

July 13, 2018

PND No. 154038.07

MEMORANDUM FOR

John Floyd, Consulting Planner for City of Kalama

SUBJECT: FLOODPLAIN DEVELOPMENT PERMIT FOR THE PORT OF KALAMA T-BARGE DOCK PROJECT

John Floyd:

The intent of this memorandum is to provide the City of Kalama with a Floodplain Development Permit application for the Port of Kalama T-Barge Dock Project, per Kalama Municipal Code (KMC) 14.16.050. This application will be evaluated based on the four standards seen below:

1. Elevation in relation to mean sea level, of the lowest floor (including basement) of all structures recorded on a current elevation certificate (FF 81-31) with Section B completed by the local official.
2. Elevation in relation to mean sea level to which any structure has been flood proofed;
3. Certification by a registered professional engineer or architect that the floodproofing methods for any nonresidential structure meet the floodproofing criteria in Section 14.16.100(B); and
4. Description of the extent to which a watercourse will be altered or relocated as a result of proposed development.

Of these four standards #1 and #2 have been covered within the application materials, therefore only #3 and #4 will be addressed below.

As a registered professional engineer, I certify that the floodproofing methods meet the floodproofing criteria. The majority of the project scope addresses docks and dock structures which will not be affected by the rise or fall of the water level. While the piles that support these floating structures will be built in the floodway and floodplain, the anticipated effects on the floodwater level are minimal. A total of 3 new 24" steel spud piles are to be installed as part of the project, which will displace approximately 38 cubic feet of water at the flood level. This displacement, when spread out over several hundred square feet of floodplain and when combined with the removal of 61 derelict piles becomes negligible. In addition to this displacement, the T-Barge dock is anticipated to displace a similarly minimal amount of water, as float freeboard is constant across all water levels.

Of greater importance is the ability of new construction to resist hydrodynamic and hydrostatic loads during a flood event. Hydrodynamic forces caused by debris hangups and other drag forces during a flood event are anticipated to be small, due to the location of the project near the mouth of a protected basin. Figure 1, below, shows the protection offered to the basin by the breakwater during a flood event. The project will be designed such that the forces exerted on the piles by the drag of the floating elements of the dock will not cause the piles to fail.



Figure 1. Department of Ecology's Flood Hazard Areas of this Project Site

Should you require any additional information, please don't hesitate to contact me via email at jolson@pndengineers.com or at (206) 624-1387.

Sincerely,

PND Engineers, Inc. | Seattle Office

John Olson, Senior Engineer

CC: Tabitha Reeder, Port of Kalama