



Clause No. 12 in Report No. 5 of the Committee of the Whole was adopted, without amendment, by the Council of The Regional Municipality of York at its meeting on March 27, 2014.

**CONSULTANT SERVICE FEE INCREASE FOR ADDITIONAL SCOPE FOR
MATERIAL TESTING AND INSPECTION ON WARDEN AVENUE
FROM 16TH AVENUE TO MAJOR MACKENZIE DRIVE, CITY OF MARKHAM**

Committee of the Whole recommends adoption of the following recommendation contained in the report dated February 18, 2014 from the Commissioner of Transportation and Community Planning:

1. RECOMMENDATION

It is recommended that:

1. Council authorize the agreement between the Region and DBA Engineering Ltd. for material testing and inspection for the construction of improvements to Warden Avenue (Y.R. 65) from 16th Avenue (Y.R. 73) to Major Mackenzie Drive (Y.R. 25) in the City of Markham, be amended to increase the contract price, within the Capital Spending Authority for this project, from \$84,205 to \$171,941, excluding HST, as a result of an unanticipated increase in the work during construction.

2. PURPOSE

This report seeks Council authorization to increase Blanket Purchase Order No. B00014354 with DBA Engineering Ltd. for material testing and inspection for the construction of improvements to Warden Avenue from 16th Avenue to Major Mackenzie Drive in the City of Markham (see *Attachment 1*). The increase in the scope of work is necessary to address the additional geotechnical engineering, material testing and inspection services required as a result of poor soil conditions experienced along the corridor.

As the additional fees being requested exceed the staff authorities provided for in the Region's Purchasing Bylaw, Council approval is required for this increase.

3. BACKGROUND

The construction of improvements to Warden Avenue from 16th Avenue to Major Mackenzie Drive is ongoing

As part of the 2013 -10 Year Roads Construction Program, this section of Warden Avenue was identified for widening and reconstruction. The contract for construction was awarded to Graham Brothers Construction in November of 2012. The construction work is scheduled to occur over a two-year period and started in the spring of 2013. The works under the corridor improvement contract include the following major elements:

- Road widening from two lanes with a rural cross-section to four lanes with an urban cross-section including turn lanes, storm sewers and traffic signals
- The replacement of the existing corrugated steel pipe culverts at three water crossings with three large bridge structures and associated retaining walls and stream restoration
- Noise attenuation barriers where required
- Concrete sidewalk, multi-use path and street lighting for the City of Markham

To facilitate the construction of the three large bridge structures, Warden Avenue was closed from June 2013 to December 2013. By closing the road, the Region was able to facilitate the construction of the large bridge structures at a faster pace, reduce impacts to the adjacent environment and reduce the project costs associated with a more prolonged construction period.

Several challenging issues were addressed during construction in 2013. These challenges included poorer than expected existing ground conditions, construction constraints associated with endangered Redside Dace fish habitat and the extreme weather conditions through the summer and winter of last year. Despite these challenges, all 2013 construction milestones having been achieved, the project remains on schedule for completion by the end of 2014. Project construction has stopped for the winter and will re-commence in the spring of 2014.

An engineering firm was contracted to provide material testing and inspection services for the road construction and structural work

A contract to undertake material testing and inspection for road construction and structural work on this project was awarded to DBA Engineering Ltd. (DBA) in April 2013 for a total fee of \$84,205, excluding HST. Work on the contract commenced in the same month and is anticipated to be finished in the fall of 2014 with the completion of the Warden Avenue improvement project. As part of this assignment, DBA was required to provide geotechnical engineering, material testing and inspection services to ensure the founding of structures was on firm competent ground and to advise the Region as to how best mitigate the impacts of poor soils during construction.

4. ANALYSIS AND OPTIONS

The quantity of poor soils encountered throughout the construction limits exceeded forecasts based on the pre-engineering studies

This project involves a number of new complex bridge structures which provide separation and protection of sensitive water crossings from the improved road corridor. The soil conditions are therefore important as the soil provides the base upon which the foundations of the structures are founded. Given the critical nature of this aspect of the project, DBA was engaged to provide engineering inspection and geotechnical consulting services on an ongoing basis during the extensive structural excavations. The inspection services were integral in identifying the location and extent of poor soils, providing solutions for mitigation, and ensuring the structural work was undertaken in accordance with the contract specifications.

A substantial amount of poor soils were encountered during construction along the project corridor, beyond quantities forecast based on the geotechnical investigation work undertaken during the pre-engineering and design phase of the project. This resulted in the need for DBA to provide on-site inspection services beyond what was anticipated when their services were procured.

The increased need for geotechnical engineering, material testing and inspection services on-site have resulted in additional costs

The unanticipated quantity and location of poor soils also impacted the contractor's ability to carry out the work as planned. Consequently, the contractor has reorganized the work schedule to mitigate delays to the project and ensure the interim opening of the complete road closure was achieved by the end of December 2013. This resulted in an increased need for DBA's presence on site, not limited to the structural elements, but for the project as a whole.

Construction will continue in 2014 with work commencing in spring 2014. The remainder of the structural work and road construction for the two additional lanes on the east side of the corridor will continue to require geotechnical engineering, material testing and inspection services provided by DBA.

Due to the unanticipated quantity and locations of poor soils, the scope of DBA's work has increased significantly and correspondingly, the estimated cost of services to be provided by DBA has increased to \$171,941.

Link to key Council-approved plans

The widening of Warden Avenue, between 16th Avenue and Major Mackenzie Drive, aligns with the 2011 to 2015 Strategic Plan goal to “*continue to deliver and sustain critical infrastructure*”. The project provides additional north-south transportation capacity by widening Warden Avenue and providing sidewalks and a multi-use path.

