SURREY
CITY OF PARKS

Corporate Report

NO: R205

COUNCIL DATE: October 16, 2006

REGULAR COUNCIL

TO:	**Mayor & Council**	DATE:	**October 16, 2006**
FROM:	**General Manager, Engineering**	FILE:	**4806-307**
SUBJECT:	**Elgin Creek Base Flow Augmentation Project**		

RECOMMENDATIONS

The Engineering Department recommends that Council authorize staff to proceed with the design and construction of Option 1 as described in this report in relation to augmenting the base flows in Elgin Creek, conditional upon:

(a) a commitment by others to provide a minimum of $50,000 toward the capital costs of the project; and

(b) the City entering into a Memorandum of Understanding with local stakeholder groups that documents that the City will undertake best efforts to supply base flows to Elgin Creek but such flows may be interrupted in emergency situations where such flows are necessary for other purposes such as to ensure the supply of domestic water to the community.

INTENT

The purpose of this report is to inform Council of the findings of the Elgin Creek Base Flow Augmentation Study and the results of the meeting with the stakeholder groups, to recommend an approach for augmenting base flows in the creek and to identify funding partnerships for the project.

BACKGROUND

The Elgin Creek Base Flow Augmentation Study was undertaken in response to a request from the RESCUE stewardship organization to provide base flows to Elgin Creek to support habitat for the juvenile fish population. The creek is primarily ephemeral and base flows naturally reduce to a trickle most summers. The lack of a year-round base flow reduces the habitat value of the creek for certain species of salmonid. The 1995 Master Drainage Plan for Elgin Creek reports that both the fish rearing and spawning

ratings of the upper reaches of the creek will improve significantly with an increase in base flow during the dry months of the year.

Source Supply Options

The study evaluated the following three base flow augmentation options:

1. New Pump

   Pump groundwater into the creek by replacing the large pump in the existing well located in Sunnyside Acres Forest with a new, smaller pump. Groundwater would then enter the existing storm drainage system along 146 Street, then into the headwaters of Elgin Creek. The conveyance route takes advantage of existing infrastructure with some improvements.

2. Old Pump Plus Reservoir

   Pump groundwater into the creek by utilizing the existing large, high-capacity pump in the Sunnyside Acres Forest well, and construct a reservoir in the immediate area to store flows for controlled release to the creek. The flow conveyance route is the same as for Option 1.

3. New Well

   Drill and equip a new well adjacent to Elgin Creek. This configuration would include the installation of a simple aeration facility to add oxygen to the water before it enters the creek.

Evaluation of the Options

The following table outlines the advantages and disadvantages of each option.

Evaluation of Options

Option	Advantages	Disadvantages
1 - New Pump	• More continuous pumping with no need to construct storage facilities. • Least costly alternative.	• Requires more testing to confirm size of pump required to meet target flow. • Replacing the high capacity pump with a smaller one will essentially reduce emergency water supply for the community by approximately one-half. • Some inconvenience when switching over to the emergency supply. • Stoppage of flow to the creek during domestic supply shortages, potentially putting some fish at risk.
2 - Reservoir	• Existing capacity of well still available for emergency supply.	• Most costly alternative. • Requires additional land with associated risks of open storage

Option	Advantages	Disadvantages
	• Provides flexibility with adjusting flow release rates. • Testing can be done without interruption to the supply.	reservoir in a park setting. • Some inconvenience when switching over to the emergency supply. • Stoppage of flow to the creek during domestic supply shortages, potentially putting some fish at risk.
3 - New Well	• Separate supply with no impacts on existing emergency well supply or drainage system. • Dedicated source of water.	• Uncertainties regarding success of drilling with finding suitable water supply. • Costs will increase if first hole is dry. Will then need to decide to either drill again or implement one of the other alternatives (could be throw away costs).

Costs

The following table provides the estimated construction, and operation and maintenance costs for each of the alternatives.

Option	Supply & Installation Costs ($)	Operation & Maintenance Costs ($)
1 – New Pump	$150,000	$10,000
2 – Reservoir	$350,000	$8,500
3 – New Well	$310,000	$10,000

Stakeholder Input

On September 15, 2006, a meeting was held with stakeholders representing the following organizations:

- RESCUE
- Nicomekl Enhancement Society;
- Sunnyside Acres Heritage Society;
- Fisheries & Oceans Canada (DFO);
- BC Wildlife Federation; and
- Chantrell Creek property owners.

Staff presented the draft Elgin Creek Base Flow Augmentation Report to those present at the meeting. Discussions on the various options ensued, with the stakeholders agreeing to send comments on the report to the City for input in this Corporate Report. Letters were received from DFO, RESCUE, Nicomekl Enhancement Society, Sunnyside Acres Heritage Society and Mr. Robert Hutton (see Appendix A). All groups and individuals have identified the use of the existing well as the preferred option, and their full support for the project. The jurisdictional responsibility for Canadian fisheries waters rests with

the Federal Government Department of Fisheries and Oceans. Therefore, implementation of the project will be contingent upon DFO's agreement with the proposed approach.

Field tests have been undertaken with respect to determining the appropriate flow rate relative to maintaining reasonable flows in the creek during the dry months of the year. There is still some uncertainty and further testing is required to finalize the pumping rate at the well. RESCUE has indicated that a flow rate of 7.6 L/s (100 gpm) in the creek at Crescent Road is appropriate. Losses due to infiltration are expected and may change from year to year depending upon weather conditions. Historical flow records in Elgin Creek are available from the monitoring station at the 32 Avenue road crossing. Staff is not yet certain whether it is possible to fully achieve the 100 gpm flow rate at Crescent Road. Field conditions are dynamic and adjustments to the flow rate from the well will be required regularly to minimize potential impacts to the surrounding area.

Based on information compiled to date, staff has concluded that Option 1 is the preferred approach and DFO has indicated its support in principle.

External Funding Sources

DFO has agreed to contribute up to $50,000 to the capital costs of the project (see Appendix A).

An application for $10,000 in funding from the Pacific Salmonid Foundation was recently submitted for this project. Staff will also continue to explore other external funding sources.

Operations & Maintenance Agreement

The Surrey Water Utility relies on the existing well as an emergency water source for the community water system. Water from this well helped to meet peak summer demands in 2003. It is therefore important, in advance of this project proceeding, that a Memorandum of Understanding be executed between the City and the stakeholder groups to clearly state that the City is providing water from the well to augment flows in Elgin Creek on a best effort basis but retains the full right to divert the well water flows to the community water system or for such other uses as may be necessary from time to time in the event of domestic water supply shortages and/or other water utility needs. It is noted that a larger pump can be reinstalled in the well on relatively short notice.

The Drainage Utility of the City will be responsible for the capital costs associated with the project minus the contributions received from outside sources. Annual operation and maintenance costs will be the responsibility of the Water Utility.

CONCLUSION

Based on the above discussion, it is recommended that Council authorize staff to proceed with the design and construction of Option 1 as described in this report in relation to augmenting the base flows in Elgin Creek, conditional upon:

(a) a commitment by others to provide a minimum of $50,000 toward the capital costs of the project; and

(b) the City entering into a Memorandum of Understanding with local stakeholder groups that documents that the City will undertake best efforts to supply base flows to Elgin Creek but such flows may be interrupted in emergency situations where such flows are necessary for other purposes such as to ensure the supply of domestic water to the community.

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General Manager, Engineering

JLU/CAB/VL/brb/rdd
Attachment

c.c. - Manager, Operations – Engineering Dept.
- General Manager, Parks Recreation & Culture

APPENDIX A