Highland Creek Treatment Plant - Headworks and Odour Control Upgrades: Contract Award for Tender Call 346-2013 and Amendment to Purchase Order 6025318

<table>
<thead>
<tr>
<th>Date:</th>
<th>May 28, 2014</th>
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<tr>
<td>To:</td>
<td>Public Works &amp; Infrastructure Committee</td>
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<tr>
<td>From:</td>
<td>Executive Director, Engineering &amp; Construction Services Acting Director, Purchasing and Materials Management Division</td>
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<tr>
<td>Wards:</td>
<td>Ward 44 – (Scarborough East)</td>
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<tr>
<td>Reference Number:</td>
<td>P:\2014\Cluster B\TEC\PW14001 (AFS#18037)</td>
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**SUMMARY**

The purpose of this report is to: (a) advise of the results of Tender Call 346-2013, Headworks and Odour Control Upgrades at the Highland Creek Treatment Plant and request the authority to award a contract to Graham Construction and Engineering Inc. in the amount of $65,120,000.00 net of HST ($66,266,112.00 net of HST recoveries); and (b) request authority to amend Purchase Order No. 6025318 with AECOM Canada Ltd. (AECOM), for additional professional services associated with this work, by an additional amount of $3,742,608.40 net of HST ($3,808,478.31 net of HST recoveries).

**RECOMMENDATIONS**

The Executive Director of Engineering & Construction Services and Acting Director of Purchasing and Materials Management recommend that:

1. The Public Works & Infrastructure Committee, in accordance with Section 195-14C of Toronto Municipal Code Chapter 195 (Purchasing By-Law), grant authority to award Contract 13FS-16WP, Tender Call 346-2013 for Headworks and Odour Control Upgrades to Graham Construction and Engineering Inc., in the amount of $65,120,000.00 net of HST ($66,266,112.00 net of HST recoveries) having submitted the lowest compliant bid and meeting the specifications in conformance with the Tender requirements.
2. Subject to the approval of Recommendation No. 1, the Public Works & Infrastructure Committee in accordance with Section 71-11.1.C of the City of Toronto Municipal Code Chapter 71 (Financial Control By-Law), grant authority to amend Purchase Order No. 6025318 with AECOM Canada Ltd., for the provision of professional services for contract administration and site inspection services during construction of Headworks and Odour Control Upgrades by an additional amount of $3,742,608.40 net of HST ($3,808,478.31 net of HST recoveries), revising the current contract value from $1,800,268.71 net of HST ($1,831,953.44 net of HST Recoveries) to $5,542,877.11 net of HST ($5,640,431.75 net of HST Recoveries), and extend the delivery date for completion to December 31, 2019.

Financial Impact
The total amount to award Contract 13FS-16WP, Headworks and Odour Control Upgrades identified in this report is $65,120,000.00 net of HST and all applicable charges, $73,585,600.00 including HST and all applicable charges. The cost to the City is $66,266,112.00 net of HST recoveries. The engineering estimate for this project was $77,772,250.00, including HST and all applicable charges.

Amendment of Purchase Order 6025318 for an additional $3,742,608.40 net of HST ($3,808,478.31 net of HST recoveries), will increase the current contract value from $1,800,268.71 net of HST and all applicable charges ($1,831,953.44 net of HST recoveries) to $5,542,877.11 net of HST ($5,640,431.75 net of HST Recoveries), and extend the delivery date for completion to December 31, 2019.

The combined total cost to the City for the award of Contract 13FS-16WP and the amendment of Purchase Order 6025318 is $70,074,590.31 net of HST recoveries.

Funding is available in the 2014 Approved Capital Budget and 2015-2023 Approved Capital Plan for Toronto Water, for the Odour Control Upgrades project under WBS Account CWW045 Odour Control Upgrades as summarized in the table below (net of HST recoveries):

<table>
<thead>
<tr>
<th>Acct #</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
<th>Total</th>
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<tbody>
<tr>
<td>CWW045-02</td>
<td>$4,000,000.00</td>
<td>$15,000,000.00</td>
<td>$15,000,000.00</td>
<td>$15,000,000.00</td>
<td>$15,000,000.00</td>
<td>$5,574,590.31</td>
<td>$70,074,590.31</td>
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The Deputy City Manager and Chief Financial Officer has reviewed this report and agrees with the financial impact information.

