



# MEMO

**To:** Civic Works Committee

**From:** John Braam, P. Eng.  
Managing Director of Environmental & Engineering  
Services & City Engineer

**Date:** August 26, 2015

**Re: Burbrook Trunk Storm Sewer Project Award,  
August 24, 2015 Civic Works Committee, #2**

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At the Civic Works Committee meeting of August 24<sup>th</sup>, 2015, Committee members made inquiries about the increase in the bid submission by the Contractor Ward and Burke (W&B) over the estimate of cost prepared by the Engineer, Hatch Mott MacDonald (HMM). Staff have reviewed the Engineers estimate of cost with the consulting Engineer and identified elements of cost differences between Engineers estimate and the contractor's bid proposal. The following provides additional detail in response to the questions at CWC and concludes with staff recommendations.

***Further details of the Engineers Estimate and the reported 7% project cost increase over that estimate.***

It is our understanding that the Engineer's Estimate was completed using costs from recent, competitively-bid projects in the Greater Toronto Area (GTA), with the majority of bids submitted by (GTA-based) contractors and subcontractors. It is important for the success of the project that W&B use a subcontracting team that they have used in the past and have a strong and successful working relationship with. For the Burbrook project, W&B and other GTA-based subcontractors included additional costs for travel, lodging of workers, etc. The Engineer's Estimate was also based off the low bid of a tender submission, as opposed to the average submission or the specific submission provided by W&B. The Engineer's Estimate was based off a preview tender submission for a project located in the GTA, and did not include additional costs associated with transporting to equipment to London. These costs show up as change in the unit rates for the construction but are not readily discernable as a lump sum cost.

The most significant deviation of the submission noted was due to the Engineer's Estimate for a specific secant pile shaft (Estimated at \$245,000 and bid at \$783,000 a difference of \$493,000 or 5.7% of the 7.4% over Engineers estimate). A secant shaft typically surrounds each launch and retrieval pit (4) and provides a nonstructural enclosure needed to construct the pits. Following construction of the pit, the secant shaft is typically cut off well below grade and residual concrete of the secant shaft remains in place. An additional secant shaft was designed to enable the connection of the existing pipe to the pipe located at the retrieval pit. This secant shaft was designed as a structural shaft and becomes a permanent access maintenance hole at the connection to the existing installed storm sewer. The allowance identified in the Engineers estimate was \$245,000 (cost of a standard secant shaft) and as noted earlier, the item is unique and separately identified at a cost of \$783,000 in the bid submitted.

The Engineer's Estimate did not specifically include additional costs to compensate for cold weather operations. The Constructor's bid includes:

- Tunnelling operations required to be undertaken on a 24/7 basis to avoid stop/start-up conditions, and the associated freezing of slurry lines and other equipment.
- 24/7 operation and supply of enclosures and heating
- Overtime costs and night shift premiums associated with 24/7 operations.

These costs show up as change in the unit rates for the construction but are not readily discernable as a lump sum cost.

***Is it possible to move the project to a spring construction start date?***

Yes it is possible, but unfortunately there is no guarantee that the tunnel boring machine will be available for a spring start unless the City is prepared to accept a holding charge (\$390,000 per month) for the equipment. The holding charge would more than off-set any savings related to working in warmer weather. Should the Committee and Council direct staff to develop an alternative project timeline, the tender will be subject to renegotiation and there is no guarantee that costs would be lower. It is the opinion of staff that costs for the project would be higher as we would be competing with other proposed tunneling projects.

***What would the estimated cost impacts to the project in rescheduling to spring?***

We do not have any costs estimates beyond those noted. As noted above, project costs for a spring start would need to be renegotiated and we would place ourselves in a position of competing with other projects that W&B are bidding on.

This tunneling project provides the "missing links" for the main storm trunk to be in place by spring 2016; delay would cause a ripple effect to related capital works projects (Appendix C of the CWC report). Related works are needed to separate combined sewer systems which will in turn help relieve basement flooding issue.

***Staff Recommendation***

The core values of this project to ensure success, included how best to manage and mitigate risk, ensure the best team is retained (consultant and contractor), and match design with construction technology in minimizing risk. Our project has been specifically designed to utilize this particular consultant, contractor, and equipment (MTBM). Should Committee and Council provide direction to forego this scheduled opportunity there will be no guarantees to when the equipment will be available again, and what the new negotiated project costs will be. Staff recommends approval of the project award at this time.

Sincerely,

John Braam P. Eng  
Managing Director Environmental and Engineering Services and City Engineer

cc John Lucas, Director, Water, Wastewater & Treatment  
Tom Copeland, Manager, Wastewater & Drainage Engineering