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MAPLE PUMPING STATION UPGRADES - ADDITION OF A CHLORAMINATION SYSTEM PROJECT 75420

The Environmental Services Committee recommends the adoption of the recommendation contained in the following report dated February 15, 2011, from the Commissioner of Environmental Services.

1. RECOMMENDATION

It is recommended that:

1. Regional Council authorize an increase to existing Blanket Purchase Order Number B00011922 issued to Cole Engineering Group Ltd. (formerly CMP Engineering Group Ltd.) to include detailed design, contract administration and site inspection for design and construction of a chloramination system at the Maple Pumping Station at a total price of \$184,440, exclusive of taxes. The total price includes:
 - \$118,260 excluding taxes for the detailed design and engineering services during construction
 - \$66,180 excluding taxes for contract administration and site inspection, based on 16 additional weeks of construction estimated by staff

2. PURPOSE

This report seeks Council authorization to increase Blanket Purchase Order number B00011922 for consulting services related to the detailed design, contract administration and site inspection for addition of a chloramination system as part of the current Maple Pumping Station Upgrades beyond contingency and additional scope allowances provided in the Purchasing By-law.

3. BACKGROUND

The Maple Pumping Station services Pressure District 7, Pressure District 8 and provides supplemental servicing to Pressure District 9, including communities in Richmond Hill, Aurora, Newmarket, King City and East Gwillimbury. A location plan and servicing area map is appended to this report. (*see Attachment 1*)

Cole Engineering Group Ltd. is the current engineering consultant for the Maple Pumping Station Upgrades project. The original scope of work included the

environmental assessment, detailed design, contract administration and site inspection services to provide:

- Two back up power generators for a total of 2,500 kW
- One flow metering chamber
- One additional pump to service Pressure District 7

The Environmental Assessment for this project was completed in July 2010. The first tender includes the additional pump for Pressure District 7 and has been recently awarded. The remaining upgrades are included in the second tender and are currently in the detailed design phase.

This scope was extended in August 2010 to include process automation and control upgrades, as well as additional work required to develop two tender documents to expedite installing the additional pump required for Pressure District 7. The Maple Pumping Station was originally designed to accommodate a chloramination facility but the implementation timeline was unknown. The timeline became apparent in 2010 as it was a key item identified as part of a multi-tiered plan to improve water quality in the Local Municipalities. As a result, the chloramination system was not included in the initial scope definition of this project, although, it is now included in the project's Project Definition Report under the Capital Program.

Addition of a chloramination system will ensure adequate water quality

Water supplied to the Maple Reservoir is provided by both the City of Toronto and Peel Region through servicing agreements. The Peel supply feeds the Maple Pumping Station facility via the York-Peel Feedermain, which contains very few local connections. Water is re-chloraminated at Peel Region's Airport Pumping station at a relatively close proximity to the Maple Pumping Station. Water supplied by the City of Toronto has a lower chlorine residual than the Peel supply due to the greater distance the water must travel and the larger number of service connections the system must accommodate before reaching the Maple Pumping Station.

On September 19, 2009, a main break in the York-Peel Feedermain interrupted the Peel supply to the Maple Pumping Station for approximately four months. During this time, the bulk of the Region's servicing was dependent on water supplied by the City of Toronto. The chlorine residual achieved, while within allowable limits, was low and emphasized the importance of enabling additional adjustment of the chlorine residual at the Maple Pumping Station facility. Based on these requirements, it is now recommended that the work scope be amended to include the provision for re-chloramination of the water supply at the Maple Pumping Station to service Aurora, Newmarket, King City and East Gwillimbury. Chloramination will be achieved through chemical addition at this facility.

4. ANALYSIS AND OPTIONS

Chloramination systems are currently being considered for installation at various drinking water facilities, including the Glenway Reservoir and the Aurora East Elevated Tank. This treatment system was also considered at the Orchard Heights Pumping Station. Placing the system at the Maple Pumping Station is optimal, since it will service a larger distribution area, including the area serviced by the Orchard Heights Pumping Station. In addition, there are various logistical issues associated with placing a chloramination system at the Orchard Heights Pumping Station.

Key benefits of the Maple Pumping Station chloramination system include:

- Ability to control, adjust and monitor chlorine residual levels and ensure consistent concentrations throughout the transmission and local distribution systems
- Servicing of a large portion of the York Water System including the communities of Markham, Vaughan, Richmond Hill, King City, Aurora, Newmarket and East Gwillimbury
- Minimized effects of water age as the York Water System and local distribution systems expand to meet growth needs
- Enhanced distribution system maintenance programs including optimizing requirements for system flushing and associated costs
- Minimized schedule impact to allow cost savings compared to undertaking this work as a separate project at a later time

The practice of adding chloramination facilities within large transmission systems is a common practice across North America and will continue to be considered as part of future water capital projects as our drinking water transmission systems are expanded.

Additional scope to the current upgrades contract ensures work completed efficiently

Adding a chloramination system to the existing Maple Pumping Station facility will ensure that the disinfection method is compatible with the Toronto and Peel supplies. At present, several upgrades are ongoing at the Maple Pumping Station and the addition of this work to the existing upgrades is a cost-efficient approach that also has the advantage of minimal schedule impact and minimizing community disturbance. Additionally, by incorporating this work with the current upgrades work, we are ensuring that one contract will be issued and that the site will be limited to one contractor. In order to achieve this, the design and tender should be completed by one consultant and therefore, it is recommended that the chloramination system be added to the ongoing upgrades project with Cole Engineering Group Ltd.

