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SOUTHEAST COLLECTOR PROGRESS REPORT AND AUTHORITY TO NEGOTIATE PROCUREMENT OF DESIGN, CONTRACT ADMINISTRATION AND INSPECTION SERVICES

The Transportation and Works Committee recommends the following:

- 1. The presentation by Debbie Korolnek, General Manager, Water and Wastewater, be received;**
- 2. The recommendations contained in the following report, August 21, 2007, from the General Manager, Water and Wastewater, be adopted.**

1. RECOMMENDATIONS

It is recommended that:

1. The General Manager of the Water and Wastewater Branch be authorized to negotiate an agreement in principal with the City of Edmonton to provide all or part of the construction services for the new Southeast Collector trunk sewer and such other services as may be deemed appropriate.
2. The General Manager of the Water and Wastewater Branch be authorized to negotiate a joint venture agreement or other such agreement(s) with Earth Tech (Canada) Inc. and/or Hatch Mott MacDonald Ltd. for the design, contract administration, construction inspection and monitoring services required for the new Southeast Collector trunk sewer.
3. The General Manager of Water and Wastewater Branch report on the outcome of these negotiations and provide recommendations for Committee and Council approval on the design, approvals, contract administration, construction inspection and monitoring services along with an overall procurement strategy for the construction phase of the new Southeast Collector trunk sewer.
4. The existing purchase order number B8634 to Earth Tech (Canada) Inc. be increased from \$14,638,400 to \$22,308,297 to provide the additional services required for the increased scope of engineering services. These additional services are related to further public and agency consultations that were necessary to analyze mitigation measures along the preferred route.

2. PURPOSE

The purpose of this report is to seek authorization for the General Manager of the Water and Wastewater Branch to negotiate with the City of Edmonton an appropriate scope of work for the City to undertake all or part of the tunnelling phase of the new Southeast Collector trunk sewer and further to negotiate a joint venture agreement or other such agreement(s) satisfactory to Regional staff with Earth Tech (Canada) Inc. and/or Hatch Mott MacDonald Ltd. and the appropriate sub-consultants for the design, approvals, contract administration, inspection and monitoring services required for the new Southeast Collector trunk sewer along the recommended preferred route as outlined in Attachment 1. This report also seeks authorization to increase the current Earth Tech (Canada) Inc. purchase order for the additional services required to complete the IEA phase of the Southeast Collector trunk sewer project.

3. BACKGROUND

3.1 Status of IEA and Recommended Preferred Alternative Sewer Route

The Minister of the Environment in her letter of October 1, 2004, directed that the new Southeast Collector trunk sewer project proceed through an Individual Environment Assessment (IEA) approval process. The Terms of Reference (TOR) for this process was approved by the MOE on February 28, 2006. Since that time, work has progressed on the assessment of a number of alternative solutions to provide the additional capacity needed in the Southeast Collector trunk sewer for York Region's planned growth, up to at least 2036.

The IEA process has determined that the recommended solution to provide additional capacity in the Southeast Collector trunk sewer included a combined solution of:

"A new Southeast Collector trunk sewer in combination with implementing other water efficiency and inflow/infiltration measures".

The results of this process determined the recommended preferred route shown on Attachment 1.

Throughout the course of the IEA process leading up to the recommended preferred alternative, there have been approximately 150 meetings held with key stakeholders, agencies and the public including the most recent Public Information Forums held in the City of Pickering on June 26, 2007 and in the Town of Markham on June 27, 2007. Further, an independent peer review process has been underway since the start of the project to review and provide comment and suggested enhancements to the technical reports and analysis undertaken through the IEA process.

Further, with regard to the Inflow/Infiltration and Water Efficiency components of the recommended solution for the Southeast Collector trunk sewer capacity, it should be

noted that Council at its meetings of June 20, 2007 and April 4, 2007 respectively, approved programs to extend the Region's Water Efficiency program for a further 10 years and initiate an aggressive Inflow/Infiltration flow reduction program with the involvement and co-operation of the local municipalities. These additional initiatives will support the combined recommendation of the preferred alternative aimed at providing additional capacity in the Southeast Collector trunk sewer for planned growth up to 2036 and beyond.

3.2 Challenges with Competitive Bidding and Tunnelling

The recommended preferred route is approximately 18 km long and with a preliminary capital cost estimate that ranges between \$400 - \$500 million using current tendered prices from recent tunnelling projects within the Region. The final estimate will be determined towards the end of the IEA phase of the project when the design details of the recommended preferred route have been confirmed. This will include the mitigation and enhancement measures which have yet to be determined as part of the impact assessment phase of the project. It is anticipated that up to four tunnelling contracts and possibly one short open cut contract will be needed to complete the construction of the 18 km long new trunk Southeast Collector sewer. It is also anticipated that the four contracts will be undertaken concurrently to complete the construction of the tunnelling work in the planned two year construction period. Further, this number of concurrent tunnelling contracts will require the procurement of up to four tunnel boring machines.

