	(A)	(B)
Total % Cover of		Multiply by																							
OBL species		x 1 =																							
FACW species		x 2 =																							
FAC species		x 3 =																							
FACU species		x 4 =																							
UPL species		x 5 =																							
Column totals	(A)	(B)																							
2.																									
3.																									
4.																									
5.																									
_____ = Total Cover				Prevalence Index = B / A =																					
Herb Stratum (Plot size 1m diam. )																									
1. <b>Agrostis sp.</b>	<b>50</b>	<b>Yes</b>	<b>FAC</b>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th style="width: 10%;">Yes</th> <th style="width: 90%;">Dominance test is &gt; 50%</th> </tr> <tr> <td></td> <td>Prevalence test is ≤ 3.0 *</td> </tr> <tr> <td></td> <td>Morphological Adaptations * (provide supporting data in remarks or on a separate sheet)</td> </tr> <tr> <td></td> <td>Wetland Non-Vascular Plants *</td> </tr> <tr> <td></td> <td>Problematic Hydrophytic Vegetation * (explain)</td> </tr> </table>	Yes	Dominance test is > 50%		Prevalence test is ≤ 3.0 *		Morphological Adaptations * (provide supporting data in remarks or on a separate sheet)		Wetland Non-Vascular Plants *		Problematic Hydrophytic Vegetation * (explain)											
Yes	Dominance test is > 50%																								
	Prevalence test is ≤ 3.0 *																								
	Morphological Adaptations * (provide supporting data in remarks or on a separate sheet)																								
	Wetland Non-Vascular Plants *																								
	Problematic Hydrophytic Vegetation * (explain)																								
2. <b>Poa sp.</b>	<b>30</b>	<b>Yes</b>	<b>FAC</b>																						
3. <b>Phalaris arundinacea</b>	<b>10</b>	<b>No</b>	<b>FACW</b>																						
4. <b>Alopecurus pratensis</b>	<b>&lt;5</b>	<b>No</b>	<b>FACW</b>																						
5.				<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th style="width: 60%;">Hydrophytic Vegetation Indicators</th> <th style="width: 40%;">Yes</th> <th style="width: 40%;">No</th> </tr> <tr> <td></td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> <tr> <td colspan="3" style="text-align: center;">* Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic</td> </tr> <tr> <td colspan="3" style="text-align: center;"><b>Hydrophytic Vegetation Present?</b></td> </tr> <tr> <td></td> <td style="text-align: center;">Yes</td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> </tr> <tr> <td></td> <td style="text-align: center;">No</td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> </table>	Hydrophytic Vegetation Indicators	Yes	No		<input type="checkbox"/>	<input type="checkbox"/>	* Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic			<b>Hydrophytic Vegetation Present?</b>				Yes	<input checked="" type="checkbox"/>		No	<input type="checkbox"/>			
Hydrophytic Vegetation Indicators	Yes	No																							
	<input type="checkbox"/>	<input type="checkbox"/>																							
* Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic																									
<b>Hydrophytic Vegetation Present?</b>																									
	Yes	<input checked="" type="checkbox"/>																							
	No	<input type="checkbox"/>																							
6.																									
7.																									
8.																									
9.																									
10.																									
11.																									
_____ = Total Cover				<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th style="width: 60%;">Woody Vine Stratum (Plot size )</th> <th style="width: 40%;">Yes</th> <th style="width: 40%;">No</th> </tr> <tr> <td>1.</td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> <tr> <td>2.</td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> </table>	Woody Vine Stratum (Plot size )	Yes	No	1.	<input type="checkbox"/>	<input type="checkbox"/>	2.	<input type="checkbox"/>	<input type="checkbox"/>												
Woody Vine Stratum (Plot size )	Yes	No																							
1.	<input type="checkbox"/>	<input type="checkbox"/>																							
2.	<input type="checkbox"/>	<input type="checkbox"/>																							
_____ = Total Cover																									
% Bare Ground in Herb Stratum _____																									
Remarks:																									

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 <sup>1</sup>	Loc <sup>2</sup>		
0-10	10YR 2/2	100					silty organic	
10-16	5Y 4/2	60	10YR 4/6	40			silt	some organic content

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains      <sup>2</sup>Loc: PL=Pore Lining, M=Matrix

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

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

**Indicators for Problematic Hydric Soils<sup>3</sup>**

- 2cm Muck (A10)
- Red Parent Material (TF2)
- Other (explain in remarks)
- 

<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if present):

Type: \_\_\_\_\_

Depth (inches): \_\_\_\_\_

Hydric soil present?

Yes

No

Remarks: **Chroma 2 with redox. Possibly a relic soil.**

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

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

Secondary Indicators (2 or more required):

- Water-Stained Leaves (B9) (MLRA 1, 2, 4A & 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

**Field Observations**

- |   |                              |  |             |
|---|------------------------------|--|-------------|
| Surface Water Present?                          | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No | Depth (in): |
| Water Table Present?                            | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No | Depth (in): |
| Saturation Present? (includes capillary fringe) | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No | Depth (in): |

Wetland Hydrology Present?