DECISION HISTORY
On March 3, 4 and 5, 2008, by authority of City Council, Purchase Orders were awarded to Earth Tech (Canada) Inc. (now AECOM Canada Ltd.) for the provision of engineering services including design and contract administration during construction for the Highland Creek Treatment Plant (HCTP), Implementation of Odour Control Upgrades as a result of Request for Proposal No. 9117-07-7283. The contract for a total awarded
value of $1,211,188.71 net of all taxes, was to provide Contract Administration Services during the construction phase, which includes project management, site engineering, inspection services and office support. A copy of the Council Decision Document can be found at: 

On August 25, 26 and 27, 2010 by authority of City Council, Purchase Order No. 6025318 was subsequently amended to AECOM Canada Ltd. for additional Contract Administration Services related to the HCTP Implementation of Odour Control Upgrades, for an additional amount of $589,080.00, net of all taxes, and an extension to the completion date to October 1, 2015. This additional amount increased the total commitment from $1,211,188.71 to $1,800,268.71, net of all taxes. A copy of the Council Decision Document can be found at: 
http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2010.PW35.4

ISSUE BACKGROUND

Tender Call 346-2013 Headworks and Odour Control Upgrades was issued by the Purchasing & Materials Management Division and was advertised on the City's Internet Website on December 31, 2013.

The Purchasing & Materials Management Division, at its Public Opening held on March 26, 2014, opened the following Tenders:

<table>
<thead>
<tr>
<th>Bidders</th>
<th>Price Complete Including HST</th>
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<tbody>
<tr>
<td>Graham Construction and Engineering Inc.</td>
<td>$73,585,600.00*</td>
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<tr>
<td>Bondfield Construction Company Limited</td>
<td>$74,373,954.67</td>
</tr>
<tr>
<td>Alberici Constructors, Ltd.</td>
<td>$74,746,413.97*</td>
</tr>
<tr>
<td>Kenaidan Contracting Ltd.</td>
<td>$77,371,100.00</td>
</tr>
<tr>
<td>WCC Construction Canada, ULC</td>
<td>$77,740,927.53*</td>
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* Tender Price corrected for mathematical errors. PMMD has verified that the mathematical errors were corrected.

COMMENTS

Tender Call 346-2013 Headworks and Odour Control Upgrades
The Tender documents submitted for Tender Call 346-2013, Contract No. 13FS-16WP, Headworks and Odour Control Upgrades by the recommended bidder have been reviewed by the Executive Director, Engineering & Construction Services and have been found to be in conformance with the Tender requirements.
Engineering & Construction Services staff have compared the bids to the estimated cost and found the price of the recommended bidder of $73,585,600.00 including HST to be lower than the engineering estimate of $77,772,250.00 including HST.

The Fair Wage Office has reported that the recommended bidder has indicated it has reviewed and understands the Fair Wage Policy and Labour Trades requirements and has agreed to comply fully.

The scope of work under Contract No. 13FS-16WP, Headworks and Odour Control Upgrades, replaces the existing infrastructure which was built in 1972, and includes:

a) Construction of a new headworks building including new screening and grit removal equipment, truck loading bays for grit and screens removal and new electrical and mechanical rooms;

b) Realignment of the incoming trunk sewer to a new sewer chamber; and

c) Construction of new biofilters and odour collection network throughout the facility.

The new biofilters and odour collection network are required as part of the plant-wide odour control strategy mandated by the Ministry of Environment (MOE).

Contracted Professional Services (PO 6025318) for Headworks and Odour Control Upgrades
In 2005, the City completed the HCTP Plant Wide Odour Assessment, which recommended a series of projects to alleviate odour concerns relating to the wastewater treatment process. In 2007, the City issued an RFP with a scope based on the study recommendations, for engineering design and construction administration to implement the Odour Control Upgrades project. The scope of work in the design phase also incorporated a review of the feasibility of relocating the existing bar screens within the headworks building to the upstream side of the existing grit removal equipment to alleviate equipment fouling and facilitate odour capture and removal. The RFP included a Base Scope for Construction Contract Administration, which included two anticipated construction contracts to be carried out over a three year period between May 2008 and April 2011. The City prescribed that construction contract administration services were required for two construction contracts:

1. Electrical room upgrades: the base scope of services included for contract administration services for an estimated 6 month construction period. This work has now been successfully completed.

2. Odour Control Upgrades: the base scope of services included contract administration services for an estimated 18 month construction period.

The contract for the engineering design and contract administration for these projects was awarded to Earth Tech Canada Inc. (now AECOM Canada Ltd.).
During the preliminary design phase of the Odour Control Upgrades, the project team consisting of City and consultant staff collectively completed a comprehensive evaluation of the facility condition based on the original scope of work including the alternative to relocate the bar screens. The results of this evaluation showed that the construction of a new headworks building consisting of new raw sewage screens and grit removal systems would provide the City with the best long-term solution and meet all of the MOE requirements. Accordingly, Purchase Order Nos. 6025317 and 6025318 were subsequently amended so that AECOM Canada Ltd. could provide the required additional professional engineering services for design and Contract Administration Services related to the HCTP Implementation of Odour Control Upgrades. Under the Purchase Order amendments for Construction Contract Administration Services, fees for the Odour Control Upgrades contract were extended to cover an estimated 30 month (130 week) construction duration, and the City requested site inspection services for the equivalent of 1 and ½ full-time staff.

However, given the increased complexity and imposed schedule constraints as a result of the Site Plan Approvals, a longer construction schedule is now required to complete the work. The bid from Graham Construction includes their agreement to complete the work within 48 months (208 weeks), which therefore requires an extension in contract administration services provided by AECOM Canada Ltd..

An amendment to Purchase Order No. 6025318 for services during construction is required for reasons which are described in more detail as follows:

1. **Additional requirement for Environmental and Site Plan Professionals during Construction**
   At the conclusion of the detailed design phase, an application for a Building Permit was submitted. In response, City Planning advised that the sewer realignment triggered Site Plan Approval due to an unavoidable but minor encroachment upon Toronto Regional Conservation Authority (TRCA) controlled lands. In addition, City Planning mandated that a site-wide assessment be performed due to the elapsed 20 year-period since formal site planning had been undertaken on this site. In the execution of the Site Plan development, numerous internal stakeholders were consulted, and input was obtained from the TRCA and Ministry of Tourism and Sport (for archeological input).

   In order to obtain Site Plan approval, it was necessary to accommodate the requirements of the various stakeholders, resulting in the scope of work being expanded and work constraints imposed in the tender documents. The most significant constraints stipulated in the contract documents for work performed in the environmentally sensitive areas include the following:

   a) Strict adherence to grading plans and tree removals are critical as there is a maximum penalty of $100,000 per offence for non-compliance.
b) Scheduling of construction activities to take into consideration restrictions for bird breeding and fish spawning. These impose schedule limitations and risks on the contractor, extending construction duration beyond what was originally envisioned.

c) Natural environment destruction, temporary control measures (i.e., water movement), and ultimate restoration with approved planting plans of native plants must be supervised closely.

d) Erosion control and temporary stormwater management measures must be inspected frequently.

e) Dewatering during construction in TRCA lands is incredibly sensitive and will require a near full-time presence by environmental professionals to ensure there are no adverse effects on the natural environment from water taking or water discharge.

f) Coordination of a "public art" piece for the site.

As part of the Site Plan Approval process, commitments were made requiring specialists from AECOM to supervise and pro-actively manage and coordinate (with the contractor) all construction activities that impact the natural environment or deal with any component of the extensive Site Plan. These are specialty skills that do not reside in the skill-set of construction site inspectors working on behalf of the consultant's contract administration team.

The recommended additional requirement for environmental and Site Plan professionals during construction has a fee impact of $247,599.94 (net of HST Recoveries).