At the present time in the GTA area there are a limited number of contractors with the necessary equipment and operating skills to undertake this volume of work. This has been confirmed with the recent tenders for the Bathurst/Langstaff (design/build) and 19th Avenue Interceptor Sewer tenders. In both cases, the tendered prices were over the budgeted amounts and the tenders were limited to single bonafide bids.

Further, the Region has investigated the potential for obtaining bids from U.S. and other overseas contractors. Although this is an option for large projects such as the Southeast Collector, it is important to note that there is an abundance of large tunnelling contracts underway or planned in the U.S. which will occupy much of the available tunnelling resources for the foreseeable future. Furthermore, the foreign contractors have indicated the aggressive schedules for the Region's tunnelling contracts are a prohibitive factor for the contractor. Some have indicated that if an additional 12 months were to be added to the contract duration, they would be much more likely to bid on these contracts.

3.2.1 City of Edmonton Tunnelling Division Experience

As a result of the challenges identified above, Regional staff has met with City of Edmonton staff to pursue the potential for a partnership between York Region and the City of Edmonton to carry out tunnelling works on behalf of the Region. The City has a tunnelling division of approximately 100 staff dedicated to constructing tunnels for storm water, sanitary sewers and water mains and pedestrian- ways throughout the City. The City has developed their tunnelling expertise over the past 50 years and is unique in this regard due to the deep sewer infrastructure needed to cross the North Saskatchewan

River. Regional staff visited the City of Edmonton and confirmed that the City tunnelling division has the skills and experience to undertake the type of tunnelling required on the new Southeast Collector trunk sewer.

The City of Edmonton is currently undertaking tunnelling work for the City of Calgary on a cost-plus basis with a 10% mark-up. It will be necessary for the City of Edmonton's council to approve the redeployment of their resources to York in 2010. The City of Edmonton will require approximately two years lead time to acquire and train the necessary resources for the Southeast Collector project; hence, authorization to begin negotiations with the City of Edmonton is requested herein.

It should also be noted that the City of Edmonton may not have sufficient resources to undertake all of the tunnelling work required for the new Southeast Collector trunk sewer and consequently, this option may provide only a partial solution for the tunnelling component of this contract. In this regard, the project team is developing an overall procurement strategy for the entire length of the new Southeast Collector trunk sewer for acquiring the necessary labour, equipment and materials to complete the construction phase of the project by 2012.

3.3 Procurement of Design, Contract Administration and Construction Inspection Services

Regional Council at its meeting of January 20, 2005 approved the hiring of Earth Tech (Canada) Inc. as the prime engineering consultant along with a number of key sub-consultants including Hatch Mott MacDonald Ltd. for tunnelling design expertise, Gartner Lee Limited for IEA and natural environmental expertise and Conestoga Rovers for hydrogeology and geotechnical expertise. The IEA phase of the contract has proceeded satisfactorily with Earth Tech (Canada) Inc. as a prime consultant. However, it should be noted that the recommended preferred route for the new Southeast Collector trunk sewer, will involve considerably more tunnelling expertise than was originally anticipated at the time of the original proposal submitted for this project in 2005. Consequently, it is recommended herein that the role of Hatch Mott MacDonald Ltd. be changed for the design, approvals, contract administration, inspection and monitoring phase of the project to take advantage of the tunnelling expertise provided by this firm.

4. ANALYSIS AND OPTIONS

4.1 Options for Procuring Design, Approvals, Contract Administration, Inspection and Monitoring Services

The firm of Procept Management Consultants was retained to assist the Region in considering various options for acquiring the necessary services to undertake the design, approvals, contract administration, inspection, monitoring phases of the new Southeast Collector trunk sewer. The following three options were identified:

1. Earth Tech (Canada) Inc. and Hatch Mott MacDonald Ltd. form a joint venture for design, approvals, construction management, inspection and monitoring services.

2. Hatch Mott MacDonald Ltd. becomes the prime consultant using Earth Tech (Canada) Inc. as a sub consultant.
3. Same as above except Earth Tech (Canada) Inc. continues as the prime using Hatch Mott MacDonald Ltd. as a sub consultant.

The various options for obtaining design, approvals, contract administration, inspection and monitoring has been assessed by Procept Management Consultants. The final recommendation determined, in consultation with Regional staff, is to negotiate a joint venture agreement or other such agreement(s) satisfactory in form to Regional staff with Earth Tech (Canada) Inc. and/or Hatch Mott MacDonald Ltd. for the design, approvals, contract administration, inspection and monitoring services required for the construction of the new Southeast trunk sewer. The reasons provided for this recommendation are as follows:

- Combines the strengths of the two companies.
- Confirms the tunnelling expertise of Hatch for final phase.
- Establishes a strong team for design, approvals and construction phases of project.

