



**DEPARTMENT OF THE ARMY**  
SEATTLE DISTRICT, CORPS OF ENGINEERS  
P.O. BOX 3755  
SEATTLE, WASHINGTON 98124-3755

REPLY TO  
ATTENTION OF

CENWS-PM-ER

## **FINDING OF NO SIGNIFICANT IMPACT**

### **LWSC SMALL LOCK MONOLITH EROSION REPAIR SEATTLE, KING COUNTY WASHINGTON**

**1. Background:** The Lake Washington Ship Canal (LWSC) was constructed between Puget Sound and Lake Washington more than 80 years ago (between 1911 and 1916) by the Seattle District, U.S. Army Corps of Engineers (Corps) to provide watercraft access between Lake Washington and Puget Sound. Construction of the LWSC rerouted the major rivers that fed and drained Lake Washington and lowered the lake surface elevation by about 9 feet (ft) (2.7 m). One consequence of these changes has been the development of a highly altered ecosystem, particularly for anadromous fish such as salmon. Concurrently, the urban landscape surrounding the lake developed, and the urban structure is now dependent on the environment created by the construction of the LWSC. The current configuration and water surface elevation of Lake Washington and Lake Union and the access provided by the LWSC between the lake and Puget Sound are the backbones on which present day Seattle and the Lake Washington ecosystem exist.

The Corps operates the LWSC to provide navigation for commercial and recreational vessels between the lake and Puget Sound and to provide passage for fish migration. The LWSC consists of the Hiram M. Chittenden Locks (Locks) and associated facilities, the Fremont Cut between Salmon Bay and Lake Union, and the Montlake Cut between Lake Union and Lake Washington. Oriented northwest to southeast and located approximately 1.5 miles (2.4 km) east of Shilshole Bay, the locks and spillway span the Salmon Bay Waterway at its narrowest point, approximately 400 ft (122 m) across. This spillway, spillway apron, and structures adjacent to the spillway are at risk of sustaining damage from scour caused by approximately 100 years of operating the spillway. The problem of scour affects structures such as the small lock wall foundation and the stilling basin apron through degradation of the exit channel or stilling basin. Impacts of continued scour could be failure of the small lock miter gate monolith resulting in an uncontrolled release/loss of pool or major repair of the stilling basin.

**2. Proposed Action:** The Corps is proposing repairs in the LWSC at the Locks downstream of the spillway in the stilling basin in Seattle, King County, Washington. For the LWSC small lock monolith and channel erosion repair project, the Corps is proposing two actions. The first action is to repair the foundation of the monolith wall and the second action is to repair the scour adjacent to the monolith in the channel below the spillway. The Corps is proposing to repair the

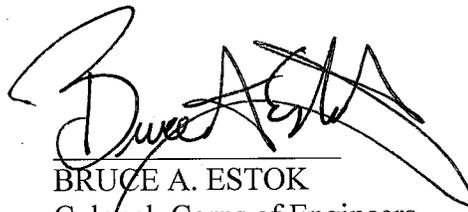
scour underneath small lock wall (monolith) with sheet pile and concrete. To repair the scour adjacent to the monolith, riprap and quarry spalls will be placed in areas where channel scour has occurred. The work will take roughly 60 days and will occur during the approved in-water work window, November 1 through February 15.

**3. Environmental Effects:** Environmental effects associated with the proposed action include a potential minimal effect on water quality due to turbidity and pH increases, very slight degradation of air quality, and a temporary increase in airborne and underwater noise levels from operation of machinery involved in sheet pile installation and rock placement activities, low-intensity stress to aquatic organisms due to turbidity increases, burial of small areas of benthic invertebrates, and minor effects to the aesthetics of the area during construction activities. All of these effects will only endure for the roughly 60 days of repair activities. Water quality, air quality, noise, and aesthetics will return to normal immediately upon completion of the work. The benthic fauna populations are expected to colonize the newly created rock substrate within a matter of months.

The Corps considers the proposed monolith erosion repair as the lowest impact erosion protection to the small lock monolith; and, if repaired, it will maintain protection of the ecosystem, continue to provide navigation, and maintain the maximum public use and enjoyment of the LWSC. The placement of riprap and quarry spalls in the channel will restore the structural integrity of small lock thereby allowing for continued use of the locks for commercial and recreational purposes. The Corps has assessed potential impacts from the construction and determined that they will generally be highly localized in nature, short in duration, and minor in scope. Impacts of the work on salmonids, other fish, and intertidal communities will be reduced and/or avoided through implementation of timing restrictions and construction methods. Due to these measures, impacts to these important resources should not be significant either individually or cumulatively.

**4. Finding:** For the reasons described above, I have determined that repair to LWSC small lock monolith and spillway channel will not result in significant adverse impacts on the human environment. The proposed action is not a major action significantly affecting the quality of the human environment and, therefore, does not require preparation of an environmental impact statement.

2 Sept 11  
Date

  
BRUCE A. ESTOK  
Colonel, Corps of Engineers  
Commanding