5. FINANCIAL IMPLICATIONS

Additional fees in the amount of \$87,736 are required to pay the consultant for the services provided in 2013 and to complete the requirements of this assignment in 2014. Staff have reviewed and negotiated the fees associated with work undertaken by DBA and consider the fees to be fair and reasonable.

There are sufficient funds in the 2014 Roads Capital Budget to cover this additional work. All expenditures for this project will be funded 90 per cent from development charges and 10 per cent from tax levy.

6. LOCAL MUNICIPAL IMPACT

City of Markham requirements, including a multi-use path, sidewalks, streetscaping and illumination, are included in the contract. The construction also includes a short section of Cachet Parkway (north) east of Warden Avenue, a storm sewer along Cachet Parkway to Warden Avenue to alleviate a drainage problem and cul-de-sacs at Glenbourne Park Drive and Ahorn Drive.

Road improvements to Warden Avenue between 16th Avenue and Major Mackenzie Drive will address transportation servicing deficiencies in York Region, specifically in the City of Markham.

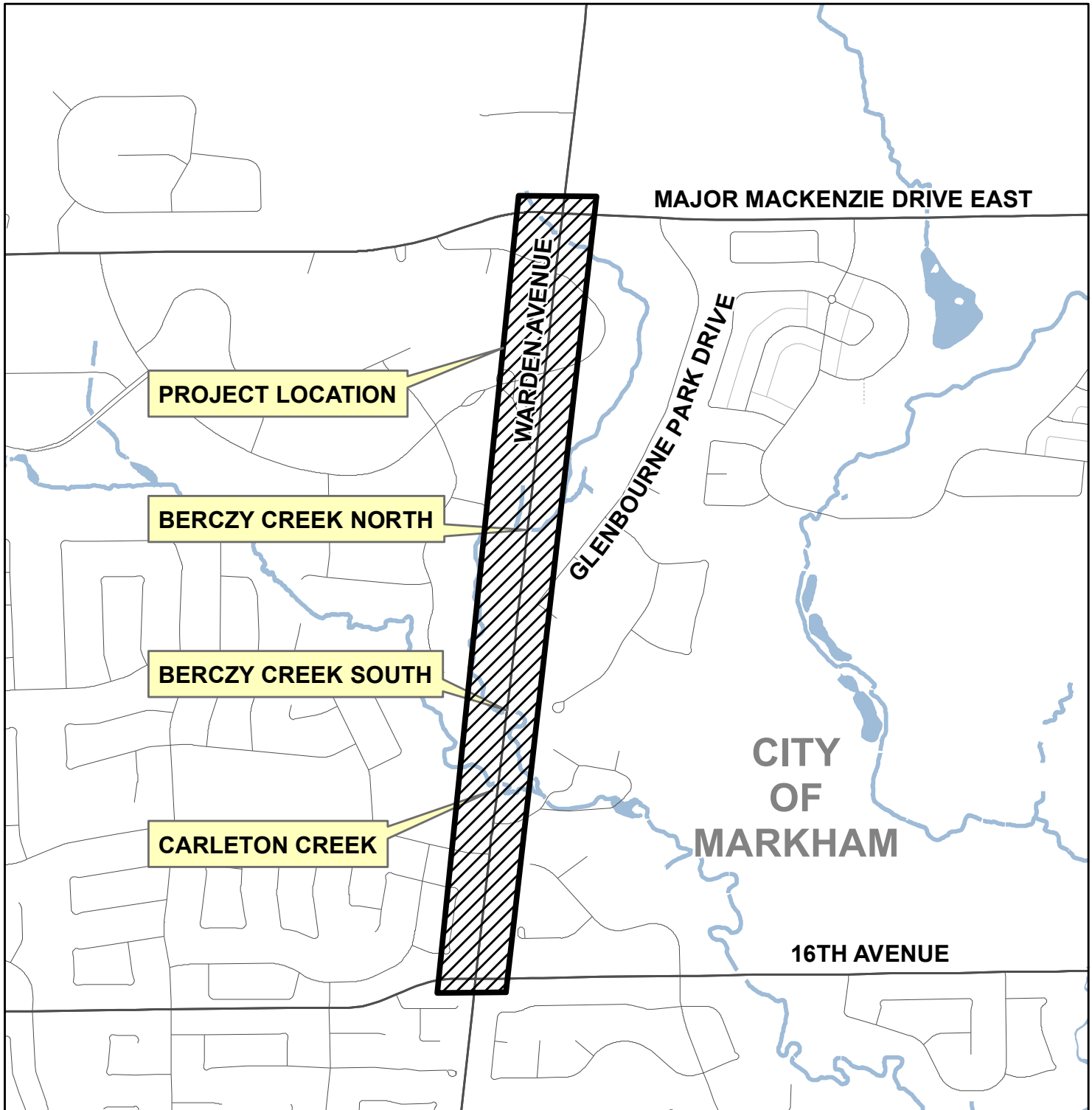
7. CONCLUSION

The scope of work for geotechnical engineering, material testing and inspection services provided by DBA Engineering Ltd. to support construction improvements to Warden Avenue in the City of Markham, has increased significantly. Additional fees in the amount of \$87,736 are required and Council authorization is being sought to increase the overall purchase order with DBA Engineering Limited from \$84,205 to \$171,941, excluding HST.

For more information on this report, please contact Brian Titherington, Director, Roads, at ext. 75901.

The Senior Management Group has reviewed this report.

Attachment (1)



LOCATION PLAN

WARDEN AVENUE from Major Mackenzie Drive to 16th Avenue
City of Markham



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Capital Delivery - Roads
Transportation and Community Planning
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