ENVIRONMENTAL SERVICES
CITY OF PORTLAND
working for clean rivers

Memo

To: Sean Bistoff

From: Jennifer Goodridge, Emily Roth, Mark Wilson

Date: 6-27-08

Re: Oaks Bottom

This memorandum describes the following:

1. The location of wetlands at Oaks Bottom,
2. The vegetation communities, wetland function, and wetland quality,
3. The hydrologic regime, and
4. The potential for the proposed project to alter wetland conditions.

1. Wetland location

The wetland delineation report outlines the extent of wetlands within the study area for the proposed project at Oaks Bottom (Figure 1). Figure 2 documents the approximate locations of different wetland vegetation communities and areas with different hydrologic regimes (north of the water control structure). The boundaries of these communities are somewhat defined by the topography so they could be mapped more accurately in CAD or with a survey, but Figure 2 depicts an approximation of the general areas which will be referred to as Area A – D for the remainder of this memo. Figure 2 also documents the location of the water control structure, a swale, and channel which are referenced in this memo.

2. Vegetation Communities, Wetland Functions, and Wetland Quality

Vegetation

Area A contains a forested overstory dominated by mature Pacific willow (*Salix lasiandra*). There are very few wetlands that remain in the Portland area that contain large stands of this species; especially within the extended riparian area of the Willamette River. The shrub understory is limited, however, it contains some patches of red osier dogwood (*Cornus sericea*). The herbaceous understory is dominated by reed canarygrass in some areas, however, other areas remain ponded long enough into the growing season that they are dominated by swamp smartweed (*Polygonum hydropiperoides*).

The vegetation community in Area A is unique and not found at other wetland areas in Oaks Bottom. The following section provides very general, broad scale descriptions of the plant communities present in Areas B-D and in the reservoir which is located south of the coverage of Figure 2:

- Area B – two seasonal open water ponds with a thin fringe of emergent herbaceous vegetation and red osier dogwood and Himalayan blackberry growing on the edges
- Area C – reed canarygrass with patches of red osier dogwood and scattered Pacific willow
- Area D – forested wetland primarily dominated by ash, willow species and black cottonwood with red osier dogwood and reed canarygrass in the understory
- The seasonal mud flat areas in the reservoir are dominated by purple loosestrife with very small inclusions of other emergent and aquatic vegetation. A riparian scrub-shrub fringe contains red osier dogwood, black cottonwood, and willow species.

Functions

Area A would be classified as a Palustrine Forested Wetland using the Cowardin classification system and a Slope-flat wetland using the hydrogeomorphic (HGM) classification system.

Since Area A comprises less than 20% of a larger wetland complex, the functions cannot be evaluated separately from the larger system because they are interrelated. Wetland functional assessments are designed to evaluate the functions of the whole wetland with multiple plant communities and a variety of hydrologic regimes that might occur within that larger wetland complex. Indeed, it is often the vegetation and hydrologic diversity of the larger wetland complex that makes it score higher in the functional assessment. A functional assessment could be prepared for the wetland complex at Oaks Bottom, however, this is not typically required for wetland enhancement permit applications and it would not answer questions about what makes Area A unique from other areas on site.

While it is not appropriate to evaluate Area A separate from the larger wetland complex, based upon the scoring criteria in the HGM judgemental method the following text describes the functions generally provided by this area. Area A provides medium to high functions for sediment stabilization and phosphorus retention, nitrogen removal, primary production, thermoregulation, invertebrate habitat, amphibian and turtle habitat, and songbird habitat. It would likely score medium for support of characteristic vegetation and waterbird support and it would score high for water storage and delay functions. The wetland does not currently provide resident or anadromous fish habitat. The scoring criteria that cause this area to score high include seasonal inundation, limited bare ground, silty clay loam soils, trees and herb layers present, shade provided, large wood providing habitat and organic material, low velocity flows, and good vegetation interspersion with pools of water. Factors that limit the functions provided include plant species diversity, amount of development in the watershed, limited microtopography, and unknown water quality.

Quality

Wetland quality is generally defined as the level of importance that people place on the functions that wetlands provide. In other words, wetlands provide various functions and the wetland quality is determined by what functions society deems to be important. Evaluation of wetland quality is subjective unless specific ranking criteria have been developed. For example, some local jurisdictions have developed ranking criteria that evaluate wetland quality based upon specific wetland functions, wetland size, type of vegetation present, or hydrologic regime. Without scientific objective criteria to evaluate the quality of a wetland, any assessment is subject to different opinions. Most ranking systems evaluate wetlands in the context of wetlands within that watershed. That said, without a formal ranking system previously established, the quality of Area A and the wetlands at Oaks Bottom would likely score amongst the highest, if not the highest quality wetlands within the Willamette Watershed in the City of Portland. The wetland would

receive a high score because of the habitat functions, vegetation structure, position in the landscape and rarity within the watershed.

3. Hydrologic regime

The hydrology in Area A is different from other wetland areas at Oaks Bottom. The sources of hydrology include groundwater seeps from the east slopes and precipitation. The water ponds in the topographic low area, Area A, and the only surface water outlet is an excavated channel approximately 1 foot wide and one foot deep. This channel appears to have been excavated and maintained by beaver or other wildlife on site. Area A has sustained surface water ponding that varies in depth through the winter and recedes slowly in the spring to early summer. This area does not have rapid fluctuations in the surface water or ground water levels. This hydrologic regime supports the vegetation community as the area stays wetter longer into the late spring and early summer.

A sustained water level without rapid fluctuations is also very important to amphibian species during breeding seasons because once they lay eggs any rapid drawdown can expose egg masses. Area A has not yet been surveyed for amphibians, however, they may utilize Area A because it provides appropriate habitat and amphibians are known to use other areas on site (native red legged frogs use ponded areas to the north and non-native bullfrogs are present in the reservoir).

Once the water level reaches a certain elevation in Area A, it flows through the excavated channel towards a pond, the southernmost Area B. Surface water continues to flow downgradient through this channel towards the pond until the pond reaches a water level elevation where there is no downstream gradient triggering flows in the channel. At the southern end of the pond, there is a seasonally inundated swale that conveys surface water from the pond to the channel near the water control structure. A slight berm at the north end of the swale keeps water levels in the pond elevated above those in the swale and channel to the south. Thus, most of the year there is only a groundwater connection between the pond and the channel. At very high water levels, all of these features are likely to be connected by surface water.

4. This section describes the potential for the proposed project to alter wetland conditions in Area A, however, it could effect a much larger area. The extent of potential impact will need to be evaluated by the hydrogeologic analysis.

    - Changes in the hydroperiod

    If the sustained water levels in Area A change to a fluctuating water table, then that will alter conditions in this wetland and likely result in a change in vegetation type and possible changes in wildlife use of this area. For example, if amphibians are using Area A, then their egg masses could get stranded above the water table during a rapid drawdown. Depending upon the extent of changes in the hydroperiod, this area could be converted from a wetland community to upland conditions.

    - Changes in the depth and duration of surface water ponding

    If the winter water levels are reduced such that Area A does not remain inundated from winter through spring, then that will alter conditions in this wetland resulting in a change in vegetation type and possible changes in wildlife use of this area. Even a slight reduction in inundation level and duration of ponding would likely convert the smartweed areas to reed canarygrass. Depending upon the extent of changes in the depth and duration of surface water ponding, this area could be converted from a wetland community to upland conditions.

Attachments: Figures 1 and 2