

17 December 2009

Bill Kingman, AICP  
Senior Planner  
City of DuPont  
1700 Civic Drive  
DuPont, WA 98327

Re: Final DuPont Shoreline Jurisdiction

Dear Bill:

The Watershed Company has developed the attached proposed map of shoreline jurisdiction. Under the City's current Shoreline Master Program (SMP), only Puget Sound is regulated as a shoreline waterbody, in addition to identified associated wetlands and the shorelands extending 200 feet upland from the ordinary high water mark (OHWM).

### MINIMUM JURISDICTION

The first step in updating the map of shoreline jurisdiction was to review the shoreline, lake, and associated wetlands definitions found in the WAC and in Washington Department of Ecology's (Ecology) rules and guidance documents. Portions of these definitions that apply to the City of DuPont revolve around the flow and size thresholds for waterbodies meeting Shoreline criteria, the definitions of "lake" and "ordinary high water mark," and when to consider critical areas (wetlands) as "associated" with the shoreline.

The proposed illustration of the minimum shoreline jurisdiction is provided on the *Minimum Shoreline Jurisdiction* exhibit.

### Streams

Washington Department of Ecology's Digital Atlas was consulted to verify the upstream limits of stream and river shoreline jurisdiction based on the United States Geological Survey (USGS) recent study of the 20 cubic feet per second (cfs) cut-off. According to USGS and Ecology, no streams within the City currently have a mean annual flow of 20 cfs or greater.

In 1986, DuPont petitioned the removal of Sequelitchew Creek from shoreline jurisdiction, as it fell under the 20 cfs threshold, and this petition was approved by Ecology in 1991. However, mediation is underway, under the terms of the original Lonestar Settlement Agreement, to address the proposed expansion of the Glacier Northwest aggregate mine and possible

augmentation of flow in Sequelitchew Creek. As part of the mediation effort, information on the Sequelitchew Creek basin (which includes Edmond Marsh, an associated wetland) has been generated by parties to the Settlement Agreement. According to these documents, Sequelitchew Creek even with supplementation would have a mean annual flow around 9 cfs, still well below the threshold for consideration as a shoreline. Sequelitchew Creek and its basin will be addressed at a landscape level in the future Shoreline Analysis Report as needed to understand the context of DuPont's shorelines.

### **Marine**

All marine shorelines throughout Puget Sound are included under shoreline jurisdiction. All areas waterward of the extreme low tide throughout Puget Sound are also considered Shorelines of Statewide Significance. An estuarine wetland known locally as Brackish Marsh is located at the downstream end of Sequelitchew Creek, just upstream of the railroad berm that parallels the marine shoreline. The wetland is connected to the Sound by a culvert that allows for inundation by marine waters at ordinary high water. Accordingly, the wetland is considered part of the marine shoreline waterbody (rather than an associated wetland), and the 200-foot shoreland jurisdiction extends outward from the wetland edge (see Steps 1, 2 and 3 of the *Shoreline Jurisdiction Assembly* exhibit).

### **Lakes**

The minimum size limit for lakes to be designated as shoreline is 20 acres. According to WAC 173-22-030, a lake is:

*"a body of standing water in a depression of land or expanded part of a river, including reservoirs, of twenty acres or greater in total area. A lake is bounded by the ordinary high water mark or, where a stream enters a lake, the extension of the elevation of the lake's ordinary high water mark within the stream."*

Per RCW 90.58(2)(b):

*"'Ordinary high water mark' on all lakes, streams, and tidal water is that mark that will be found by examining the bed and banks and ascertaining where the presence and action of waters are so common and usual, and so long continued in all ordinary years, as to mark upon the soil a character distinct from that of the abutting upland, in respect to vegetation as that condition exists on June 1, 1971, as it may naturally change thereafter, or as it may change thereafter in accordance with permits issued by a local government or the department"*

Under the current SMP, DuPont does not contain contain any lakes meeting the 20-acre threshold. However, Edmond Marsh is an approximately 139-acre wetland that Washington Department of Ecology initially indicated may contain sufficient area internally that meets the

lake criteria. The associated wetland discussion below contains more information about Edmond Marsh.

There are no other waterbodies within the City of DuPont which may meet the shoreline lake threshold.

### **Associated Wetlands**

Ecology guidance states that the entire wetland is associated if any part of it lies within the area 200 feet from the OHWM (or floodway in riverine environments) of a state shoreline. Further guidance states that wetlands that are hydraulically connected to a shoreline also would be considered associated, as well as wetlands within the 100-year floodplain. Wetlands that are separated by an obvious topographic break from the shoreline are not associated, provided they are outside the shoreland zone and provided that the break is not an artificial feature such as a berm or road.