Yes

No

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

Remarks:



**DP-6**

Project Site: <b>Sammamish Valley Park</b>		Sampling Date: <b>4/16/09</b>	
Applicant/Owner: <b>City of Redmond</b>		Sampling Point: <b>DP- 6</b>	
Investigator: <b>RMK, MKM</b>		City/County: <b>Redmond/King</b>	
Sect., Township, Range: <b>S 27 T 26N R 5E</b>		State: <b>WA</b>	
Landform (hillslope, terrace, etc): <b>hillslope</b>	Slope (%): <b>~10</b>	Local relief (concave, convex, none): <b>concave</b>	
Subregion (LRR): <b>A</b>	Lat: _____	Long: _____	Datum: _____
Soil Map Unit Name: <b>Tuckwila muck</b>		NW1 classification: <b>PEMC</b>	
Are climatic/hydrologic conditions on the site typical for this time of year? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		(If no, explain in remarks.)	
Are "Normal Circumstances" present on the site? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			
Are Vegetation <input type="checkbox"/> , Soil, <input type="checkbox"/> , or Hydrology <input type="checkbox"/> significantly disturbed?			
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? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Is this Sampling Point within a Wetland?</b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soils Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		
Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		
Remarks:		

**VEGETATION – Use scientific names of plants.**

Tree Stratum (Plot size 5m diam. )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet																					
1.				Number of Dominant Species that are OBL, FACW, or FAC: <b>1</b> (A)																					
2.																									
3.																									
4.																									
_____ = Total Cover				Total Number of Dominant Species Across All Strata: <b>1</b> (B)																					
				Percent of Dominant Species that are OBL, FACW, or FAC: <b>100</b> (A/B)																					
Sapling/Shrub Stratum (Plot size 3m diam. )	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index Worksheet																					
1.				<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th colspan="2">Total % Cover of</th> <th>Multiply by</th> </tr> <tr> <td>OBL species</td> <td></td> <td>x 1 =</td> </tr> <tr> <td>FACW species</td> <td></td> <td>x 2 =</td> </tr> <tr> <td>FAC species</td> <td></td> <td>x 3 =</td> </tr> <tr> <td>FACU species</td> <td></td> <td>x 4 =</td> </tr> <tr> <td>UPL species</td> <td></td> <td>x 5 =</td> </tr> <tr> <td>Column totals</td> <td>(A)</td> <td>(B)</td> </tr> </table>	Total % Cover of		Multiply by	OBL species		x 1 =	FACW species		x 2 =	FAC species		x 3 =	FACU species		x 4 =	UPL species		x 5 =	Column totals	(A)	(B)
Total % Cover of		Multiply by																							
OBL species		x 1 =																							
FACW species		x 2 =																							
FAC species		x 3 =																							
FACU species		x 4 =																							
UPL species		x 5 =																							
Column totals	(A)	(B)																							
2.																									
3.																									
4.																									
5.																									
_____ = Total Cover																									
Herb Stratum (Plot size 1m diam. )	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index Worksheet																					
1. <b><i>Phalaris arundinacea</i></b>	<b>85</b>	<b>Yes</b>	<b>FACW</b>	Prevalence Index = B / A =																					
2. <b><i>Poa sp.</i></b>	<b>15</b>	<b>No</b>	<b>FAC</b>																						
3.				<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th colspan="2">Hydrophytic Vegetation Indicators</th> </tr> <tr> <td><b>Yes</b></td> <td>Dominance test is &gt; 50%</td> </tr> <tr> <td></td> <td>Prevalence test is ≤ 3.0 *</td> </tr> <tr> <td></td> <td>Morphological Adaptations * (provide supporting data in remarks or on a separate sheet)</td> </tr> <tr> <td></td> <td>Wetland Non-Vascular Plants *</td> </tr> <tr> <td></td> <td>Problematic Hydrophytic Vegetation * (explain)</td> </tr> <tr> <td colspan="2">* Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic</td> </tr> <tr> <td><b>Hydrophytic Vegetation Present?</b></td> <td>Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></td> </tr> </table>	Hydrophytic Vegetation Indicators		<b>Yes</b>	Dominance test is > 50%		Prevalence test is ≤ 3.0 *		Morphological Adaptations * (provide supporting data in remarks or on a separate sheet)		Wetland Non-Vascular Plants *		Problematic Hydrophytic Vegetation * (explain)	* Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic		<b>Hydrophytic Vegetation Present?</b>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>					
Hydrophytic Vegetation Indicators																									
<b>Yes</b>	Dominance test is > 50%																								
	Prevalence test is ≤ 3.0 *																								
	Morphological Adaptations * (provide supporting data in remarks or on a separate sheet)																								
	Wetland Non-Vascular Plants *																								
	Problematic Hydrophytic Vegetation * (explain)																								
* Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic																									
<b>Hydrophytic Vegetation Present?</b>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>																								
4.																									
5.																									
6.																									
7.																									
8.																									
9.																									
10.																									
11.																									
_____ = Total Cover																									
Woody Vine Stratum (Plot size )	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present?																					
1.				Yes <input type="checkbox"/> No <input type="checkbox"/>																					
2.																									
_____ = Total Cover																									
% Bare Ground in Herb Stratum																									
Remarks:																									

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 <sup>1</sup>	Loc <sup>2</sup>		
0-11	10YR 2/2	100					silt with organic content	
11-16	10YR 4/2	60					organic	
11-16	10YR 2/2	40					silty organic	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains    <sup>2</sup>Loc: PL=Pore Lining, M=Matrix

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

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

**Indicators for Problematic Hydric Soils<sup>3</sup>**

- 2cm Muck (A10)
- Red Parent Material (TF2)
- Other (explain in remarks)

<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if present):

Type: \_\_\_\_\_

Depth (inches): \_\_\_\_\_

Hydric soil present?

Yes

No

Remarks:

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

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

Secondary Indicators (2 or more required):

- Water-Stained Leaves (B9) (MLRA 1, 2, 4A & 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

**Field Observations**

- Surface Water Present?  Yes  No    Depth (in): \_\_\_\_\_
- Water Table Present?  Yes  No    Depth (in): **14**
- Saturation Present?  Yes  No    Depth (in): **12**
- (includes capillary fringe)

Wetland Hydrology Present?

Yes

No

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

Remarks: