

**King County Flood Control District  
Attention: District Board Members  
King County Courthouse  
516 Third Avenue  
Seattle, WA 98104**

**March 7, 2019**

**RE: King County Willowmoor Project - Lake Sammamish Flooding**

**Dear Council Members -**

We are residents on Lake Sammamish who approach the board seeking relief from flood damages that have been impacting our properties, our improvements thereto, and the safety of our families. Herewith we provide you factual information relating to these issues and make suggestions on needed redirection of the County's Willowmoor Floodplain Restoration project.

**BACKGROUND**

The Corps of Engineers' Sammamish River Flood Control Project (Corps' FCP or FCP) was installed in 1964-65 and maintained for nearly 30 years, providing flood protection to Lake Sammamish and downstream properties. This improvement established the Corps' Ordinary High Water Mark at 27 ft. NGVD (Corps' OHWM). This level has since guided installation of shoreline improvements.

The FCP was modified in 1998 by reconstructing a small dam (or weir) at the head of the Transition Zone (TZ), including a low-flow notch to insure seasonal fish passage. Together, the weir and TZ are critical features of the flood project and were designed to maintain the Corps' OHWM.<sup>1</sup> As project sponsor, King County assumed responsibility for maintenance of the TZ. But, prior to the 1998 modifications the County ceased agreed upon annual maintenance and allowed tree-sized vegetation in the floodway. With the public unaware of these developments, the result was: 1) a nearly 8 inch rise in average daily lake levels<sup>2</sup>; 2) accumulation of 3 to 5 ft. of flow blocking sediment and debris in the TZ; 3) reduced navigability on the river; 4) loss of safe recreational access to docks on the lake; 5) benching and erosion of shorelines; and 6) flood damages to docks and other improvements in excess of \$10 million.<sup>3</sup>

Despite documented warnings to the County by the Corps of Engineers (circa year 2000), who suggested lakeside property owners be forewarned of reduced flood protection, the County continued deferred maintenance without such public notice. The resulting TZ flow deficiencies (and similar deficiencies found beyond it) led the Corps to inactivate the FCP in 2008. Thus, the County is liable for damages due to flooding and unsafe recreational conditions.

In 2010, with docks submerged into June, lake residents discovered the above history and pleaded for relief. The result? The County returned to annual maintenance in 2011 but only removed half of the accumulated sediment and portions of windrows of tree-sized vegetation lining the center channel. This has left flow restricted in the TZ and lake water levels 6 inches above norm.<sup>4</sup> Properties and improvements continue to be inundated, with water levels above the Corps' OHWM over 120 days per year versus an average of 60 days between 1965 and 1998. As serious, no effort has been made to assess and consider the cost of impacts to us - impacts that include loss of recreational opportunities when docks, built to the Corps' OHWM standard, are submerged in the wet season. Conversely, some jurisdictions have mandated new

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<sup>1</sup> "Section 1135 Prel. Restoration Plan", Seattle District US ACoE, 13 Aug. 1998, pg 4.

<sup>2</sup> This shift can be documented by review of data from Lake Sammamish's USGS water level gage #12122000.

<sup>3</sup> Estimate prepared by Dr. M.Nizlek based upon a year 2015 survey of approximately 30% of lake residents.

<sup>4</sup> Again, USGS gage #1212200 provides this data.

docks be built higher, but these protrude 4 to 5 ft. from the water in summer and present great danger to boaters.

Our suggestions for active management of lake water levels using a modern, dynamic gate at the weir appear to have been dismissed, and now we're told that wetland requirements, not flood protection, will dictate lake water levels. A gate to control flow at the weir would allow lowering the lake in advance of wet season or in advance of major storms. In addition, it could be used to regulate outflow to assure safe water levels for boating in dry periods and supplemental flow for fish passage. But, we're told such a practical solution has now been dropped, in part, due to an estimated cost of \$2 million. With the cost of damages to lake property owners possibly having exceeded \$10 million, we find this decision unacceptable.

Additionally, there has been limited assessment of the environmental damages caused by wide ranging water levels - water levels that are the result of restricted outflow. Before applying for required permits from the Corps to change their FCP, robust analyses of a full range of impacts, both environmental and non-environmental, are needed. But lake residents should not have to wait longer. Immediate protection is needed. Below we offer suggestions on how to do this.

## ADDITIONAL FACTS

What other factors led us to our appeal?

**1** - Staff now predict the earliest implementation of Willowmoor would be 2024. That computes to 26 years of deficient flood protection of lake properties.

**2** - The analysis methods being employed assume the current level of maintenance has successfully restored flood protection. It has not. The increased number of days lake levels are above 27 and 28 ft. contradict this and indicate that problems still exist in the TZ.

**3** - Additional information, revealed since the start of Willowmoor, make the current approach to the project unacceptable:

**a.** Bear Creek flow has been allowed to exceed levels anticipated by the Corps.<sup>5</sup> Yet staff has stated that methods to mitigate these impacts are not part of the Willowmoor process.

**b.** Missing in the evaluation process is consideration of known obstructions, such as invasive elodea, milfoil, and man-made changes downstream in Redmond and beyond. These are the deficiencies that caused the Corps to declare the FCP no longer meets their flood management standards.

**c.** Staff cites a 2004 study by Watershed Company as officially raising the Corps' OHWM. That study was not accepted by either the Corps or WA Ecology. Further, even site-by-site determinations of OHWM would, today, only be assessing conditions resulting from artificially raised water levels.

**d.** Staff continues to overlook the fact that for more than 50 years the Corps' OHWM has guided the improvements that have been made legally along lake shorelines. The Willowmoor process fails to respect this and would lead to ongoing, unnecessary damages due to continued inadequate maintenance of the FCP.

**e.** Staff (late in the process) has introduced **lakeside wetland preservation** as a project constraint while stating review of other issues is limited to the boundaries of the TZ. This is unacceptable.

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<sup>5</sup> "Bear Creek Watershed Management Study", 2018, page 113, Table 38, Station BEA010, 654 cfs for 10 yr. storm.

Staff should be reminded that consideration of wetlands must account for alterations produced by deferred maintenance and will necessitate robust Corps 404 and 408 permitting. Further, NEPA studies should be carried out on all practical alternatives, not the narrow array currently proposed.

**f.** Staff and consultants are relying on computer models to predict future water levels. We have brought several issues to their attention. First, the accuracy of these models, as repeatedly acknowledged in the Hydraulic Modeling report, varies between +/- 0.5 ft. to +/- 1 ft.<sup>6</sup> Yet alternatives are being judged based on an inch or two difference in predicted performance. Making long term decisions based on only inches of difference when modeling accuracy is on the order of feet is imprudent.

Second, these models predict water levels at the weir. Lake levels can be as much as half a foot above levels at the weir at flood stage. This must be accounted for.

**g.** Finally, a key flood control problem exists that overshadows the considerations the Willowmoor project is addressing. It is the fact that the capacity of the Sammamish River now stands to be exceeded by the combined outflows of Lake Sammamish and Bear Creek during heavy, seasonal rainfall events. Logic points to two viable solutions: 1) buffer outflow from the Bear Creek Basin by suitable retention measures, and 2) lower the lake in advance of these events such that it can hold more water without reaching flood stage. Solution #1 is at best a long time off. Solution #2 is achievable in the near term by design of a dynamic weir with sufficient capacity to increase outflow and drain the lake over a reasonably short period of time. And, in addition to mitigating heavy, seasonal rainfalls, a dynamic weir would be used during dry seasons to assure safe minimum lake levels.

## RECOMMENDED ACTION ITEMS

We appeal to the Board to redirect staffs' Willowmoor and Transition Zone efforts. This is an ongoing appeal we have been making through our participation in Willowmoor's design process, as well as earlier when we alerted the County to increasing issues with lack of TZ maintenance. We offer the following sequence of action items. These would mitigate the ongoing damages we are suffering while still allowing a robust analysis of environmental improvements.

**1** - Immediately remove excess plant growth in the center channel of the TZ, returning to the Corps' approved width of 10 ft. on each side.

**2** - Immediately remove the remaining sediment from TZ.

**3** - Assess impacts of river invasive plants and other obstructions (perhaps by independent entity) and report potential gain in controlling lake levels. Assuming justification, clear the upstream floodway between the lake and the weir.

**4** - Assure flow models predict water levels that would occur on the lake, not just at the weir.

**5** - Re-assess the potential benefits of a dynamic weir to control for seasonal patterns AND peak storms as well as water reserves to aid fish passage in dry periods.

**6** - Conduct an inventory of the number of docks that would be inundated at 27, 28, and 29 ft. and prepare estimates of damages that would occur to docks under each alternative. Consider these "costs" in a cost/benefit analysis..

**7** - If it passes thorough environmental analysis, construct the by-pass stream and allow several years for plantings to "establish". Then return the TZ to it's original design by removing all remaining vegetation.

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<sup>6</sup> "Hydraulic Modeling Draft Technical Report", 2019, pages 11-13.

(This should obviate the need for mitigation, and the County and Corps should commit to continued, possibly reduced, maintenance of the TZ.)

8 - As soon as possible, County, Redmond, and Corps should initiate evaluation of downstream constraints to flow, and Redmond and County should develop a drainage management program for Bear Creek basin. Concurrent with these efforts, all jurisdictions in the Lake Sammamish and Sammamish River basins should begin a process directed at regaining activation of the FCP by the Corps.

9 - Implement a long term program to maintain the FCP, including emergent removal of flow obstructions.

Respectfully yours,



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Martin Nizlek, Lake Samm. Resident  
Bd. Member WA Sensible Shorelines  
for and on behalf of lake residents:

Reid Brockway  
SAC Alternate

Scott Sheffield  
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cc: Seattle District Army Corps of Engineers  
Charles Klinge, Attorney at Law