At present, the Puget Sound shoreline has no known associated wetlands (see discussion of Brackish Marsh above under *Marine*).

Edmond Marsh, a well-known, approximately 139-acre Category I wetland, is located at the upstream end of Sequalitchew Creek within the City and has what may be a very limited connection to Sequalitchew Lake in Fort Lewis to the east. Sequalitchew Lake is approximately 60 acres, and is thus a shoreline lake. East Edmond Marsh and West Edmond Marsh are divided by a berm that historically underlay a DuPont railroad line, and currently contains a sewer line and hosts a cross-wetland pedestrian trail. The berm and other underlying conditions cause East Edmond Marsh surface water levels to be approximately 1.5 foot higher than in West Edmond Marsh at points measured near the berm.

According to several studies (including Anchor 2008, Wetland Science Applications 2004), the hydrology in Edmond Marsh has historically been highly variable due to changes in stormwater flow inputs originating from Fort Lewis; seasonal groundwater levels; beaver activity; other stormwater inputs from the surrounding, increasingly developed community of DuPont; and other human-caused alterations, such as berms and channel cutting. According to Anchor (2008), channels were cut through a portion of West Edmond Marsh by Washington Department of Fish and Wildlife; the study does not indicate why these channels were excavated. These channels have reportedly not been maintained since the 1990s and continue to degrade and be modified by beavers. In general, West Edmond Marsh is inundated to varying degrees (few inches to a few feet) in the fall/winter/spring and has mostly just saturated soils in the summer (July, August, September) (Anchor 2008, Wetland Science Applications 2004).

In a detailed analysis of the western portion of West Edmond Marsh (an approximately 45-acre sub-unit of Edmond Marsh), Anchor (2008) reports that there are no areas with permanent standing water and the aquatic bed wetland class is temporary. Wetland Science Applications (2004) also notes that "...most of the west end of Edmond Marsh has no measurable surface water." In contrast, East Edmond Marsh reportedly retains some surface water year-round, although water depths appear to be only a few feet even in winter (Wetland Science Applications 2004, see attached Aspect Consulting exhibit titled *Upper Sequalitchew Creek Basin Cross Section*). Based on a study by Aspect Consulting (2004), the "annual fluctuation in surface water levels is predicted to be ... close to 2 feet in Sequalitchew Creek and East Edmond Marshes and 3 to 4 feet in West Edmond Marsh" (Wetland Science Applications 2004).

The report by Wetland Science Applications (2004) also notes that a beaver dam in East Edmond Marsh near the berm and a beaver dam at the east end of Sequalitchew Creek Marsh (located east of Edmond Marsh before Sequalitchew Lake) have created a "headwater divide" such that water movement is to the west and to the east from the area encapsulated by these beaver dams. It is not known whether these two dams are still present. If so, then Edmond Marsh drains west to the south and east to the diversion canal, with no or very limited association with Sequalitchew Lake. As noted in the Wetland Science Applications (2004) report, "This is remarkable considering that historically it was well reported that flow proceeded from Sequalitchew Lake through the Sequalitchew Creek Marsh-Edmond Marsh complex out Sequalitchew Creek all the way to Puget Sound (Andrews and Swint 1994, Aspect Consulting 2004)." As noted by Ecology, this connection has also been documented in *Lakes of Washington, Volume 1, Western Washington* (Wolcott 1973).

The above analysis sheds some light on whether Edmond Marsh meets criteria to be considered 1) a shoreline lake, or 2) a shoreline-associated wetland. Based on the various vegetation descriptions of Edmond Marsh, which is characterized as a scrub-shrub wetland with small areas of open water, emergent marsh, and forested wetland, and a review of the available aerial photographs, hydrology information, and cross-sections (above and attached Aspect Consulting exhibit titled *Upper Sequalitchew Creek Basin Cross Section*), it seems unlikely that any portions of the Edmond Marsh could be considered a 20-acre lake. After review of the above information that was submitted to Ecology in a previous version of this letter, Ecology agreed that Edmond Marsh is only a wetland and is not a shoreline lake (Kim Van Zwalenburg, e-mail, 10 December 2009).

