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ADDITIONAL ENGINEERING CONSULTING FEES FOR KLEINBURG WATER POLLUTION CONTROL PLANT UPGRADES

The Transportation and Works Committee recommends that Council adopt the recommendation contained in the following report dated December 16, 2008, from the Commissioner of Environmental Services.

1. RECOMMENDATION

It is recommended that:

1. Approval be granted to increase the expenditure limit of the Purchase Order B00009341 issued to Hatch Mott MacDonald to provide engineering services for the detailed design, construction supervision and contract administration for upgrades to the Kleinburg Water Pollution Control Plant in the amount of \$157,300 from \$527,866.16 to \$685,166.16 excluding GST.

2. PURPOSE

This report is to obtain Regional Council approval to increase the purchase order amount for the previously retained consulting engineer to complete additional work. The York Region Purchasing By-law A-0353-2004-089 allows the value of a purchase order to be increased beyond the 15% contingency and 20% scope subject to Council Approval. These mechanisms have been exhausted and additional funds are required to complete the SCADA upgrades.

3. BACKGROUND

The existing water pollution control plant that serves the community of Kleinburg has a rated capacity of 1,205 m³/d. Hatch Mott MacDonald was retained on March 7, 2006 to provide engineering services for upgrades to the Kleinburg Water Pollution Control Plant (WPCP).

Original scope involved selected plant upgrades only

The original assignment was to upgrade components of the existing treatment facility. This work included:

Influent works

- Channel improvements including replacement of the parshall flume with a magmeter
- Refurbish grit removal equipment
- Separate garage from inlet works by installing a wall

Aeration System

- Replace diffusers

Sand Filter

- Replace sand media
- Replace air lift system

Monitoring and Automation

- Upgrade Remote Processing Unit (RPU)
- Improve operator control
- Add equipment to the SCADA system

Health and safety

- Install a new gas monitoring system

Previously approved scope changes required to address design and contract administration for plant expansion

In a separate, concurrent assignment, an Environmental Assessment (EA) was being conducted by another consulting firm to investigate servicing alternatives to accommodate growth in the community of Kleinburg.

Based on the early indications of the EA, it was determined that a new structure to house the preliminary treatment would be required. As the location of the expanded plant infrastructure and completion of this new expansion works would allow for an orderly and cost-effective expansion of the plant within the existing property, it was decided that the new building and the preliminary treatment process would be designed to accommodate the increased flow associated with the proposed growth. To facilitate this, Hatch Mott MacDonald submitted a new proposal with a revised scope to incorporate the work required for plant expansion.

A report was submitted to Regional Council in October 2006 analysing options to proceed with the design of the upgrades in a timely manner. Regional Council approved assigning the additional scope of work for plant upgrades to Hatch Mott MacDonald in the amount of \$393,163.60 excluding GST.

As the engineering work progressed, plant staff identified the need for additional engineering services. Additional work included engineering and preparation of contract

documents for upgrades to the UV system, structural evaluation of the bridge accessing the plant, as well as additional aeration and pumping upgrades.

The value of the purchase order was increased by \$135,483.80 in accordance with the Purchasing By-law to account for additional engineering design and contract administration services associated with the additional treatment upgrades noted above.

Additional work now required to address Supervisory Control and Data Acquisition (SCADA)

SCADA system is used to operate and monitor instruments and equipment at all of the Region's water and wastewater facilities. This SCADA system allows treatment facilities to be operated remotely and allows for a greater degree of automation. Shortly after completing the design of the SCADA system, Environmental Services updated its standards related SCADA systems.

As the preferred solution was being confirmed through the EA process, the design decisions considered the increasing probability that the solutions should reflect an increased design life of the facility. On that basis, the SCADA system was redesigned to current Region standards. This required additional effort rather than accept the design completed to the previous standard.

4. ANALYSIS AND OPTIONS

Programming related SCADA is routinely done by a third party system integrator through the general contractor. However, due to the complex nature of this site and to ensure that the transition between the existing system and the new system would be completed without disrupting plant operations, the system integrator would require intrinsic knowledge of both the existing operation and the proposed design. It is essential to keep the plant operating in compliance with Ministry of the Environment requirements throughout construction. On that basis, the best party to complete the programming without delay is the current design engineering consultant, Hatch Mott MacDonald.

Through negotiations with the consultant, the value of the system integration and programming work was determined to be \$157,300.

Since 2002, 686 purchase orders with a total value of \$1,257,887,574 have been issued to secure engineering, consulting and construction services on water and wastewater projects. Of these, 64 or 9% of the purchase orders have required increases beyond the increases allowed in the Regional Purchasing Bylaw. The total value of such increases is \$36,197,666 or 3% of the total original value of the purchase orders.

5. FINANCIAL IMPLICATIONS

The original purchase order has been increased in accordance with the provisions of the Purchasing By-law as detailed above. Additional funds are required beyond the provisions allowed in the York Region Purchasing By-Law to complete the SCADA upgrades.

Based on the discussion above, it is recommended that authorization be given to increase the purchase order by \$157,300 excluding GST from the current value of \$527,866.16 to \$685,166.16. The total value of the upgrades being constructed is approximately \$4,415,840.01. The total engineering cost represents 15.5 % of the construction costs.

6. LOCAL MUNICIPAL IMPACT

The project is required to optimize the treatment of wastewater and ensure that effluent compliance is maintained at the Kleinburg WPCP. The scope has been developed in consultation with York Region Operations staff. Delay in implementing the repairs and upgrades would increase the difficulty of ensuring compliance with effluent criteria of the WPCP at all times.

7. CONCLUSION

Hatch Mott MacDonald is completing this project in a timely manner. It is appropriate to increase the current purchase order by \$157,300 to complete the required system integration and programming related to upgrades to the SCADA system to meet current standards and requirements.

For more information on this report, contact Bala Araniyasundaran at extension 5131, Director of Capital Planning and Delivery, Environmental Services.

The Senior Management Group has reviewed this report.

(The attachment referred to in this clause is attached to this report.)