

Amendment to Purchase Order Number 6052413 with AECOM Canada Ltd., for Professional Engineering Services Associated with Construction Contract Administration for the Disinfection and Electrical Upgrades Project at the Highland Creek Treatment Plant

Date: April 17, 2024

To: General Government Committee

From: Chief Engineer and Executive Director, Engineering and Construction Services and Chief Procurement Officer, Purchasing and Materials Management

Wards: 25 (Scarborough-Rough Park)

SUMMARY

The purpose of this report is to request authority to amend Purchase Order Number 6052413 issued to AECOM Canada Ltd., to provide continued construction contract administration services for the Disinfection and Electrical Upgrades Project at the Highland Creek Treatment Plant, awarded under Request for Proposal 9117-16-7107.

The amendment is required due to unforeseen site conditions encountered during construction resulting in an extension to the construction completion date.

The total value of the Purchase Order Amendment being requested is \$691,800 net of all applicable taxes and charges (\$703,976 net of Harmonized Sales Tax recoveries), revising the current Purchase Order value from \$1,643,077 net of all applicable taxes and charges (1,671,995 net of Harmonized Sales Tax recoveries) to \$2,334,877 net of all applicable taxes and charges (\$2,375,971 net of Harmonized Sales Tax recoveries).

RECOMMENDATIONS

The Chief Engineer and Executive Director, Engineering and Construction Services and the Chief Procurement Officer, Purchasing and Materials Management recommend that:

1. The General Government Committee, in accordance with section 71-11.1C of the City of Toronto Municipal Code Chapter 71 (Financial Control Bylaw), grant authority to

amend Purchase Order 6052413 issued to AECOM Canada Ltd., to provide additional professional engineering services associated with construction contract administration for the Disinfection and Electrical Upgrades Project at the Highland Creek Treatment Plant by increasing the value by \$691,800 net of all applicable taxes and charges (\$703,976 net of Harmonized Sales Tax recoveries), from \$1,643,077 net of all applicable taxes and charges (\$1,671,995 net of Harmonized Sales Tax recoveries) to \$2,334,877 net of all applicable taxes and charges (\$2,375,971 net of Harmonized Sales Tax recoveries), and extend the delivery date from December 30, 2024 to June 27, 2025.

FINANCIAL IMPACT

The total value of the Purchase Order Amendment is \$703,976 net of Harmonized Sales Tax recoveries. This will increase the Purchase Order value from \$1,643,077 net of all applicable taxes and charges (\$1,671,995 net of Harmonized Sales Tax recoveries) to \$2,334,877, net of all applicable taxes and charges (\$2,375,971 net of Harmonized Sales Tax recoveries)

Funding for this Purchase Order Amendment is included in the Toronto Water Approved 2024 Capital Budget and 2025-2033 Capital Plan under WSB Element CWW036-10. Funding details are summarized in Table 1 (net of Harmonized Sales Tax recoveries) below:

Table 1: Financial Impact Summary of Purchase Order 6052413 Amendment

WBS Element	2024	2025	Total
CWW036-10	\$490,000	\$213,976	\$703,976

The Chief Financial Officer and Treasurer has reviewed this report and agrees with the financial impact information.

DECISION HISTORY

At its meeting held on July 5, 2017, the Bid Award Panel adopted the recommendations in the staff report from the Director of Purchasing and Materials Management dated June 28, 2017 and approved Item [2017.BA30.10](#), authorizing award of Request for Proposal 9117-16-7107 for the provision of engineering services for design, construction administration, and post construction services for the Disinfection and Electrical Upgrades Project at the Highland Creek Treatment Plant to AECOM Canada Ltd. A copy of the Bid Award Panel decision can be found at: [Agenda Item History - 2017.BA30.10 \(toronto.ca\)](#)