It is also in question whether Edmond Marsh is a shoreline-associated wetland. As noted above, Edmond Marsh drains both east and west, with West Edmond Marsh and the portion of East Edmond Marsh west of a beaver dam draining to the west, and most of East Edmond Marsh draining to the east. However, the East Edmond Marsh drainage is collected in the Diversion Canal before it can reach Sequalitchew Lake, a shoreline waterbody (see attached Aspect Consulting exhibit titled *Surface Water System*). After review of the above information

that was submitted to Ecology in a previous version of this letter and additional analysis, Ecology agreed that Edmond Marsh is not a shoreline-associated wetland (Kim Van Zwalenburg, e-mail, 10 December 2009). Bell Marsh, a wetland located south of Edmond Marsh, was identified in Wetland Science Applications' (2004) report as having *potential* for subsurface flows north into Edmond Marsh (see attached Aspect Consulting exhibit titled *Surface Water System*). More firmly documented hydrologic pathways exist between Bell Marsh and the Diversion Canal via surface water flows to McKay Marsh, Hamer Marsh, and finally to the Diversion Canal. Again, it appears that Bell Marsh no longer drains to Sequalitchew Lake. After review of the above information that was submitted to Ecology in a previous version of this letter and additional analysis, Ecology agreed that Bell Marsh is not a shoreline-associated wetland (Kim Van Zwalenburg, e-mail, 10 December 2009).

The additional relevant analysis conducted by Ecology and relayed in an e-mail from Kim Van Zwalenburg (10 December 2009) follows:

“In order for a wetland to be an associated wetland, it must meet the test of both proximity and influence, meaning it must be near the shoreline waterbody and must influence, or be influenced by, that waterbody (WAC 173-22). Sequalitchew Creek Marsh is clearly located within 200 feet of the lake so it meets the proximity test. It also appears that despite the various fills bisecting the marshes, Sequalitchew Creek Marsh and Edmond Marsh are likely still connected via the peat lens which underlies the area (see [attached] Aspect Consulting *Upper Sequalitchew Creek Basin Cross Section...*).

The peat lens does not, however, appear to extend from Sequalitchew Creek Marsh to Sequalitchew Lake. We looked at additional information in the Aspect Consulting Technical Memorandum: Surface and Groundwater System, dated July 21, 2004. After reviewing the report in more detail, and in particular looking at soil logs [see attached Aspect Consulting exhibit titled *Geologic & Monitoring Well Construction Log*] associated with the monitoring wells, it appears there is no peat layer at SL-1 which is adjacent to the diversion canal and the outlet weir to the lake. Thus it appears there is no discernable groundwater connection via undrained hydric soils. It also appears that there is no direct surface water connection because of the presence of the diversion canal. According to the report, any water coming from Edmond Marsh and flowing toward Sequalitchew Lake is captured by the diversion canal. Conversely, it appears all water released from the lake also flows down the diversion canal. Absent evidence of a hydrologic connection, the test of “influence” is not met.

Lacking evidence that there is both proximity and influence shown between the marsh system and Sequalitchew Lake, we believe these systems are currently not associated.

Flow from Bell Marsh is shown as discharging into McKay and Hamer Marsh before reaching Sequalitchew Creek Marsh (See attached Aspect Consulting exhibit titled *Surface Water System...*). In addition, it appears perched above these systems, sitting about 2.5 feet above McKay Marsh and nearly 6 feet above Sequalitchew Creek Marsh. Its influence on Sequalitchew Creek Marsh and Edmond Marsh is indirect, and as we have found these lower systems are not associated, Bell Marsh also fails to meet the requirement for proximity and influence."

Key references:     [http://www.ci.dupont.wa.us/files/library/cd3532854c0b9cd9\\_o.pdf](http://www.ci.dupont.wa.us/files/library/cd3532854c0b9cd9_o.pdf)  
                          (Wetland Science Applications 2004)  
                          [http://www.ci.dupont.wa.us/files/library/be3e937d332c7288\\_o.pdf](http://www.ci.dupont.wa.us/files/library/be3e937d332c7288_o.pdf)  
                          (Anchor 2008)

### **OPTIONAL SHORELINE JURISDICTION BOUNDARIES**

Per Ecology requirements, the City has reviewed the option of expanding shoreline jurisdiction to include critical area buffers. No mapped shoreline stream or river floodplains exist within the City and thus extension of shoreline jurisdiction to include floodplains was not relevant.

The 100-foot buffer on Brackish Marsh is already wholly encompassed by the minimum shoreland jurisdiction.

### **MINIMUM JURISDICTION SUMMARY**

The following are the final proposed areas of shoreline jurisdiction:

- Puget Sound shorelines, including Brackish Marsh
- Shorelands 200 feet landward from the OHWM of Puget Sound.

Please call if you have any questions.

Sincerely,



Amy J. Summe  
Environmental Planner

Enclosures