



TOWN OF SIDNEY

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Report to Committee of the Whole

TO: Chair and Committee Members
FROM: Jenn Clary, Director of Engineering
DATE: January 14, 2020 **File No.** 6130-20
SUBJECT: Beacon Wharf Surveys and Feasibility Study

PURPOSE:

The purpose of this report is to present the Beacon Wharf Surveys and Feasibility Study that was completed by SNC-Lavalin (SNCL) to Council, and consider future options for the wharf.

BACKGROUND:

In December 2018, a Beacon Wharf condition update report was presented to Council. This report outlined repairs that are required to extend the life of the existing wharf and studies that are required to facilitate the design of a replacement wharf. This report is attached for information.

The contract for repairs of the existing wharf has been awarded and the work is scheduled to be completed in early 2020.

The three surveys that were identified in the 2018 report – depth, geotechnical and environmental – were combined, along with a feasibility study to determine if the wharf can be replaced with a rock base structure, into one request for proposals process. Sidney's Downtown Waterfront Vision was used as a guide for the required design elements of the new wharf.

SNCL was awarded the Beacon Wharf Surveys and Feasibility Studies contract, and has been working with Town staff to complete this work since August 2019.

DISCUSSION:

In gathering data to complete the Beacon Wharf feasibility study, the SNCL project team discovered that their company had completed a Flood Construction Level report for the District of North Saanich (DNS) in 2017. DNS gave the Town permission to use the data collected for that report to help better inform the Beacon Wharf study. This contribution from DNS was very valuable, because it included much more data than SNC would have been able to collect within the existing project budget.

The Town requested that the new wharf structure and buildings have a 50 year design life and be open to public use. This requires that, at a minimum, the wharf be built to the Town's existing flood construction level (FCL). The Town's existing FCL is 1.6 meters above the existing wharf elevation.

By analyzing the data that was collected for the DNS flood construction modelling, SNCL discovered excessive expected wave action in the area of Beacon Wharf. From this modelling, the recommended FCL was found to be between 2.5 meters and 5.6 meters higher than the existing elevation of the wharf. When this excessive expected wave action was discovered, the scope of the project was adjusted to consider several new wharf options broadly, instead of looking at two new wharf options in detail.

The options that SNCL developed are outlined on pages 11-13 of the report, and the high level cost estimates for each option are outlined on page 14 of the report.

The feasible options developed by SNC had estimated costs ranging from \$6.3 million to \$20.8 million, which does not include any buildings or amenities on the wharf.

Some options the town could consider are outlined below.

Reconstruct the wharf at its current height:

The Town could determine that having a permanent structure on the wharf is not necessary, and the wharf could therefore be constructed at a level lower than the recommended FCL. As mentioned in SNCL's report, the wharf could be used for mobile food vendors such as food trucks, and be closed to the public during storm events. This option would cost approximately \$13.7M to build a rubble mounded wharf.

The Town could also consider constructing a bunker style structure on the wharf at its existing level. This structure would need to hold up to extreme weather events, and the wharf would be closed to the public during storm events. The functionality of a bunker style building may be limited.

Reconstruction of the wharf with the intent to raise it later:

The Town could construct a rubble structure with a building at a height lower than the recommended flood construction level, with the intent of raising the wharf and structure in future years. This option has the risk that a future Council may not budget for this work, which could create a dangerous situation for future building users and excessive building maintenance costs. This option is therefore not recommended

Reconstruction of the wharf at the level required to prevent damage to buildings:

To account for sea level rise and the increase in seasonal storm intensity, the wharf should be built high enough to prevent future damage to buildings. This would require an increase to the existing height of the wharf by 2.5 meters to 5.6 meters. This could significantly impact sightlines of residents, businesses and public in the area.

Construct a piled vs rubble wharf:

The Town could construct a piled wharf instead of the envisioned rubble mounded wharf. Some benefits of a piled wharf include reduced impact to existing habitat, similar life span, and wave action travels under wharf and not up the side, so the wharf height could potentially be lower.

A drawback of a piled wharf is that it would not create any protection to allow for a public docking structure.

Alternatives to wharf:

If Council determines that none of the wharf reconstruction options is preferable, other options for this location could be considered. Seasonal floating structures that may include a small restaurant or moorage for public boats could be considered. Floating restaurants can be found in other municipalities such as the City of Victoria and Steveston Village in the City of Richmond. The restaurants in these municipalities are in more protected areas than the existing Beacon Wharf, so a detailed analysis would be required to determine if this is feasible. It may also be difficult to find a business owner to operate such a business.

A submerged breakwater could be built to protect this portion of Sidney. Although this may be an effective method of protection, the Beacon Wharf area is a small portion of the entire coastline of Sidney that may require protection in the future. Protecting this area with a submerged breakwater could be an offshore protection pilot project for Sidney.

Select Committee of Council:

Replacing the Beacon Wharf is a complicated decision and will be costly for the Town. Staff are recommending that a Select Committee of Council be established to report back to Council in six

to eight months with possible solutions. The Beacon Wharf Select Committee could be established in early 2020 and exist until December 31, 2020. It could consist of the Mayor, one Councillor, key staff and 2-3 members of the public, with preference given to those who have coastal engineering or planning experience.

The Beacon Wharf Select Committee may review items including, but not limited to:

- 1) Is a permanent building required on Beacon Wharf?
- 2) What are the benefits of having a wharf if there are no permanent building on it?
- 3) Would reducing the size of the wharf meet the Town's vision for the waterfront?
- 4) With this new information, what other functions could the new wharf have?
- 5) What is the maximum desirable height of the future wharf based on sightlines?
- 6) What is the maximum desirable height of the future wharf based on the existing surrounding land (i.e. Beacon Park and waterfront walkway)?
- 7) Is it practical to build the wharf in a phased approach?
- 8) Is the preference for a piled wharf structure or a rubble mounded structure?
- 9) Are there pilot projects that could be undertaken to try to mitigate future wave action?
- 10) Is an intertidal rock reef, similar to the sketch provided by SNCL, desired?
- 11) Are there benefits to removing the wharf and reimagining the waterfront vision?

The Beacon Wharf Select Committee may coordinate public engagement through internet surveys, informal information sessions, polling members of the public, and other methods they deem to be suitable.

STRATEGIC PLAN:

II.3 - Apply Climate Action Adaptation lens to all capital projects.

FINANCIAL IMPLICATIONS:

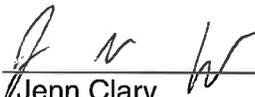
The cost associated with replacing the Beacon Wharf ranges from \$6.3 million to \$20.8 million. The options at the lower range include smaller deck and/or piled deck areas.

RECOMMENDATION:

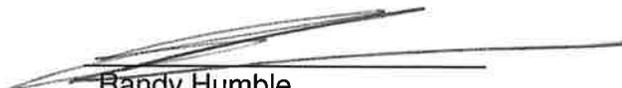
- 1) That Council receives the Beacon Wharf Surveys and Feasibility Study completed by SNC-Lavalin as information.
- 2) That Council direct staff to establish a Beacon Wharf Select Committee that will exist until December 31, 2020 and consist of the Mayor, one Councillor, key staff and 2-3 members of the public appointed by Council.
- 3) That, once established, the Beacon Wharf Select Committee be tasked with developing a Terms of Reference for Council's review and consideration.

Respectfully submitted,

I concur,



Jenn Clary
Director of Engineering



Randy Humble
Chief Administrative Officer