2. Additional Contract Administration Services Due to Increased Complexity

The City's RFP stipulated contract administration services during construction comprising of one full time intermediate level and one half-time junior level inspector. However, recent contract management experience within ECS for complex facility upgrades at Toronto Water's facilities has indicated that this staffing level is insufficient to properly manage on-site construction. The increased complexity of this project poses operational challenges associated with construction sequencing that require a contract administration team with significant construction experience to effectively manage this complicated construction project.

At the request of the City, AECOM augmented and adjusted the composition of their construction contract administration service levels to respond to the specific needs of this project. It is now proposed that AECOM's contract administration team include one full time contract administrator along with the equivalent of two full-time site
specialized inspection personnel who are critical to effectively manage and oversee the work in the discipline areas of process, odour control, structure, building mechanical, instrumentation, electrical and architecture.

The contract administration team will also require the following additional support services:

- A part time commissioning specialist to manage the integration of the newly constructed systems with existing systems, thus ensuring that plant processes and electrical infrastructure are maintained without interruption.
- Part time instrumentation and controls specialists with a full understanding of the requirements of Toronto Water's Process Control Systems (PCS) standards and the increased complexity and effort required for review of contractor document submissions.

Services as defined herein are similar to recently awarded construction contracts and are now standard levels of services being prescribed in newly issued RFPs for similar types of work.

The recommended changes to the site staff have a fee impact of $1,437,394.09 (net of HST Recoveries).

3. Additional Project Management and Office Support
   The increased complexity of the project as described in items 1 and 2 above will require an increase in office support and schedule management services.

   The additional project management and schedule management services will have a fee impact of $111,620.90 (net of HST Recoveries).

4. Additional Contract Administration Services Due to Extended Contract Duration
   The bid from Graham Construction and Engineering Inc. for Contract 13FS-16WP, Tender Call 346-2013 includes their agreement to complete the works within 48 months (208 weeks) from the date of the written Order to Commence, which results in a request for an extension in contract administration services, provided by AECOM, for an additional 18 months (78 weeks). This represents a 60% increase in contract duration from the original estimate of 30 months (130 weeks). The increased contract duration will have a fee impact of $1,241,390.59 (net of HST Recoveries).

5. Contract Rate Escalation
   For reasons beyond AECOM's control, the tender for Headworks and Odour Control Upgrades has been delayed by approximately four years. In accordance with the engineering agreement, AECOM is eligible for hourly labour rate escalation adjustment, effective April 1, 2014, due to the extension of the contract beyond March 31, 2014. The additional funding required due to rate escalation effective April
1, 2014, is $261,672.79 including disbursements and net of HST Recoveries, based on the revised contract duration and a rate adjustment equal to the current consumer price index (CPI) plus 2% per year.

The total additional contract administration fees required based on items 1 to 5 above is $3,299,678.31 (net of HST Recoveries).

Further, if the construction duration extends beyond 208 weeks, which has been agreed by the contractor, AECOM’s maximum weekly rate for professional services provided by the contract administration team will be $18,145.11 (net of HST) inclusive of general office administration and including all disbursements for services during construction.

A Contingency Allowance of $508,800.00 (net of HST Recoveries) is also being requested to accommodate any additional professional engineering services that could arise during construction. At the weekly rate noted above, this contingency will accommodate approximately 28 weeks of potential construction extension.

In summary, the total additional professional services fees for contract administration and site inspection services during construction for the Headworks and Odour Control Upgrades contract is $3,808,478.31 net of HST recoveries.

**CONTACT**

Nancy Bonham, M.Eng., P.Eng.  
Acting Director, Capital Works Delivery  
Engineering & Construction Services  
Tel: 416-338-2851  
e-mail: nbonham@toronto.ca

Allison Phillips  
Acting Manager, Professional Services  
Purchasing & Materials Management  
Tel: 416-397-4825  
e-mail: aphilli2@toronto.ca

**SIGNATURES**

Executive Director  
Engineering & Construction Services

Victor Tryl  
Acting Director  
Purchasing & Materials Management