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CONSULTING SERVICES FEE INCREASE FOR CHANGE IN SCOPE FOR THE KENNEDY ROAD WATERMAIN PROJECT

The Environmental Services Committee recommends the adoption of the recommendations contained in the following report dated December 16, 2011, from the Commissioner of Environmental Services.

1. RECOMMENDATIONS

It is recommended that:

1. Regional Council authorize an increase in Blanket Purchase Order B00011201 issued to MMM Group Limited for detailed design, contract administration and site inspection services for the Kennedy Road Watermain Project from \$2,504,331 to \$2,950,595 excluding taxes, for additional consulting services during construction outside the original scope of work and in excess of the contingency and scope change allowances in the Purchasing By-Law.
2. The Commissioner of Environmental Services be authorized to adjust the contract administration and site inspection fee using the competitive unit price of \$1,668 per working day, excluding taxes, to match the actual construction duration in the event unforeseen future delays are encountered within the total project budget authority for this work.

2. PURPOSE

This report seeks Council authorization to increase fees for consulting services during construction outside the original scope of work for the Kennedy Road Watermain Project beyond the scope and contingency change allowances provided for in the Purchasing By-Law.

3. BACKGROUND

Environmental Assessment completed by the City of Toronto on behalf of York Region recommended 1500 mm diameter watermain on Kennedy Road installed by “open-cut” trenching

This project, as originally identified in the 2004 Water Master Plan, includes a 1500 mm diameter watermain along Kennedy Road from the Milliken Reservoir on 14th Avenue just west of Kennedy Road to Major Mackenzie Drive in the Town of Markham. The

Environmental Assessment for this watermain was completed by the City of Toronto, on behalf of the Region, in October 2007. The Environmental Assessment identified and recommended the Kennedy Road route and indicated the entire seven kilometre length of watermain from the Milliken Reservoir to Major Mackenzie Drive could be constructed by the standard 'open-cut' trenching method and construction could be accomplished without the need for ground dewatering.

Need to install approximately three kilometres of watermain by tunnelling was determined during detailed design

During the 30 per cent detailed design phase in discussions with the Region's Transportation Services Department as well as staff from the Town of Markham and factoring in past construction experiences on congested arterial roadways, it was agreed that approximately three kilometres of the total length of watermain from 14th Avenue to just north of Highway 7 should be constructed by tunnelling. This would eliminate the majority of the traffic congestion and disruption to both businesses and residents that would be encountered in this relatively dense section of the project.

Total Project Budget Authority increase from \$36 million to \$70 million approved by Council in September 2010

In the approved 2010 Ten-Year Capital Plan the project had an approved total project budget of \$36,724,000. This budget was based on the approved Environmental Assessment construction methodology of "open-cut" construction for the entire seven kilometre length of watermain. As outlined above, this methodology was changed to tunnelling for approximately three kilometres, which introduced additional construction costs that were not originally anticipated.

The proposed watermain crosses Highway 407 as well as several natural environmental features. As such, in addition to the Ministry of the Environment, other key regulators on the project include the Ministry of Transportation of Ontario and the Toronto Region Conservation Authority. During the permit application process, all three of these key regulators strongly recommended that any ground dewatering on this project should be avoided at all cost. The Ministry of Transportation of Ontario even went so far as prohibiting dewatering as a condition of their permit for the crossing of Highway 407. Given the existing ground conditions and the required depth of the proposed watermain, construction of the tunnel must be constructed by the use of an Earth Pressure Balance Tunnel Boring Machine which will eliminate the need for ground dewatering.

These above issues formed the basis of the request to increase the Total Project Budget Authority from \$36 million to \$70 million as approved by Council in September 2010.

Construction of “open-cut” watermain currently underway and construction of “tunnelled” watermain tendered in December 2011

Recognizing the need to tunnel a portion of the construction work will result in a longer design, approval and construction period. The Region decided to split the watermain construction into two contracts; open-cut construction and tunnel construction. This allowed the open-cut construction portion to be tendered and constructed earlier, while the detailed design and approval continue for the tunnel construction portion. This will also allow completion of the watermain works between 16th Avenue and Major Mackenzie Drive prior to Spring 2012 so that this portion of Kennedy Road will be fully open at the start of Transportation Services reconstruction and widening of Warden Avenue between 16th Avenue and Major Mackenzie Drive.