At its meeting held on August 25, 2021, the Bid Award Panel adopted the recommendations in the staff report from the Chief Procurement Officer dated August 19, 2021 and approved Item [2021.BA150.2](#), authorizing award of Contract 21ECS-MI-01HC, Ariba Doc Number 2938280996, for the Disinfection and Electrical Upgrades Project at the Highland Creek Treatment Plant to Bennett Mechanical Installation (2001) Ltd, having submitted the lowest compliant bid and meeting the specifications in conformance with the Tender requirements, in the amount of \$23,337,700 net of all applicable taxes and charges (\$23,748,444 net of Harmonized Sales Tax recoveries). A copy of the Bid Award Panel decision can be found at: [Agenda Item History - 2021.BA150.2 \(toronto.ca\)](#)

COMMENTS

BACKGROUND

The Highland Creek Treatment Plant is one of four wastewater treatment facilities operated by the City of Toronto. The Highland Creek Treatment Plant provides complete treatment of municipal wastewater, including incineration and odour control.

In 2017, Engineering & Construction Services, on behalf of Toronto Water, retained AECOM Canada Ltd., through a competitive bid process to provide the preliminary and detailed design, construction contract administration, and post construction services for the Disinfection and Electrical Upgrades Project. The project involves upgrades to the chlorination and de-chlorination system, south effluent pumping station, boiler building, grounds-keeping shop, plant stores building, tunnel utility and old head house emergency power, and outfall cleaning and removals.

The Disinfection and Electrical Upgrades Project, contract 21ECS-MI-01HC, was awarded to Bennett Mechanical Installation (2001) Ltd., on August 25, 2021. The Order to Commence was issued on November 22, 2021. Based on the tendered substantial completion time of 685 calendar days, the original substantial completion date of the contract was October 10, 2023.

During construction, a number of unforeseen site conditions impacted the contract completion date. A summary is as follows:

1. The Ravine and Natural Feature Protection Permit Amendment:

During construction, field verification of the tree locations and the review of the marked-out grading limit of the south access road along with contractor's excavation plan were completed. The number of impacted trees identified during this site verification was found to be slightly different from the tree inventory data included in the original arborist report prepared during the design phase. As a result, permit amendment was required. The requirement of this permit amendment delayed the construction of the south access road and the Disinfection Building.

2. Air Treatment Building and Disinfection Building:

Wall Crack Repairs: After removal of the existing brick veneer from the Air Treatment Building wall, wall cracks were observed in the underlying block wall. Additional time was required to complete the crack repairs.

Additional concrete pour efforts: The contract scope included expansion of the existing Air Treatment Building as part of the Disinfection Building construction. Voids were discovered between the existing concrete masonry unit and the brick veneer on the east wall. The existing brick veneer was required to be removed and the existing concrete masonry units were to be stabilized to resist load from the Disinfection Building concrete pours. Furthermore, additional concrete pours for the Disinfection Building walls were required in order to reduce the live load of concrete on the existing wall.

3. Plant Stores:

Investigation and remediation of the existing backfill material in the Plant Stores building: It was found during construction that the existing backfill material below the floor slab was extremely wet and unstable. Remediation of the backfill material was required to support the new office wall footing and the restoration of the existing floor slab was required to ensure the long-term use of the refurbished Plant Stores. This delayed the construction in the Plant Stores area.

Composite roof slab interference with the existing window: The field measurement of the height of the existing window ledge revealed that the new office composite roof slab terminated into the existing window. Modifications to the composite roof slab installation were needed to ensure that the roof slab could be mounted properly without interference with the window. This further impacted construction in the Plant Stores area.

The contractor submitted requests for a contract time extension due to delays associated with the unforeseen site conditions described above. Based on the consultant's detailed schedule analyses and review of the delay events, a contract time extension will be required.

