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CONSULTING SERVICES FEE FOR ADDITIONAL SCOPE REQUIRED FOR GEORGINA WATER TREATMENT PLANT EXPANSION AND UPGRADE TOWN OF GEORGINA PROJECT 72140

The Transportation and Works Committee recommends the adoption of the recommendation contained in the following report dated June 3, 2009, from the Commissioner of Environmental Services.

1. RECOMMENDATION

It is recommended that:

1. Blanket purchase order number B00009052 be increased from $746,941.90 to $841,941.90, excluding GST, for additional services outside the original scope of work and in excess of the contingency and scope allowance in the Purchasing By-law.

2. PURPOSE

This report provides background and an explanation to increase the upset fee for consulting and engineering services for the Georgina Water Treatment Plant (WTP) expansion and upgrade beyond the contingency and the scope allowance provision in the Purchasing By-law.

3. BACKGROUND

Phase 1 of the Georgina WTP was commissioned in 2003 with water treatment capacity of 20ML/day. The plant utilizes membrane filtration technology, which was procured from Zenon Environmental Inc. In June 2006, Zenon Environmental was acquired by General Electric Canada and currently operates under the name GE Water and Process Technologies. The building, piping, and other auxiliary processes were constructed to allow incremental or phased capacity increases up to an ultimate capacity of 50ML/day. The intent, as recommended in the Environmental Assessment (EA), was to provide additional membrane filtration trains to the existing four trains to achieve capacity increases of 10ML/day in each succeeding phase.

During preparation of the Request for Proposal for the phase 2 expansion of the plant in spring 2005, it was determined, based on the data available at that time, that the water treatment capacity should be increased from 20ML/day to 40ML/day.

In November of 2005, MacViro Consultants Inc. (MacViro) was awarded the assignment for the detailed design and contract administration of the Georgina WTP for the Phase 2 expansion and upgrade project. Purchase order number B00009052 was issued to MacViro for the assignment at an approved upset fee limit of $553,279.19, plus GST.

In May 2006, MacViro was acquired by and currently operates under the name Genivar.

The project scope had three components: upgrades to satisfy Ministry of Environment (MOE) regulatory requirements related to the Certificate of Approval; upgrades to improve the plant operation, flexibility, and efficiency; and provisions for capacity expansion from 20ML/day to 40ML/day capacity.

To ensure regulatory requirements, additional upgrades were included in the project scope

In March 2007, the following additional scope was identified:

- Additional operational items related to occupational health and safety, operational efficiency and flexibility, process upgrades including chemical cleaning system for the membrane filtration, ultraviolet disinfection of the filtered water, metering of various process flows and parameters, SCADA enhancements, and other instrumentation requirements.
- Additional construction administration and inspection service fees were required as a result of additional construction duration associated with the extra scope identified above. The prequalification of general contractors was also added, but was not part of Genivar's original scope.

Changes identified were needed to address health and safety issues, and difficulties encountered during the first five years of operating the existing treatment process.

The purchase order was subsequently increased by $172,250.81.

Master Plan Update demand forecast indicated that Georgina Water Treatment Plant expansion to 40ML/day could be deferred up to 2016

In March 2008, through the Master Plan Update demand forecast, it was determined that the Georgina WTP expansion could be deferred up to 2016. At that point, the detailed design had progressed to the 100% phase when it was decided to delay the project.

In order to address the operational deficiencies and comply with the MOE Certificate of Approval stipulations, a net present value analysis was performed to determine the economic feasibility of delaying the entire project, separating and building now only the upgrades from the current scope, or continuing with the current scope of the project.

The purchase order was subsequently increased by $21,411.90 in partial payment to Genivar for assessing these options. As a result, the additional work and contingency allowances provided for in the Purchasing By-law were exhausted.

The total value of the current purchase order is $746,941.90, exclusive of GST.

