

Date April 20, 2026
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Subject Baynes Lake Dry Hydrant Repair Scope & Budget Change

REQUEST

Approve a budget increase for the Baynes Lake Dry Hydrant project.

OPTIONS

1. THAT the Baynes Lake Dry Hydrant be repaired utilizing ISL Engineers recommended solution;
and further, that the construction budget be increased to \$206,850, funded from the Baynes Lake Fire equipment reserve, and the 2026-2030 Five-year financial plan be amended.
2. THAT the Baynes Lake Dry Hydrant be repaired using the original design and accepting the risk of freezing in winter;
and further, that the construction budget be increased to \$110,000, funded from the Baynes Lake Fire equipment reserve, and the 2026-2030 Five-year financial plan be amended.
3. THAT the Baynes Lake Dry Hydrant project be retendered with scope changes as per ISL Engineer's recommended solution.

RECOMMENATION

Option 2

BACKGROUND

The intake portion of the dry hydrant at the Baynes Lake boat launch site has become buried in sediment, making the system inoperable for Fire Department use.

The Baynes Lake dry hydrant is the primary external water source for the Baynes Lake Fire Department and the most reliable source of water for fire suppression in the area between Kikomun-Newgate Road and Highway 93. Restoring dependable operation of this hydrant is therefore critically important to maintaining emergency response capability in the area.

Lower water levels in Baynes Lake have led to significant sediment buildup around the hydrant intake valve, requiring the intake to be relocated to a deeper part of the lake.

ISL Engineering was retained to design a dry hydrant solution that would both restore the existing hydrant and revise the intake configuration to reduce the risk of future sediment accumulation. Marwest Contracting was subsequently awarded the construction contract for the repair work.

As Marwest prepared to begin construction, it identified that the lake bottom topography differed from what had originally been expected. As a result, the initial design was determined to be unsuitable due to shallow depth and the potential for freezing.

A second option, proposed by Marwest and supported by ISL Engineering, involved floating a pipe farther out into the lake and submerging it, while keeping the intake elevated off the lakebed to avoid sediment buildup. This option was later found to carry an increased risk of freezing, and the project was paused while ISL Engineering developed a third alternative.

The final solution presented involves directional drilling through the lakebed and sediment to connect back to the existing dry hydrant at a depth sufficient to prevent freezing. While this option would provide a fully functional year-round hydrant, it is considerably more expensive than the previous alternatives.

OPTIONS CONSIDERED

Solution 1 – Original Concept

The original concept was developed using the best information available at the time, including aerial drone survey data and previous drawings provided with the project proposal. Note: ISL Engineering did not complete a hydrographic survey or use divers during the initial assessment and design phase, as this would have added approximately \$15,000 to \$20,000 to the project cost. Based on the drone footage and the available understanding of the lakebed topography, ISL determined that additional investigation was not necessary at that stage.

However, based on updated site information obtained during construction preparation, this design was no longer considered practical. A section of the pipe would be too close to the surface and could be at risk of freezing during the winter. The likelihood of freezing is highly variable and largely contingent on the lake level heading into winter. Best practice is to have pipes submerged a minimum of 700mm or 2.3 feet below the water surface to prevent freezing.

This option could still proceed if the Regional District is willing to formally accept the freezing risk in writing.

Solution 2 – Floating Pipe – Not viable.

Solution 3 – Directional Drilling Concept

This option involves directional drilling beneath the lakebed to maintain consistent and sufficient depth and cover along the full alignment. Site observations in the fall indicated that the lakebed and accumulated sediment were settled and stable, with the surface remaining firm underfoot, suggesting conditions suitable for this approach. This option would require entirely new infrastructure extending to the connection point at the hydrant.

Directional drilling would minimize the risk of winter freezing and long-term damage while also avoiding extensive disturbance to the shoreline.

Based on the concepts reviewed to date, this is the only option that effectively mitigates freezing risk and provides a robust and reliable long-term solution. For that reason, ISL Engineering recommends this option despite the significant increase in cost.

BUGET IMPACTS

Solution	Budget	Additional Cost	Total cost	Notes
Solution 1: Original	\$70,000	**Estimate \$40,000	\$110,000	Risk of freezing in winter, requires written acknowledgement of risk
Solution 3: Directional Drilling	\$70,000	\$136,850	\$206,850	ISL Engineering recommended solution

Note these estimates are from ISL Engineering, not Marwest the contractor awarded the contract under the tender award (July 2025).

** The additional increase is to cover the costs of mobilizing and demobilizing the contractor and divers last fall (which is when the lakebed issue was discovered). Additionally based on what was seen in the fall additional length of pipe is required to place the intake into a deeper spot identified by the divers that will ensure safe clearance for watercraft and is an area less impacted by sediment accumulation.

ADDITIONAL CONSIDERATIONS

Staff explored options for alternative dry hydrant locations and were unable to determine any that were viable operationally within the Baynes Lake Fire Protection Area (FPA). Kooconusa Lake levels vary significantly and would be expensive to install and difficult for fire apparatus to access. Wells in the area including the existing well at the Baynes Lake Fire Hall do not have the flow rates required for rapid filling during an incident.

A potentially high flow well is being considered in the Elko Fire Protection Area, which will be a benefit to all Elko, Baynes Lake, and Jaffray Fire Departments but is too far from the Baynes Lake FPA to be considered viable as the primary source of water.

Historically, an irrigation pond was used as a water source for the Fire Department in Baynes Lake, however, staff were unable to reach the property owner to determine if this was a potential alternative water source.

SPECIFIC CONSIDERATIONS

Previous Board Action

At the July 11, 2025 Board Meeting the Board resolved that the Baynes Lake Dry Hydrant Tender be awarded to Marwest Industries Ltd. with a construction cost of \$70,000. This required an additional funding allocation of \$55,000 from the Baynes Lake Fire equipment reserve fund and that the 2025 Financial Plan be amended.

Financial – Budget

The Financial Plan includes a budget of \$77,500 for this project in 2026, funded from the Baynes Lake Fire equipment reserve (\$7,500 for engineering services and \$70,000 for construction). Equipment reserve projections to 2037 indicate that the reserve can fund the additional dry hydrant cost and continue to support other planned projects. This is possible due to the 2025 Board approval of \$370,500 (50%) Community Works Fund grant for the new fire engine.

Purchasing Policy

2. Tenders and Proposals

- 2.1 Except where a direct award negotiation has been authorized by a resolution of the Board of Directors, an open competitive selection process will be undertaken for purchases of goods or services valued more than \$75,000, and for construction contracts valued more than \$200,000.