Appendix D – Summary of Wetland and Stream Findings

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Memo

To:	Fred Bennett, King County		
From:	Karissa Kawamoto, HDR	Project:	Factoria Recycling and Transfer Station
CC:	Eric Mead, HDR		
Date:	June 2010	Job No:	124743

RE: Factoria RTS: Summary of Wetland and Stream Findings

Introduction

This memorandum is a brief summary of findings and conclusions contained in the Wetland and Stream Delineation Report (HDR 2010) prepared for the Factoria RTS. A complete analysis and details on the qualities and functions of wetlands and streams found within the study area can be obtained from King County Solid Waste Division. In preparation for future land use approval and construction permitting, the wetlands were rated and the streams categorized using the City of Bellevue regulations and guidance.

Field investigation consisted of an initial field reconnaissance followed by more detailed verification/delineation of wetlands and streams in the study area. HDR biologists conducted the field investigation on January 22, February 5, March 5, and March 23, 2010.

Wetland Findings

HDR biologists verified the extent and location of four previously-identified wetlands in the study area and delineated one additional wetland. Wetlands were distinguished from adjoining uplands by the presence of indicators for wetland hydrology, hydric soils, and hydrophytic vegetation.

While flags were missing in some locations, HDR biologists found a sufficient number of flags to determine the accuracy of the previous delineation. The previous delineation appears to be correct with regard to the location and extent of wetland boundaries.

Table 1 summarizes the size, rating, and classification of wetlands found within the study area.

Table 1. Wetland Size, Rating, and Classification for Wetlands in the Study Area

Wetland Name	Delineated Area in Study Area (overall wetland size)[a]	Wetland Rating City of Bellevue[b]	Hydrogeomorphic (HGM) Classification	Cowardin Classification[c]
2	0.38 ac. (0.38 ac.)	IV	Slope	PSS/PFO
3	0.96 ac. (1.8 ac.)	III	Slope	PEM/PSS/PFO
4	0.06 ac. (0.06 ac.)	III	Slope	PSS
A	0.01 ac (0.01 ac)	IV	Depressional	PSS
C	0.04 ac (0.04 ac)	IV	Depressional	PFO

[a] Overall wetland size is the total area of wetland delineated or estimated based on aerial photograph interpretation and field reconnaissance. Area of delineated portions of the wetlands is based on the survey data.

[b] Wetland ratings are based on City of Bellevue Land Use Code 20.25H.095.

[c] Cowardin et al. (1979). All wetlands are palustrine.

PSS = palustrine, scrub-shrub; PFO = palustrine forested; PEM = palustrine emergent

Wetland 2

Palustrine scrub-shrub/forested
Category IV
0.38 acre in Study Area/0.38 acre overall

Wetland 2 is a slope wetland located on a moderate to steep slope northwest of the existing transfer station. Wetland 2 is down slope from a paved driveway (SE 32nd Street) to the west, and is approximately 120 feet wide and 200 feet long.

No primary hydrology indicators were observed at the data plots during the site visit, but water-stained leaves and drainage patterns indicate that wetland hydrology is present at the sample plot locations. Surface flow was observed throughout the wetland. Two main drainages in the wetland are formed on the hillside; these drainages flow west and discharge into Stream A and a stormwater catch basin near the southeastern corner of the warehouse building. A culvert is located approximately 40 feet southeast of the data plot SP-3; the culvert appears to convey runoff from the existing transfer station. At the culvert location, a very low flow of water was observed flowing down the hillside and disappearing into the ground. No distinct drainage channel is present in this area. Based on the biologists' observations, runoff from the transfer station and seeps from the hillside appear to be the primary sources of wetland hydrology for Wetland 2.

Wetland 2 is rated as Category IV in the Washington State Department of Ecology (Ecology) rating system (see Table 1), with a low score for water quality function (4/24 points), a low score for hydrologic function (6/16 points), and a moderate score for habitat function (15/36 points). Wetland 2 has low potential to provide water quality functions and hydrologic functions because Wetland 2 has limited potential to trap sediments and pollutants due to its steeply-

sloped configuration and lack of dense vegetation. Surrounding urban land use provides opportunity for Wetland 2 to perform water quality functions and hydrologic functions. Wetland 2 also has some potential and opportunity to provide habitat functions because it has some habitat diversity and has connectivity to other habitat types.

Wetland 3

Palustrine emergent/scrub-shrub/forested
Category III
0.96 acre in Study Area/1.8 acres overall

Wetland 3 is a slope wetland located at the north end of the study area and east of SE 30th Street. Wetland 3 continues to extend north outside the study area is likely to extend up to the Puget Sound Energy (PSE) facility and its private driveway located at the east end of SE 30th Street. The PSE transmission line easement is located east of the study area, running north-to-south, and two underground fuel pipelines owned by the Olympic Pipeline Company cross Wetland 3 within the easement. Stream 0263 also runs through Wetland 3.

