

## **SUNSHINE COAST REGIONAL DISTRICT STAFF REPORT**

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**TO:** Infrastructure Services Committee – July 7, 2016

**AUTHOR:** Bryan Shoji, GM of Infrastructure Services, Regional Engineer

**SUBJECT:** **CHAPMAN LAKE WATER SUPPLY SIPHON UPDATE**

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### **RECOMMENDATION(S)**

**THAT the report titled Chapman Lake Water Supply Siphon Update be received for information;**

**AND THAT staff proceed with the Chapman Lake Water Supply Siphon installation if required to maintain water supply capacity at Stage 3 levels;**

**AND FURTHER THAT staff provide a future report on the final siphon costs and Financial Plan impacts should the siphon be installed as a response to 2016 water restrictions and calling of Stage 3 as per the Drought Management Plan.**

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### **BACKGROUND**

The Chapman Lake Water Supply Expansion Project consultants from AECOM presented a project update to the Infrastructure Services Committee (ISC) on June 9, 2016. During this meeting, it was noted that additional field work is required by the regulatory authorities in order to satisfy the BC Park Use Permit and water licensing approval processes. This additional field work will be carried out through the 2016 summer period, thereby delaying the project construction to the 2017 summer season.

It was further noted that the SCRD already has the necessary regulatory permits in place to install a temporary siphon system should the need arise to prevent Stage 4 drought restriction levels.

The purpose of this report is to provide an update on the status of the siphon system and the potential financial implications.

### **DISCUSSION**

A siphon design was prepared last summer (2015) and materials purchased in preparation for prolonged drought. The siphon design consists of four 200 mm diameter pipes that should provide roughly 160 L/s of flow capacity. When combined with the natural creek flow contributions, it is anticipated that the four pipe siphon will provide adequate capacity to meet Stage 3 community needs and environmental flow requirements. Should natural tributary flows diminish through prolonged drought, additional siphon lines can be deployed.

The siphon material is available for rapid deployment should the region experience a prolonged drought period this summer. The work is currently planned to be installed by SCRD staff. Staff are continuously monitoring flow conditions within Chapman Creek and Chapman and Edwards

Lakes, as well as climate condition projections, to determine the optimal time to deploy the siphon. The goal is to not deploy too early and expend funds on a system that is not utilized, but ensure that it is deployed ahead of water use restrictions beyond Stage 3.

Once deployed and operational, the siphon will need to be staffed full-time in order to ensure operation is continuously maintained. A small site camp will be established in coordination and approval from BC Parks. Details on staffing arrangements still need to be finalized.

*Options and Analysis*

With the delay in the regulatory approval process, the SCR D currently has only the siphon option available to provide emergency water capacity during a prolonged drought.

*Financial Implications*

The material for the four pipe siphon was purchased in 2015 at a cost of \$154,398, funded through operating surplus.

The siphon installation cost is estimated at \$155,000 including 25% contingency (see Table 1). This cost estimate includes staff time, all ancillary equipment, helicopter travel, archaeological and environmental monitoring, and engineering oversight. This cost is currently unfunded. Siphon removal costs will be incorporated into the channel lowering project.

Table 1: Siphon Installation Cost Estimate

<b>Item</b>	<b>Estimated Cost</b>
Materials & Equipment	\$20,000
Helicopter Operations	\$65,000
Consultants (Environmental Monitor, Archaeological, Engineering)	\$20,000
Staff/Contractors	\$18,000
<b>Subtotal</b>	<b>\$123,000</b>
Contingency	\$32,000
<b>Total Cost</b>	<b>\$155,000</b>

Cost to operate the siphon is currently estimated at \$15,000 per week and includes labour, materials, equipment, transportation, and weekly environmental monitoring by a contracted third party.

It is currently projected that the \$155,000 installation cost can be funded through anticipated operating surpluses resulting from staff vacancies. The impact of operating costs will depend on the length of time the siphon will need to be operated.

*Communications Strategy*

Communications for the siphon plan and potential installation will be carried out in coordination with current drought management and Chapman Lake Water Supply Expansion Project communications.

**STRATEGIC PLAN AND RELATED POLICIES**

The siphon design and installation supports the SCRD Strategic Plan Embed Environmental Leadership and Enhance Collaboration with the *shishálh* and Squamish Nations strategic priorities by maintaining environmental flows in Chapman Creek and collaborating and coordinating with First Nations.

**CONCLUSION**

With the delay in the regulatory approval process for the Chapman Lake Water Supply Expansion project, the SCRD may have to deploy an emergency siphon system in order to maintain environmental flows and adequate capacity for the community during a prolonged drought.

The siphon material is purchased and available for rapid deployment should the need arise. It is anticipated that the construction cost can be funded through operating surpluses. The operating cost will be dependent on how long the siphon will need to be in operation.

Reviewed by:			
Manager		Finance	X-TP
GM	X-BS	Legislative	
CAO	X- JL	Other	