

# VEAL EXHIBIT 67

Mr. Kevin Andrade  
December 11, 1996  
Revised July 7, 1997

We have also identified an area on the southern end of the property which currently satisfies the criteria for designation as wetland area. It is included as a wetland on the basis of the high water table at our Observation Well 6. This wetland has an area of approximately 15,000 square feet. It appears to be in the general vicinity of one of the Shapiro and Associates' observation wells that did not indicate wetland hydrology in 1988 or 1989.

## **1989 METHODOLOGY**

Under the 1989 criteria for defining wetland hydrology on a seasonally inundated or saturated site, the soils must be saturated to within 18 inches of the surface for seven days during the growing season to satisfy the hydrology criteria. Under this criteria, the area of the northern wetland is increased by the inclusion of Observation Wells 16 and 23.

The wetland area in the vicinity of Observation Well 6 is essentially the same under the two criteria. However, we did identify an additional small area of approximately 9,000 square feet at about Observation Well 1 where the water level satisfies the 1989 hydrology criteria.

## **WETLAND DESCRIPTIONS**

### **Wetland A**

Wetland A, located on the north end of the subject property, is the largest of the site wetlands. It occupies an area of approximately 69,400 square feet on the site. Hydrologically, this area receives surface water drainage through a seasonal stream running down the slope onto the project area. Some groundwater seepage may also enter the area from the toe of the slope. Surface water infiltrates as it moves through the wetland. There is no surface outlet from the wetland and there is no surface connection with the Sammamish River.

Vegetation within the wetland is dominated by reed canarygrass. Other species present in smaller patches include creeping buttercup, soft rush, and some slough sedge. Using the U.S. Fish and Wildlife Service (USFWS) classification system, this area is an emergent wetland area (PEM1). This wetland is a City of Redmond Type II wetland because it is greater than 1/2 acre in overall size and includes a forested wetland class on the off-site section of the wetland.

### **Wetland B**

Wetland B is located near the southern end of the site at the base of a drainage swale which has received surface run-off from Woodinville-Redmond Road. This area met the wetland hydrology criteria during the period of our study in the spring of 1996 using both the 1989 and 1987 hydrology methodologies.

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This area was not identified as satisfying the hydrology criteria in the study conducted by Shapiro and Associates, although it appears that one of their observation wells was located in this vicinity.

Vegetation in the area is dominated by reed canarygrass and some creeping buttercup is present. Using the USFWS classification system, this area is an emergent wetland (PEM1).

It is our interpretation that this area has been altered by the installation of the culvert under Woodinville-Redmond Road and the subsequent introduction of additional surface water into the swale above the wetland. Surface water reaching the base of the slope infiltrates as it moves through the area. There is no surface outlet from the wetland and there is no surface connection with the Sammamish River. The area included in the wetland delineation is approximately 25,180 square feet.

### *Storm Drainage Improvements*

Improvements to Woodinville-Redmond Road were completed during 1985 and 1986. That work involved some widening and drainage improvements along the right-of-way. Drainage improvements included ditching and collection of surface water in the storm drainage system to be discharged as point outfalls to drain down the slope at the location of the four seasonal creeks. It is likely that this work has resulted in the collection of groundwater seepage in the ditches and the concentration of the surface water runoff into the drainages below the storm drain outfalls.

There is also a residential development above the southern creek on the east side of Woodinville-Redmond Road. This construction was completed before 1985. Stormwater runoff from this development is directed into the storm drain system along the roadway and is discharged in the outfall above the southern creek. The combined effects of the residential development and the storm drainage system along Woodinville-Redmond Road have likely altered drainage patterns and increased the volume of water reaching the base of the slope.

Rainfall during 1987 and 1988 was below normal, so the effect of the changed drainage patterns as a result of the work on Woodinville-Redmond Road may not have been in evidence in 1988 when Shapiro and Associates' field work was completed and no wetlands were identified. Since that time, continued flow from the storm drainage improvements has been discharged in the drainage swales above the project.

Some of this water has apparently flowed into the ground surface and resulted in localized saturation. Consequently, it is logical to conclude that the long-term impact of storm drainage improvements has resulted in creation of the small wetland shown on Figure 1. This wetland was not observed by Shapiro and Associates in 1988. It is our interpretation that this wetland has been generated by the changes in drainage patterns and as a result is an "Artificially Created Wetland" not subject to regulation under the City of Redmond Sensitive Areas Ordinance (SAO).