Furthermore, additional engineering services during construction were required for the following in order to address unforeseen site conditions encountered and improve safety, operation and maintenance:

- a) South effluent pumping station sump pumps replacement: During the construction phase, the Plant staff noticed that the existing standby sump pumps in the south effluent pumping station basement were not working and the duty sump pump was weak and unreliable. It was necessary to replace these two sump pumps to avoid potential flooding in the basement. Engineering effort was required to develop the specifications for the pump replacement.
- b) Leak detection chamber installation: During the excavation work for the base scope leak detection chamber, effluent water leakage was noted around the excavation area.

Actions were required to address the spill and it was also required to repair the source of leakage before the installation of the leak detection chamber. Additional engineering support was required to investigate the leakage source and to provide an engineering solution to repair the leak location.

c) Plant Stores: AECOM Canada Ltd., was required to provide engineering solutions to address the poor soil condition underneath the existing floor slab. In addition, it was discovered during construction that the existing concrete masonry wall was comprised of multiple wythes, which required a different steel lintel configuration. Also, the existing wall at the west corner was found to have bulging and cracks. Restoration of the existing brick veneer required additional engineering design.

d) Digester gas process control review and operations support: Base scope of the construction work included upgrades to the plant boilers and commissioning the boilers with the digester gas. Recently, the Plant has experienced reliability issues with the controls of the booster compressors which is impacting the operations of booster compressors to send digester gas to the boiler building. Engineering support is required to develop a solution.

e) E-Learning module review supports: The Plant staff is required to be trained to properly operate and maintain the system and the equipment installed under this contract. The pilot E-learning training module was not part of the Request for Proposal base scope. The self-paced E-learning training module will provide flexibility to train the operation staff. Additional engineering efforts are required to review the E-learning module submittals to ensure that the training modules are in compliance with the City E-learning requirements.

f) Development of validation plans to comply with the Environmental Compliance Approval requirements: Amended Environmental Compliance Approval for Highland Creek Treatment Plant requires the submission of the validation plan and the testing report for the new chlorination simulation system constructed under this project. The validation plan was a condition imposed by the Ministry of the Environment, Conservation and Parks. The specific requirements were unknown at the time of the Request for Proposal. Additional engineering efforts will be required to develop the validation plan.

To accommodate the extended duration of the construction and to ensure necessary contract administration services during the extended period as well as to cover the cost of additional engineering services for the added scope described above, the consultant requested approval of additional fees.

Amendment for Purchase Order Number 6052413 for Construction Services:

Request for Proposal 9117-16-7107, for the engineering services associated with construction contract administration for the Disinfection and Electrical Upgrades Project at the Highland Creek Treatment Plant stipulated a 104-week construction schedule

based on the City's experience with previous, similar wastewater treatment plant refurbishing contracts.

Accordingly, AECOM Canada Ltd., included fees for contract administration services for 104 weeks as well as a provisional allowance to cover for additional 24 weeks of contract administration services.

Based on the order to commence date of November 22, 2021, the base construction services and provisional construction services will end on May 7, 2024.

AECOM Canada Ltd. submitted a Request for Change quotation, for \$594,500.00 net of all taxes and charges for the provision of additional engineering services resulting from an extension to the construction contract and added scope during construction for the reasons noted above.

The requested fees include \$333,500, net of all taxes for 29 weeks of additional contract administration services from May 8, 2024, to November 29, 2024, (estimated substantial completion date); \$46,000, net of all taxes for 8 weeks of additional contract administration services for the works to be completed to achieve final completion. An amount of \$215,000, net of all taxes is also required to cover the cost of additional engineering services during construction for the added scope resulting from the unforeseen site conditions as well as requested by the plant to address operational and maintenance concerns. The fees for extended contract administration services are in line with the weekly rate from AECOM Canada Ltd.'s original Proposal.

The total Purchase Order Amendment being requested is \$691,800 (net of all taxes and charges), which will increase the value of Purchase Order Number 6052413 from \$1,643,077 to \$2,334,877 net of all applicable taxes and charges.

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SIGNATURE

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