4. ANALYSIS AND OPTIONS

Project staff recommends continuing with the current scope of the Georgina Water Treatment Plant Phase 2 expansion

The following options were considered:

- Do nothing: This was not carried forward as it does not address the Ministry of Environment (MOE) regulatory requirements related to the Certificate of Approval, and treatment plant operational inefficiencies
- Undertake upgrades to satisfy Ministry of Environment (MOE) regulatory requirements; improve plant health and safety; and operational flexibility and efficiency: This would cost the Region approximately $7.4 million or 70% of the cost of the current phase 2 project, and would require an additional $4 million to provide the capacity increase to go from 20ML/day to 40ML/day in the future. This will have a significant impact on plant operations and is higher capital than constructing both these components simultaneously.
- Proceed to construction of phase 2 of the project as already designed: This would address Ministry of Environment (MOE) regulatory requirements related to the Certificate of Approval, improve plant health and safety, enhance operational flexibility and efficiency, and provide the tankage required for increasing the plant capacity to 40ML/day by adding filtration media in the future at minimal additional costs and impact to plant operation.

Staff has reviewed the merits of each option and concluded that it is not cost effective or efficient from a scheduling and project delivery perspective to undertake expansion of the treatment process through two separate projects staggered two to three years apart. As such, the recommendation is to continue with the current designed scope of the project with minor adjustments as detailed below:

The outstanding fees related to the aforementioned work for preparation, submission, and presentations related to scope options, revised project work plan, operational scenarios, revised construction cost estimates, and engineering fee estimates is $15,000.

In addition, the following out-of-scope items have been identified to complete the tender package:

- Re-establish the design process to provide an updated tender ready package.

- Modify project specifications and drawings to:
  - Require that the overall WTP SCADA and process control system including plant capacity increase, and improvement of the operational efficiencies of the existing water treatment process be performed under an integrated contract administered by the general contractor including the portion performed by GE Water and Process Technologies. This approach would avoid potential conflict in ensuring that the works performed by two separate parties are adequately co-ordinated and that the project intent is performed.
  - Exclude filtration media associated with increasing the plant capacity, which is not required at this time.

The estimate for these tasks is $80,000.

Constructing Phase 2 as designed addresses all project requirements and provides the flexibility to add additional membrane capacity in the future on an as-required basis.

5. FINANCIAL IMPLICATIONS

The total requested consulting services fee increase, as summarized below, is $95,000, exclusive of GST.

Table 1
Summary of Additional Fees:

Item #	Description	Fee
1	Analysis of project scope options (remaining scope)	$15,000
2	Completion of the tender package	$80,000
Total requested fees for consulting services:		$95,000

The cost estimate of the project as designed is $10.4 million, excluding taxes. Additional consulting services related to additional work would bring the total consulting fee to 8.1% of the construction cost, which is well within industry standards.

Funding is available in the approved 2009 10-year Capital Wastewater Budget. It should be noted that since 2002, a little over 700 purchase orders with a total value of approximately $1.3 billion have been issued to secure engineering, consulting and construction services on water and wastewater projects. Of these, approximately 70 or 10% of the purchase orders have required increases beyond the increases allowed in the Regional Purchasing By-law. The total value of such increases is approximately $41 million or 3% of the total original value of the purchase orders.

6. LOCAL MUNICIPAL IMPACT

The Georgina Water Treatment Plant, together with the Keswick Water Treatment Plant, provides water supply for the communities of Keswick, Lakeshore, and Sutton in the Town of Georgina and services a population of about 40,000.

It is important that the plant be upgraded to fulfill the commitment of meeting and sustaining the water supply requirements of the Town of Georgina and to provide a safer, more efficient, and reliable operation while complying with all aspects of the Certificate of Approval.

It is expected that the upgraded facility will be operational by the last quarter of 2010.

7. CONCLUSION

The additional scope of work and associated fee explained in the report are essential to complete the design to the tender-ready stage for the phase 2 expansion and upgrade as well as to provide contract administration services during construction.

An approval for this increase is required to minimize potential tender and construction schedule delays of the project, for which completion is required by 2010, to address regulatory requirements and operational efficiency constraints.

For more information on this report, please contact Daniel Kostopoulos, Director, Capital Planning and Delivery, Environmental Services at extension 5070.

The Senior Management Group has reviewed this report.