



ENGINEERS, INC.

May 8, 2012

PND No. 124023.01

Mr. Bill Dowe
Skagit County Public Works
1800 Continental Place
Mount Vernon, WA 98273

**Subject: Sinclair Island Dock Replacement Project
Concept Drawings and Cost Estimates**

Dear Mr. Dowe:

Sinclair Island, located in Skagit County, has an existing water access float, gangway and approach pier, as well as a timber wave wall. All components of the facility are suffering from age and wear and portions have been severely damaged by the elements. For example, the timber gangway has been damaged to the extent that it has been removed from service. The timber pile wave wall is on the verge of collapse and the modular concrete floats have been damaged from the heavy wave environment behind the failing wall.

In an effort to respond to the concerns of Sinclair Island stakeholders the County has undertaken an assessment of existing facilities and various concept studies for replacement. PND was requested, as part of this effort, to update current concept drawings and cost estimates for new facilities as well as prepare an additional design concept for consideration. This letter summarizes the attached concept drawings and cost estimates.

All three options share some of the same elements. Each option considered in this study is in generally the same location as the existing facilities, located within the existing tidelands lease boundaries. It is assumed that the failed gangway will be replaced with an existing new 80-foot long ADA aluminum gangway which the County already owns. All three options push the float and other structures out into deeper water, farther from the shoreline. This has benefits for both permitting (less overwater shading in the shallows) as well as providing deeper draft for mooring larger vessels on either side of the float. The approach pier is replaced in all three concepts.

Following is a brief summary of the features included in each option presented:

Option A

The most complete and costly option presented includes a new steel partially penetrating wave barrier to provide superior wave protection for the new facilities and provide year round safe harbor moorage for users on both sides of the float. The new float is assumed to be concrete with internal pile hoop, but could be constructed of a variety of different materials, since it will be well protected. The new float would be approximately the same dimensions as the old float.

Option B

This option consists of a heavy, wide, deep draft concrete float that would provide some wave attenuation depending on direction and size of wave attack. Although a wave barrier would provide better wave attenuation for year round use, a large float could be effective for moorage on the inside edge. This float would be a monolithic concrete structure with no connections or timber walers. The piles for this system would need to resist much larger lateral forces during wave events than a smaller float system. The alignment of the float would be designed to maximize wave protection.

Option C

The least expensive option presented consists of a lighter, flexible steel pipe float system that would be designed to 'ride-out' the incoming waves. Oriented with the largest waves approaching parallel with the float will reduce the amount of wave force on the floats. This style of float system lends itself to light passage elements like a fiberglass molded grating deck surface (an environmental consideration when permitting). This option would not provide wave protection to vessels and would only be suitable for use during calm weather.

Construction Cost Estimates

Rough Order of Magnitude Construction Cost Estimates for each option are attached for your reference. The estimates present Lower and Upper Bound Recommended Budgets which are sensitive to geotechnical considerations. For example, a pile that requires drilling/socketing into bedrock could cost several times as much as a pile driven with a vibratory or impact hammer. It is very important that an adequate geotechnical program be implemented to help define appropriate budgeting costs.

Recommendations for Action

As the County moves forward with this project, it is recommended that the following actions be taken:

1. Public Outreach – Gather information from users, share current concepts and preliminary ROM budget costs, determine preferred alternatives for further study
2. Geotechnical Program – Critical for defining project costs
3. Planning, Budgeting/Funding discussions
4. Preliminary Engineering - Permitting, Wave Studies, Preferred Concept development
5. Design
6. Construction

Should you have any questions regarding any of the presented information, please do not hesitate to contact us.

Sincerely,
PND Engineers, Inc. | Seattle Office



John Olson, P.E.
Senior Engineer