The contract for the open-cut construction was tendered in November 2010. Construction started in March 2011 and completion is expected in April 2012.

The contract for the tunnel construction was tendered in December 2011, with construction expected to start in March 2012 and completion expected in Summer 2013. This project is currently on schedule per the latest quarterly project status update report to Environmental Services Committee.

4. ANALYSIS AND OPTIONS

Additional activities required during detailed design phase have exhausted the majority of the scope and contingency allowances provided for in the Purchasing By-law

The major change of tunnelling almost three kilometres of the total length of watermain resulted in significant additional geotechnical investigation, detailed design and permit/approval efforts at additional cost. The current Purchase Order is now \$2,504,331 and was increased to accommodate this additional work by activating the scope and contingency allowances as provided for in the Purchasing By-law.

Out of scope contract administration and site inspection services will be required at an additional cost of \$391,980

The original Terms of Reference for this consulting assignment stipulated that the entire watermain was to be tendered under one construction contract with a total duration of 360 working days. Based on this, MMM Group’s original price breakdown included a total cost of \$600,508 for construction contract administration and site inspection. This equates to \$1,668 per working day.

The “open-cut” construction contract currently underway is estimated to be completed in a total of 250 working days of construction. The “tunnel” construction contract recently

tendered is estimated to be completed in 345 working days. As such, it is currently estimated that the entire watermain will be completed in a total of 595 working days. This is 235 working days more than anticipated in MMM Group's original bid.

As outlined above, MMM Group's prorated daily cost for contract administration and site inspection based on their original bid of \$600,508 for 360 working days equals \$1,668 per working day. Accordingly, the cost of contract administration and site inspection for the additional 235 working days equals \$391,980.

Out of scope contract administration specialized services required at an additional cost of \$54,284

Additional specialized consulting services will also be needed during the tunnel construction for contract administration and inspection services. MMM Group provided a quote of \$54,284 for this specialized service. Regional staff reviewed the quote and found it to be consistent with the required scope of work. Furthermore, since MMM Group continues to provide services on this project for the original scope of work, extending their assignment is compatible with their existing work and represents the best value to the Region for completing additional services required and mitigating delays.

Link to key Council-approved Plans

The Kennedy Road watermain is a critical component of the Region's water infrastructure, both now and into the future. The Kennedy Road Watermain Project is a key project that aligns with the Region's 2011 to 2015 Strategic Planning objective of continuing to deliver and sustain critical infrastructure.

5. FINANCIAL IMPLICATIONS

Sufficient funding available in the approved 2011 Total Project Budget Authority to complete the additional scope of work

The total project estimate is \$70,202,000. This includes the tendered price of \$23,237,831 for the open-cut construction contract, \$38,832,378 estimated cost for the tunnel construction contract, the total consultant's fee of \$2,950,595 for detailed design, contract administration and site inspection services, property cost, approval cost and the Region's project management cost. The approved 2011 Total Project Budget Authority for this project is \$70,725,000.

The total tendered and estimated construction cost for the Kennedy Road Watermain Project is \$65,174,000, including contingencies and excluding taxes. The revised total cost for consulting services for detailed design, contract administration and site inspection is \$2,950,595 representing 4.53 per cent of the total tendered and estimated

construction cost which is well within the expected cost range for this type of consulting services.

Since 2002, approximately 960 purchase orders with a total value of approximately \$1.8 billion have been issued to secure engineering, consulting and construction services on water and wastewater projects. Of these, approximately 97 or 10 per cent of the purchase orders have required increases beyond the increases allowed in the Purchasing By-Law. The total value of such increases is approximately \$85 million or 4.7 per cent of the total original value of the purchase orders.

6. LOCAL MUNICIPAL IMPACT

The Kennedy Road Watermain Project will supply water to north Markham to accommodate additional approved growth.

The new watermain is scheduled for completion in Summer 2013.

7. CONCLUSION

The additional scope of work and associated fees explained in this report are essential to complete the project by Summer 2013.

It is recommended that Blanket Purchase Order B00011201 issued to MMM Group Limited for detailed design, contract administration and site inspection services for the Kennedy Road Watermain Project be increased to \$2,950,595 excluding HST, to accommodate change in scope during construction.

For more information on this report, please contact Daniel Kostopoulos, Director, Capital Planning and Delivery, Environmental Services at 905-830-4444 Ext. 5070.

The Senior Management Group has reviewed this report.