Primary indicators of hydrology include surface water present near the sample plot location, saturated soils present at the surface, and free water at 9 inches below the surface. Seeps from the hillside appear to be the primary source of wetland hydrology for Wetland 3.

Wetland 3 is rated as a Category III wetland in the Ecology rating system, with a low score for water quality (6/24 points), a high score for hydrologic function (16/16 points), and a moderate score for habitat function (23/36 points). Wetland 3 has low potential to provide water quality functions and hydrologic functions due to its limited potential to trap sediments and pollutants. Surrounding urban land use provides opportunity for Wetland 3 to perform water quality functions and hydrologic functions. Wetland 3 also provides high habitat functions because it has moderate habitat diversity and interspersion, and because of its connection to other habitat types located nearby.

Wetland 4

Palustrine scrub-shrub
Category III
0.06 acre in Study Area/0.06 acre overall

Wetland 4 is a slope wetland located immediately north of SE 32nd Street and west of the existing transfer station. It is located on a gently-sloped hillside that slopes down from a paved driveway (SE 32nd Street) to the north. A concrete foundation and an abandoned house are located adjacent to Wetland 4. Wetland 4 is approximately 40 feet wide and 100 feet long.

Primary indicators of hydrology include surface water present near the sample plot location, saturated soils, and free water present at the surface. A buried culvert is located at the northeast corner of Wetland 4; however, no water was observed at either end of the culvert during the field investigation. Seeps from the hillside along SE 32nd Street and surface water runoff from the surrounding pavements appear to be the primary sources of hydrology for Wetland 4. Surface water from Wetland 4 drains northwest along a shallow swale approximately 70 feet before infiltrating into the ground.

Wetland 4 is rated as a Category III wetland in the Ecology rating system, with moderate scores for water quality (14/24 points) and hydrologic functions (8/16 points), and a low score for habitat function (10/36 points). Wetland 4 has some potential to provide water quality functions and hydrologic functions because it can trap sediments and pollutants due to its topography and dense vegetation. Surrounding urban land use also provides opportunity for

Wetland 4 to perform a water quality function, but Wetland 4 does not provide opportunities for hydrologic functions because there are no surface water connections to drainage ways. Wetland 4 has limited habitat functions due to low habitat diversity and interspersion, and limited connection to other habitat types nearby.

Wetland A

Palustrine scrub-shrub
Category IV
0.01 acre in Study Area/0.01 acre overall

Wetland A is a depressional wetland located south of SE 32nd Street, approximately 150 feet southwest of the existing scalehouse (Figure 2). Wetland A is a linear feature approximately 5 feet wide and 70 feet long located in a topographic depression. A culvert is situated at the east end of the wetland and appears to drain water from Wetland A to an underground stormwater conveyance system.

Primary indicators of hydrology include free water present at 7 inches below the surface and saturated soils at 11 inches below the surface. No surface water was observed at the sample plot location or at the culvert. Runoff from SE 32nd Street, slopes to the south, and direct precipitation appear to be the primary sources of hydrology for Wetland A.

Wetland A is rated as a Category IV wetland in the Ecology rating system, with low scores for water quality (6/32 points), hydrologic (5/32 points), and habitat (6/36 points) functions. Wetland A has low potential to provide water quality and hydrologic functions due to its limited potential to trap sediments and pollutants. Surrounding urban land use also provides opportunity for Wetland A to perform some water quality functions, but Wetland A does not provide opportunities for hydrologic functions because there are no surface water connections to drainage ways. Wetland A has limited habitat functions due to low habitat diversity and interspersion, and limited connection to other habitat types located nearby.

Wetland C

Palustrine forested
Category IV
0.04 acre in Study Area/0.04 acre overall

Wetland C is a depressional wetland located approximately 80 feet west of the PSE transmission line easement and 50 feet north of a gravel pad at the southeast corner of the study area. It is approximately 20 feet wide and 90 feet long in a topographic depression located between an abandoned logging road and a hill slope. No outlets or surface water inflows were observed in Wetland C during the field investigation.

Primary indicators of hydrology include surface water present near the sample plot location, saturated soils present at the surface, and free water at 8 inches below the surface. Primary sources of hydrology for Wetland C appear to be runoff from the abandoned logging road and from the gravel pad immediately upslope of the wetland, and direct precipitation.

Wetland C is rated as a Category IV wetland in the Ecology rating system, with low scores for water quality (10/32 points), hydrologic (7/32 points), and habitat (9/36 points) functions. Wetland C has some potential to provide water quality and hydrologic functions because it can trap sediments and pollutants. Surrounding urban land use also provides opportunity for Wetland C to perform some water quality functions, but Wetland C does not provide opportunities for hydrologic functions since there are no surface water connections to drainage

ways. Wetland C has limited habitat functions due to low habitat diversity and interspersion, and limited connection to other habitat types nearby.