5. FINANCIAL IMPLICATIONS

Sufficient funds have been allocated for this work in the proposed 2011 10 Year Capital Plan

The total engineering and construction costs for the proposed additional work are \$184,440 and \$1.5 million respectively, excluding tax. The current purchase order with the Cole Engineering Group will increase from \$828,212.61 to \$1,012,652.61, excluding taxes. For this assignment, the engineering fee is 12.3% of the total project construction cost estimate, which is within the acceptable range for this type of project.

Sufficient total project budget authority has been included in the proposed 2011 10 Year Capital Plan for construction of this project in 2011 and 2012.

6. LOCAL MUNICIPAL IMPACT

Providing chloramination to the Maple Pressure District 7 and Pressure District 8 water pumping station will ensure continued and sustainable water quality to communities of Vaughan, Markham, Richmond Hill, Aurora, Newmarket, King City and East Gwillimbury.

The addition of chloramination facilities will allow York Region staff to better control and monitor chlorine residual levels and ensure consistent concentrations throughout the transmission system and local distribution systems.

7. CONCLUSION

Adding a chloramination system at the Maple Pumping Station will allow York Region staff to control and monitor chlorine residual levels within the Region. Such systems are often used in large distribution systems.

Incorporating the additional work into the ongoing upgrades project with Cole Engineering Group Ltd. represents the best overall value to the Region. It is recommended that the project assignment be authorized at the total cost of \$184,440, excluding taxes.

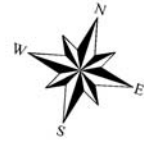
For more information on this report, please contact Daniel Kostopoulos, Director, Capital Planning and Delivery, Environmental Services at extension 5070.

The Senior Management Group has reviewed this report.

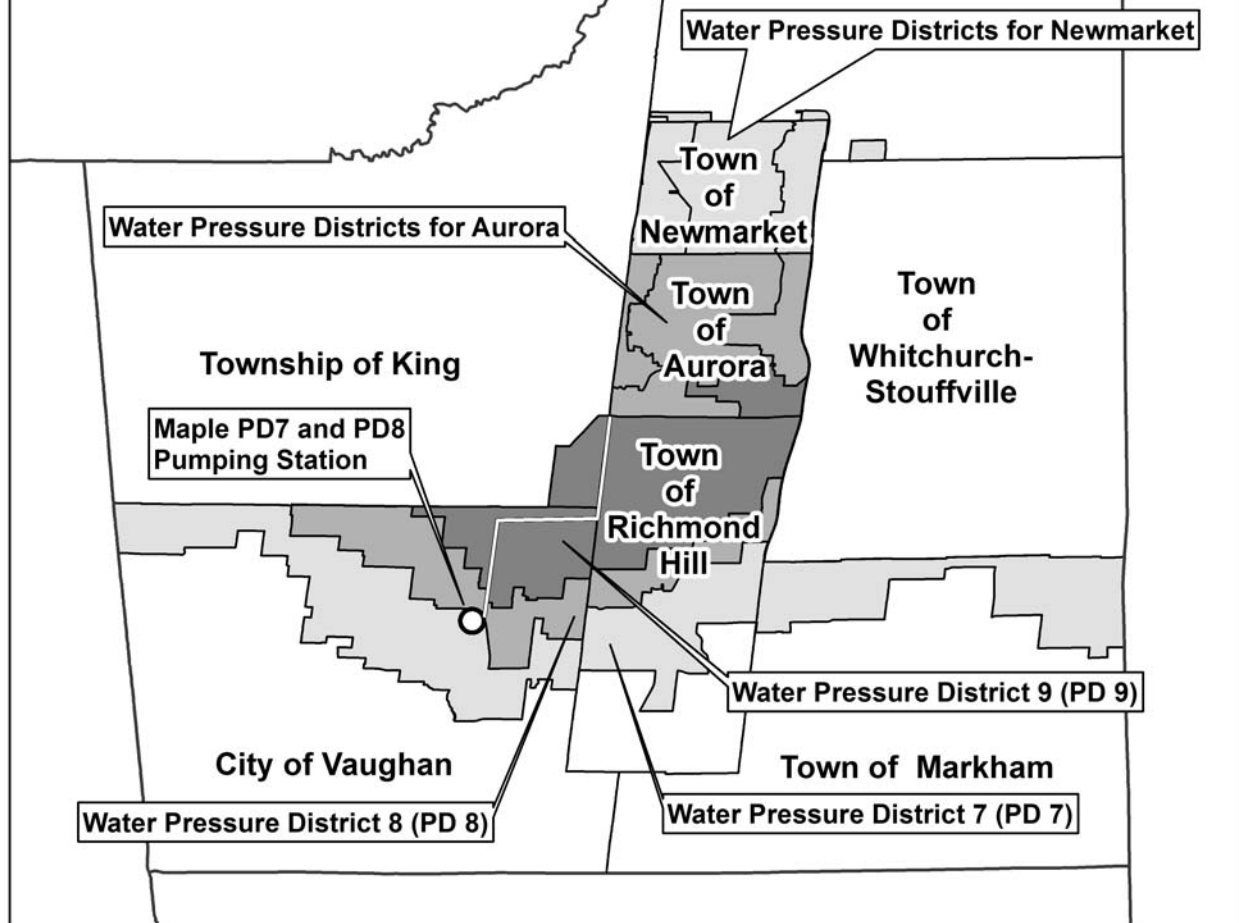
(The attachment referred to in this clause is attached to this report.)

Maple Pumping Station Location and Water Servicing Area Map

7,500 3,750 0 7,500
Meters



(Note: The Maple Pumping Station services PD7, and PD8 and also provides supplemental servicing to PD9, including communities in Richmond Hill, Aurora and Newmarket)



LOCATION MAP

Maple Pumping Station Upgrades -
Addition of a Chloramination System
Project 78512