



STAFF REPORT INFORMATION ONLY

Coxwell Sanitary Trunk Sewer Emergency Repair - Contract Award for By-pass Sewer Tunnel

Date:	May 3, 2010
To:	Public Works and Infrastructure Committee
From:	General Manager, Toronto Water
Wards:	Ward 29
Reference Number:	P:\2010\Cluster B\TW\pw10013

SUMMARY

This report provides an update on the progress made in advancing the construction of a permanent by-pass tunnel around the damaged section of the Coxwell Sanitary Trunk Sewer (the "CSTS"); and emergency measures which have been implemented should the CSTS fail prior to construction of the permanent by-pass.

Financial Impact

There are no financial implications resulting from receipt of this report.

DECISION HISTORY

City Council at its meeting of January 27 and 28, 2009, authorized the General Manager, Toronto Water, to retain the various professional and engineering consultants and to procure the various goods and/or services to undertake the engineering design and the construction of physical works to support the implementation of emergency works necessary to address the damaged section of the CSTS. The General Manager was also authorized, subject to certain conditions, to negotiate, and execute on behalf of the City the terms of these agreements with such consultants. A copy of the Council Decision Document can be found at:

<http://www.toronto.ca/legdocs/mmis/2009/cc/decisions/2009-01-27-cc30-dd.pdf>

At the May 20, 2009, Public Works and Infrastructure Committee the General Manager, Toronto Water, presented an information report providing an update on the progress

made in contingency planning, activities and various options being considered in advancing the work required to address the damaged section of the CSTS. A copy of the May 20th report can be found at:

<http://www.toronto.ca/legdocs/mmis/2009/pw/bgrd/backgroundfile-21457.pdf>

At the October 6, 2009, Public Works and Infrastructure Committee the General Manager, Toronto Water, presented a follow up information report on the progress made on the various activities being undertaken to address the damaged section of the CSTS and the selection of a by-pass tunnel around the damaged section of the CSTS as the permanent solution. A copy of the September 21st report can be found at:

<http://www.toronto.ca/legdocs/mmis/2009/pw/bgrd/backgroundfile-23800.pdf>

This report serves to provide an update on the status of the permanent by-pass tunnel and the other various activities, schedule and costs associated with the remediation of the CSTS.

ISSUE BACKGROUND

During an inspection of the CSTS, significant damage was found to about 60 metres of pipe located beneath Barbara Crescent, north of the intersection of Coxwell Avenue and O'Connor Drive. While the initial inspection, as well as subsequent additional inspections, of the sewer shows that it is working as it should, with no backups or flow restrictions, the severity of the observed distress is such that the potential for blockage cannot be ruled out should there be further deterioration or a collapse of the sewer.

As reported to Public Works and Infrastructure Committee on October 6, 2009 staff explored and evaluated a number of temporary and permanent by-pass options while also continuing to monitor the status of the CSTS. Given the associated site constraints, high flow conditions, and timelines and costs, it was concluded that temporary measures or internal repairs were not feasible and that a permanent bypass tunnel around the damaged section of the CSTS, extending from about the confluence of the Don River and Taylor-Massey Creek to the intersection of Coxwell Avenue and O'Connor Drive, should be designed and constructed as expeditiously as possible. A design-build approach was selected to reduce the delivery schedule by overlapping the design and construction phases of the bypass. The consulting engineering firm Hatch Mott MacDonald (HMM) was retained, through a competitive process, as the Owner's Engineer, to act as an agent on behalf of the City, to prepare a preliminary design for the bypass, and to administer the design-build contract.

In parallel, work also proceeded, on an emergency basis, on the implementation of monitoring programs to detect changes in the condition of the CSTS, and on measures to control the discharge of sewage and help mitigate the environmental impacts in the event the CSTS were to collapse.

COMMENTS

The following presents an update on the construction of the permanent by-pass tunnel and other related activities outlined in the information report to the October 6, 2009, Public Works and Infrastructure Committee.

Permanent By-Pass

A two phase competitive procurement process was used to select the design-build team, for the engineering design and construction of the permanent by-pass tunnel. In order to ensure that only firms with relevant experience and sufficient qualifications on both the design and construction phases were considered, a pre-qualification process was undertaken that resulted in the following three proponents being deemed eligible to bid on the project:

- Dibco Underground Limited;
- McNally Construction Inc.; and
- Technicore Underground Inc.

Subsequently, a Request For Proposals (RFP) was issued on December 9, 2009, and Proposals from the three pre-qualified firms were received on January 18, 2010.

In compliance with the RFP Terms of Reference, each submission included a detailed technical proposal and a separate sealed envelope containing their cost proposal. The selection process stipulated that the cost proposal envelopes would not be reviewed by the selection committee until the evaluation of the technical proposals had been completed. All technical submissions were evaluated and scored, by the selection committee consisting of staff from Toronto Water, Technical Services and HMM. The technical proposal of Dibco Underground Limited did not meet the threshold score as stated in the RFP, and their separate cost proposal envelope was not reviewed. The technical proposal scores of the other two proponents exceeded the threshold score and their separate cost proposal envelopes were opened and reviewed. On completion of the proposal review process, it was recommended that McNally Construction Inc. be retained as the Design-Build Contractor for this project as their proposal was ranked first with the highest overall point score and the lowest cost of services.

The design-build contract was awarded to McNally Construction Inc. on April 15, 2010, in the amount of \$31,229,500.00 (net of GST).

Detailed design and site preparation has started and construction of the permanent by-pass sewer is expected to commence in early May 2010 and be completed in January 2011.