Stream Findings

The study area is located in the Mercer Slough basin of the Cedar–Sammamish Watershed (Water Resource Inventory Area [WRIA] 8). Four streams are located in the study area: Sunset Creek, Stream 0263, Stream A, and Stream B. Table 2 summarizes the size, rating, and classification of streams found in the study area, and Figure 2 shows these streams and sub- basins.

Table 2. Summary of Streams in the Study Area

Stream Name	Tributary to	Stream Type[a]	USACE Jurisdiction[b]	Average Width in Study Area (ft)[c]	Approximate Length in Study Area (ft)[c]
Sunset Creek	Richards Creek	F	RPW	15	454
Stream 0263	East Creek	N	RPW	7	306
Stream A	East Creek	N	RPW	5	604
Stream B	N/A	O	Non-RPW	5	133

[a] Bellevue Land Use Code 20.25H.075

[b] RPW = Relatively Permanent Water

[c] Average widths and approximate lengths were determined based on existing survey data and field observations.

Sunset Creek

Sunset Creek is located in the Sunset Creek sub-basin of the Mercer Slough basin. The size of the Sunset Creek sub-basin is approximately 890 acres. As indicated in Table 4, Sunset Creek is rated as a fish-bearing stream (Type F) per the City of Bellevue Land Use Code (LUC 20.25H.075).

Fish species documented to occur in Sunset Creek include coho and cutthroat trout (WDFW 2010a; WDFW 2010b; Williams et al. 1975); however, Chinook salmon, sockeye, and steelhead have also been observed north of I-90 (City of Bellevue 1993; City of Bellevue 2002b).

Stream 0263

Stream 0263 is located in the East Creek sub-basin of the Mercer Slough basin. The size of the East Creek sub-basin is approximately 459 acres. Stream 0263 is rated as a non-fish-bearing stream (Type N) per the City of Bellevue Land Use Code (LUC 20.25H.075).

According to the City of Bellevue's East Creek sub-basin map (City of Bellevue 2002a), Stream 0263 originates west of 139th Avenue SE, approximately 600 feet east of the existing facility. It flows northwesterly for approximately 300 feet through the northeast corner of the study area, crossing the PSE transmission line easement. Stream 0263 continues to flow north and discharges into East Creek approximately 800 feet north of the study area.

A stormwater detention pond for the nearby commercial development is located approximately 250 feet southeast of the existing facility. This detention pond is approximately 100 feet wide and 120 feet long, and it discharges into Stream 0263 approximately 200 feet downstream

through an outlet. Based on our field observations, the detention pond appears to be unmaintained and is likely affecting stream downcutting, erosion, and downstream sedimentation of Stream 0263 and Wetland 3.

Stream A

Stream A is also located in the East Creek sub-basin of the Mercer Slough basin. Stream A is rated as a non-fish-bearing stream (Type N) per the City of Bellevue Land Use Code (LUC 20.25H.075).

Stream A originates from Wetland 2 and flows into a ditch-like channel located south of the warehouse buildings. Stream A flows approximately 300 feet west and then turns north at the west end of the study area. Stream A flows north for approximately 300 feet and flows down a vertical drop structure (approximately 4 feet high) before it enters a culvert under SE 30th Street. Stream A eventually discharges into East Creek approximately 650 feet north of the project study area.

The stream channel south of the warehouse buildings is shallow and swampy and contains stagnant water and an accumulation of organic debris. The channel is approximately 4 feet wide and 4 feet deep. Reed canarygrass, water-cress (*Rorippa* spp.), giant horsetail, and lady fern grow in the channel within this reach. As the stream turns north toward SE 30th Street, the stream channel is lined with riprap on both sides of the channel. The channel is approximately 2 feet wide and 4 feet deep within this reach until it reaches the 4-foot vertical drop south of SE 30th Street. This vertical drop can be considered a barrier to fish passage. No fish species are known to occur in Stream A (WDFW 2010a, 2010b; City of Bellevue 1993).

Stream B

Stream B is located south of the existing transfer facility. The channel is approximately 2 feet wide, but no surface water was observed in the channel during field investigations. The channel appears to be abandoned and is vegetated with Himalayan blackberry. A buried culvert is located south of SE 32nd Street; however, no surface water was observed at the culvert. Stream B is rated as a Type O stream because it does not contain fish or fish habitat, and is not physically connected by an above-ground channel system, stream, or wetland to a Type S, F, or N water (LUC 20.25H.075).

Ditch C

In addition to the streams described above, there is one ditch located south of SE 32nd Street. Ditch C is approximately 2 feet wide and less than 1 foot deep. The ditch runs approximately 50 feet from east to west along SE 32nd Street and likely discharges into Sunset Creek. No surface water flow was observed in the ditch during the field investigations.

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