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CONSULTING SERVICES FEE FOR ADDITIONAL SCOPE REQUIRED FOR SCHOMBERG WATER POLLUTION CONTROL PLANT EFFLUENT FORCEMAIN PROJECT

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 B00009849 be increased from \$110,142.45 to \$241,202.45, excluding GST, for additional services outside the original scope of work and in excess of the contingency and scope allowances provided for 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 Schomberg Water Pollution Control Plant (WPCP) Effluent Forcemain project beyond the contingency and scope provisions in the Purchasing By-law.

3. BACKGROUND

In December of 2006, Associated Engineering Ltd (AE) was awarded the consultant assignment for detailed design and contract administration of the Schomberg WPCP Effluent Forcemain project. Purchase order number B00009849 was issued to AE for the assignment at an approved upset fee limit of \$81,587 plus GST.

Ministry of Transportation mandated realignment of new effluent forcemain outside Ministry of Transportation's right-of-way

The proposed alignment for the new forcemain was documented in the 2006 Environmental Study Report (ESR) addendum for the class environmental assessment for design of a new treatment facility to replace three existing lagoons.

The addendum identified the need for a new forcemain of larger capacity to be installed alongside the existing 200mm forcemain located in MTO's right-of-way which runs east

along Highway 9 and discharges to the Schomberg River. MTO communicated their acceptance of the proposed alignment in a letter dated July 7, 2006.

However, during detailed design, MTO informed the Region that the proposed forcemain along with associated components would not be permitted within the MTO right-of-way and that the existing 200mm forcemain would have to be removed once the new forcemain was operational to accommodate MTO's plans to widen Highway 9 in the near future. (Refer to Attachment 1)

The MTO's requirements introduced several complications requiring significant revisions and iterations before the Region was able to proceed with the design. In November 2008, the purchase order was increased by \$28,555.42 to cover some of the additional scope items associated with MTO's request. The main items include:

- Coordinate with MTO to reflect proposed highway widening allowances, setbacks, and other MTO stipulations.
- Update design drawings and specification showing proposed new alignment.
- Undertake a topographical survey and prepare preliminary sketches and reference plans indicating a 6m permanent easement and 5m working easement along the south property limit of Highway 9 - i.e. 3m south of the MTO property limit.

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 \$ \$110,142.45, exclusive of GST.

The new forcemain needs to be operational by July 2009 to allow King Township to allocate wastewater services as soon as additional water servicing capacity becomes available in September 2009. Consequently Region staff advised the consultant to proceed with the project so as not to impact timing of planned developments within the Schomberg community.

In addition to the immediate scope changes mentioned above, which were noted at that time, MTO's request introduced other constraints, which became evident later in the project. MTO advised the Region that approvals and issuance of permits were conditional on the Region being successful in acquiring the required easements from adjacent private property owners.

These changes impacted detailed design, construction phasing, water pollution control plant operations, and the permitting process all of which significantly increased project scope and associated budget and schedule.

The forcemain project was tendered in March 2009 and is currently in construction.

4. ANALYSIS AND OPTIONS

MTO's decision adversely impacted the project scope and schedule resulting in various new stipulations from the Ministry of Environment (MOE), Schomberg WPCP Operations, and adjacent property owners from whom easements were needed. The following additional scope items were identified:

- Negotiation for acquisition of permanent and construction easements from adjacent land owners. (Refer to Attachment 1).
- Modification of design drawings and specifications to reflect new permit conditions imposed by Lake Simcoe Region Conservation Authority (LSRCA), MOE, and MTO. Main revisions to the design include:
 - Design of a new effluent outfall at a new location.
 - Removal of the existing 200mm forcemain from within MTO's Highway 9 right-of-way.
 - Restoration of roadway and adjacent areas.
- Revisions to address adverse impacts to construction staging and Schomberg WPCP operations due to lagoon capacity and discharge limitations.
- Additional contract administration and inspection services required due to extended construction schedule from 30 days to 110 days, sequencing, and WPCP operation constraints.
- Detailed design updates based on stakeholder feedback (land owners, MTO, MOE and LSRCA).

These items are detailed below.

New Forcemain alignment requires acquisition of permanent and construction easement from adjacent land owners

In order to accommodate the proposed new forcemain alignment and associated construction activities, the Region engaged and negotiated with the four adjacent land owners over a period of 14 months from October 2007 to January 2009.

In addition to defining permanent easement requirements and specific owner requests, this process involved defining easement requirements for construction access, staging, maintenance, restoration, and rehabilitation of impacted properties.

This information was used to perform additional topographic surveys, finalizing reference plans and completing contract documents for tender.