The proposed alignment is located within property owned by the Toronto and Region Conservation Authority (TRCA), Hydro One, and two private property owners. Staff are proceeding with negotiations to secure the necessary easements.

Emergency Contingency Measures

All the emergency modification to the Don Sanitary Trunk Sewer to help mitigate the impacts in the event of a partial or full collapse of the CSTS have been implemented.

The assessment and field testing of the contingency treatment measures, which include installing trash nets to capture floatables at the outlets of the overflow chambers; diversion of additional flow through the North Toronto Treatment Plant (NTTP); and use the Keating Channel (at the mouth of the Don River) as a primary treatment facility with disinfection, to address the water quality impacts in the Don River and waterfront, in the event of a collapse of the CSTS, have been completed.

The results of the field tests and through further discussion with the Ontario Ministry of the Environment, it has been determined that, due to the lengthy implementation schedule, the disruption to the community and operational requirements, implementation of the trash netting option was not feasible.

Further, as the additional flow that could be routed and treated at the NTTP represents only about 10% of the average dry weather flow in CSTS, the option of directing more flow to the NTTP will have an insignificant impact on the water quality in the Don River and the waterfront. Therefore, flows beyond those defined in the Certificate of Approval for the NTTP, will not be diverted to the NTTP. The plant will, however, continue to provide secondary treatment with disinfection for average daily flows in accordance with its Certificate of Approval.

The design of emergency treatment works within the Keating Channel consisting of: disinfection equipment, spill containment booms to capture floatables, a submerged curtain wall to contain settled sludge, dredging to remove settled sludge, and skimmers to remove floating debris, has been completed. Provisions have been made for the implementation and operation of these works, should they be necessary.

Monitoring Program

Toronto Water has implemented a comprehensive monitoring program consisting of flow level, ground subsidence, and sewer condition monitoring, to track any changes associated with the damaged CSTS; and to help provide early warning should conditions deteriorate. The flow level monitoring program has shown conditions to be stable with no deterioration in system hydraulics. The data obtained from the ground monitoring extensometers has not indicated any large scale movement.

Communications with Local Residents, Regulatory Agencies and other City Divisions

Regular contact is provided with local residents, councillors and other impacted City Divisions to inform them of the situation and ongoing activities. The Emergency Management Working Group Meetings continues to include the CSTS as an agenda item.

Also, ongoing dialogue is being maintained with the regulatory agencies (Ontario Ministry of the Environment, Toronto and Region Conservation Authority; and the Federal Department of Fisheries and Oceans).

A Summary of Procurement Taken to Date

The following Purchase Orders, including pending amendments, in the total amount of \$36,630,006.80 (net of GST) have been issued to obtain professional engineering and legal services to secure the performance of necessary emergency work required as a direct result of the damaged CSTS:

- a) Additional inspection to assess extent of damage - \$157,680 (M.E. Andrews & Associates Limited and D.M. Robichaud Associates Ltd.);
- b) Screening analysis of available options - \$400,000 (MMM Group Ltd.);
- c) Property condition assessments and settlement monitoring in area of damaged Coxwell STS - \$400,000 (MMM Group Ltd. and Golder Associates);
- d) Geotechnical investigation and assessment of permanent relief sewer constructability - \$500,000 (MMM Group Ltd. and Golder Associates);
- e) Preliminary design of temporary sewage bypass pumping system - \$138,440 (R.V. Anderson Associates Ltd.);
- f) Inspection of other priority/critical trunk sewers in the City's system and screening of unsolicited repair offers - \$290,000 (Andrews Infrastructure) - to be amended for an additional \$300,000 for additional inspections of the CSTS (Andrews Infrastructure);
- g) Review of alternative by-pass/treatment options - \$497,700 (CH2M Hill Canada Limited) amended for an additional \$40,000 for pilot testing of trash nets (CH2M Hill Canada Limited) and \$200,000 for detailed design;
- h) External legal services - \$300,000 (Borden Ladner Gervais LLP);
- i) Flow level monitoring upstream and downstream of damaged section of CSTS - \$70,550.00 (Clarifica Inc.);
- j) Helicopter charter service - \$4,100.00 (National Helicopters Inc)
- k) Archaeological Review - \$5,250.00 (Toronto Region Conservation Authority)
- l) Supply and delivery of an 18" oil containment boom - \$23,436.00 (Pigmalion Services Group Inc)
- m) PVC coated sack gabions - \$10,215.98 (MacCaferri Canada Limited)
- n) Material for 70 foot span Acrow Panel Bridge - \$102,000.00 (Acrow Bridges)
- o) Bank restoration of East Don River in Woodgreen Park - \$82,500.00 (Sernas Associates)
- p) Appraisal reports - \$3,095.72 (Bosley Farr Associates Ltd) and \$1,440.00 (Approved Appraisal Services)
- q) Subsurface location of the Coxwell STS and alignment hole - \$20,000 (TSH/TBE)
- r) Miscellaneous materials and equipment - \$220,331.10 (various sources)
- s) Construction of Massey Creek Sanitary Trunk Sewer Emergency Overflow - \$309,120.00 (Utility Force Inc.);
- t) Competitively-bid consultant assignment for preliminary design of the CSTS Bypass Tunnel, and contract administration services during detailed design and construction of the Bypass Tunnel in the amount of \$1,324,648 (net of G.S.T.) was awarded to Hatch Mott MacDonald; and,

- u) Design-Build of the permanent by-pass sewer tunnel around the damaged section of the CSTS in the amount of \$31,229,500.00 (net of GST) was awarded to McNally Construction Inc.

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SIGNATURE

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