4.2 Options for Procurement of Construction Contracts

A number of options are being considered for procuring the necessary labour, materials and equipment of the construction phase of the new Southeast Collector Trunk Sewer. One of these options involves the use of the Tunnelling Division of the City of Edmonton to undertake all or part of the tunnelling phase of the new Southeast Collector trunk sewer construction. Among the options being considered include:

- Hiring a general contractor for the entire project to provide necessary labour materials and equipment.
- Partnering with the City of Edmonton for all or part of the tunnelling phase of the project and hiring a general contractor for the balance of the work.
- York Region undertake the project as a general contractor and partner to the extent possible with the City of Edmonton for the tunnelling component of the project and hire or negotiate with sub contractors for balance of the work.
- A combination of the above options.

Each of these options will be assessed, among other criteria, the ability to complete the new Southeast Collector construction on schedule, the risk to the Region and the ability to complete the work in the most cost effective manner. The outcome of the negotiations with the City of Edmonton and the complete procurement strategy for the new Southeast Collector will be determined and reported at a future Transportation and Works Committee meeting.

4.3 Authorization for Additional Services for Earth Tech (Canada) Inc. to Complete the IEA Phase of Project

Regional Council, at its meeting of January 20, 2005, approved the services of Earth Tech (Canada) Inc. as prime consultant in the amount of \$14, 638, 400 to complete the

IEA phase of the new Southeast Collector trunk sewer along with the detailed design, contract administration and contract inspection services. Of this amount, \$7,322,960 was allocated for the IEA phase of the project and remaining amount of \$7,315,440 was for allocated for detailed design, contract administration and contract inspection phase of the project.

At this time, it is estimated that the cost to complete the IEA phase of the project will increase to approximately \$15,000,000 primarily due to the need for more detailed field geotechnical data required by the MOE, an expanded study area, consideration of additional alternatives, increased public consultation and peer reviews and a number of additional meetings with the public, agencies, stakeholders and First Nations. Further, the original amount did not include an allowance for the analysis of the noise, vibration and odour components of the new Southeast Collector trunk sewer design as it was recognized these components could not be adequately determined at the initial proposal stage and would be determined when the preferred recommended route had been selected. Also, an allowance has been included for a pre-circulation of the IEA document to key stakeholders and to the MOE. No allowance has been included at this time for a Canadian Environmental Assessment review process under the CEAA regulations. Table 1 provides a breakdown of increased fees.

Table 1
Breakdown of Engineering Costs

Description	\$	Justification
Original IEA Amount	\$7,322,960	
Additional IEA Costs:		TOR required the extension of the Study Area
• Extended Study Area	761,906	
• Hydrogeology, Geotechnology, Archaeology,	3,176,712	Additional field surveys data for determining study area baseline conditions
• Additional Alternatives, Peer Review and Long List of Routes	444,932	New alternatives and routes determined through public consultation including additional peer reviews
• Increased Public Consultations	309,338	Additional information requested by the public necessitated producing additional working papers for the public, stakeholder and agencies
• Additional meetings with public, stakeholders and agencies	1,498,144	The number of meetings will increase from approx. 90 to over 300 at completion of the IEA phase
• Noise/Vibration/Odour	497,630	Odour Control Facility design was not included in the original proposal
• Project Controls	231,235	Additional scheduling and coordination

• Estimated Additional IEA costs to October 2008 (subject to Regional approval)	750,000	Additional cost to complete IEA submission to the MOE by October 2008
Original Design and Contract Administration	7,315,440	
Total	\$22,308,297	

As these additional services exceed the Purchasing By-law authority, it is recommended that the Purchase Order to Earth Tech (Canada) Inc. be increased from \$14,638,400 to \$22,308,297 to provide the additional funds necessary to complete the IEA phase of the project. It should be noted that included in this sum is the original allocation of 7,315,440 for the detailed design, contract administration and contract inspection services which will be renegotiated as a joint venture agreement or such other agreement(s) with Earth Tech (Canada) Inc. and/or Hatch Mott MacDonald Ltd. for the design, contract administration, construction inspection and monitoring services required for the new Southeast Collector trunk sewer as noted under Section 4.1.

5. FINANCIAL IMPLICATIONS

Funds have been included in the Capital 10 year budget as the capital funding source for the design, contract administration, inspection and construction cost.

6. LOCAL MUNICIPAL IMPACT

The new Southeast Collector trunk sewer is required to be in service by 2012 to provide the sewer capacity for the continued growth in York Region as identified in the current and planned updates to the Region's Official Plan. The planned capacity for the new Southeast Collector trunk sewer will accommodate growth in York Region to 2036 and beyond.

7. CONCLUSION

The General Manager of the Water and Wastewater Branch will report on the results of the negotiations undertaken with the City of Edmonton, Earth Tech (Canada) Inc. and Hatch Mott MacDonald Ltd. as well as an overall construction procurement strategy for the completion of the new Southeast Collector trunk sewer by 2012.

For more information on this report, contact Bala Araniyasundaran, extension 5131, Director, Capital Delivery of the Water and Wastewater Branch in the Transportation and Works Department.

The Senior Management Group has reviewed this report.

(The attachment referred to in this clause was included in the agenda for the September 5, 2007 Committee meeting.)