Total requested fees for permanent and construction easement acquisition: \$20,000

New Lake Simcoe and Region Conservation Authority and Ministry of Transportation permits imposed additional constraints on design and construction efforts

The MTO's mandated changes resulted in new permit conditions from Lake Simcoe Region Conservation Authority (LSRCA) and MTO. This affected the completion schedule for detailed design and the sequencing of construction activity due to the WPCP operational needs. The following permits were required:

- Development, Interference with Wetlands, and Alterations to Shorelines and Watercourses permit. The LSRCA required that the Region undertake a detailed environmental assessment of the potential impacts of the new alignment particularly within the discharge area (LSRCA owned lands) and proposed mitigation measures for any impacts.
- MTO Encroachment Permit.
- MTO Building and Land Use Permit.

The conditions imposed by these permits significantly increased the level of effort for detailed design and construction, as well as extended the project schedule. All permits have been obtained.

Total requested fees for design update and permit applications: \$19,500

Ministry of Transportation, Ministry of the Environment stipulations, and water pollution control plant operational constraints increased the complexity of design detail and construction sequencing

MTO's decision adversely impacted the design and construction schedules. This required that sections of the existing forcemain within the Showa (adjacent landowner) easement had to be removed and replaced, as opposed to being twinned, due to easement agreement stipulations. This required that the WPCP be offline during this process or that the work be undertaken during a non-discharge period.

The new WPCP, which is currently nearing construction completion, is a continuous discharge facility and was operational in April 2009. During commissioning, operations staff had two options, either to store incoming influent in the existing lagoons or discharge treated effluent via the existing 200mm forcemain. However, the latter option was not permitted by MOE since the existing outfall was not suitable for continuous discharge.

Hence, the capacity and discharge constraint affects not just the plant operation, but the construction schedule and sequencing.

In December 2008, in an effort to mitigate the commissioning, operational, and construction impacts, the Region obtained permission from MOE to temporarily modify the existing outfall so that continuous discharge was permissible. This outfall modification was implemented in April 2009 and facilitated the commissioning of the new WPCP without the need to store effluent.

The above-mentioned activities required the consultant to liaise and coordinate with:

- MTO, MOE, landowners and Region staff.
- Update specifications and drawings to include easement and access conditions.
- Incorporate the decommissioning of the existing 200mm forcemain and outfall in the design.
- Restoration of the roadway, forcemain alignment, and outfall location.
- Provide details relative to construction sequencing so that the forcemain could be built within the timelines required.
- Detailed design of new outfall.
- Undertake additional geotechnical investigation at new outfall location.
- Material testing during construction.
- Prepare sketches and plans depicting modification of existing outfall as requested by MOE.

Each of the above necessitated several iterations.

Total requested fees: \$27,000

Additional contract administration services required due to extended construction schedule

AE's original proposal for contract administration/construction inspection was estimated at six weeks at \$4,035 per week to a sum of \$24,210 for full-time supervision. As stated above, this schedule was significantly impacted by MTO's decision. Due to construction sequence requirements and decommissioning of existing outfall and forcemain, an additional 16 weeks is needed beginning in April 2009.

Total additional fee for this work (\$4,035/week x 16 weeks): \$64,560

5. FINANCIAL IMPLICATIONS

The total requested engineering services fee increase is \$131,060, exclusive of GST, as summarized in Table 1 below.

Table 1
Summary of Engineering Fee Increase

Scope Changes	Fee Increase
Acquisition of Easements	\$20,000
New LSRCA and MTO Permits	\$19,500
Construction Sequencing and Detailed Design	\$27,000
Additional Contract Administration	\$64,560
TOTAL	\$131,060

Extensive scope changes, due to MTO's stipulated modifications during the course of the project detailed design, resulted in significant increased costs in engineering, construction, administration and inspection services. The total capital cost of the project is \$1.4 million dollars, excluding taxes.

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 new 300mm Schomberg WPCP effluent forcemain will replace the existing 200mm effluent discharge forcemain since the former does not have sufficient capacity to handle the flow capacity of the new Schomberg WPCP. The new treatment plant being commissioned will replace the existing lagoons and has a service population of approximately 3,100.

It is critical that the new forcemain be operational to allow the Town to allocate wastewater services to meet the requirements of planned development.

7. CONCLUSION

The additional scope of work and associated fees explained in the report are essential to cover the additional level of effort by AE to accommodate MTO's mandated changes, LSRCA and MOE permits conditions, as well as additional contract administration and inspection services during construction for the Schomberg WPCP effluent forcemain.

Approval of this increase is required to minimize construction schedule delays of the project for which completion is required by July 2009 to meet Schomberg's wastewater service needs.

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.

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

