The Regional Municipality of York

Committee of the Whole
Environmental Services
December 3, 2020

Report of the Commissioner of Environmental Services

Engineering Services for Groundwater Treatment System Preliminary Design

1. Recommendations

1. Council approve award of the contract for engineering services for Groundwater Treatment System Preliminary Design to CH2M HILL Canada Limited, pursuant to Request for Proposal P-20-144 at a total cost of $2,683,280.00, excluding HST, and authorize execution of the contract on behalf of York Region.

2. The Commissioner of Environmental Services be authorized to execute the contract on behalf of the Region.

2. Summary

This report seeks Council authorization to retain engineering services for Groundwater Treatment System Preliminary Design.

The Region's Purchasing Bylaw requires Council authorization to award Requests for Proposal where the total cost of the contract exceeds $2,000,000. In the case of Request for Proposal P-20-144, the recommended proponent's bid is greater than $2,000,000.

Key Points:

- The Region currently treats groundwater with sodium silicate to sequester iron and manganese and prevent discolouration and sediment deposition in the municipal water distribution system
- Raw water chemistry, age of the water, temperature and other factors can reduce the effectiveness of iron sequestration
- In 2020, the Region completed a Region-wide Groundwater Treatment Strategy Study which recommended improved operations and maintenance practices, and facility upgrades including:
    - upgrading groundwater treatment to remove iron and/or manganese at 10 facilities throughout the Region and

    - piloting removal treatment at each facility to confirm efficacy of treatment, size and design of treatment components
- An open-call Request for Proposal was issued to provide engineering services for Groundwater Treatment System facility layout studies, treatment pilot testing and preliminary design
- CH2M Hill Canada Limited submitted the highest overall score proposal at $2,683,280.00 and it is recommended that Council award the contract to this proponent

3. Background

Iron and manganese removal treatment upgrades planned for 10 facilities in York Region

Since the 1980s, the Region has used sodium silicate for sequestering iron and manganese in its groundwater systems. This sequestration has assisted in preventing drinking water aesthetic issues such as discolouration and deposition of sediment in the distribution system. More recently with groundwater and surface water blending, managing chlorine residual has been more challenging, and the Region initiated a Region-wide Groundwater Treatment Strategy Study (the Study). Objectives of the study were to find solutions to address current drinking water system challenges and ensure long-term sustainability of future drinking water systems based on ground water supply sources. Completed in 2020, the Study included a comprehensive review of 33 wells in 21 facilities servicing the towns of Aurora, East Gwillimbury, King, Newmarket, Whitchurch-Stouffville and the City of Vaughan. The Study provided specific treatment and operational recommendations for each well facility, maintenance recommendations for each distribution system, and corresponding estimated capital budgets for implementation.

The Groundwater Treatment System Preliminary Design assignment seeks to advance capital improvements that provide iron and manganese removal treatment for 10 facilities located in Aurora, Ballantrae, King City, Newmarket, Nobleton, Queensville and Stouffville (Attachment 1). Preliminary designs, including site servicing and facility layouts, will provide certainty in sizing, layout, servicing, costs and approvals supported by pilot testing.

The approach to address water distribution and storage system maintenance recommendations is currently under discussion at a planning level. For those systems that have been flushing and swabbing according to industry best practices, the capital upgrades should translate to a reduced demand on maintenance resources however, once the treatment upgrades are complete, best practices for systems maintenance, flushing and swabbing will still be a key management component for all distribution systems.

4. Analysis

Request for Proposal issued July 28, 2020 resulted in four proposals being received and evaluated

In July 2020, Request for Proposal P-20-144 for engineering services for Groundwater Treatment System Preliminary Design for iron and manganese removal was advertised on the Region's Bids and Tenders notification system. Four proposals were received on September 18, 2020 from:

- AECOM Canada Ltd.
- CH2M HILL Canada Limited
- R.V. Anderson Associates Limited
- The Municipal Infrastructure Group Ltd.

Proposals were evaluated in two stages

Proposals were evaluated in two stages with technical and financial information submitted separately. Overall proposal score was evaluated based on a weighting of 80 points for the technical proposal and 20 points for the financial proposal. Technical proposals were evaluated prior to any knowledge of financial information.

The Region's proposal evaluation team reviewed technical proposals based on evaluation criteria listed in P-20-144, including:

- Thorough understanding of project requirements
- Extensive experience with iron and manganese removal treatment technologies
- Comprehensive experience designing and operating iron and manganese treatment pilot plants
- Experience designing efficient iron and manganese treatment facilities and upgrades to fit on highly constrained sites

Proponents were required to achieve a minimum technical score of 60% (48 points out of 80 points) to have their financial proposal considered. If a proponent does not achieve this minimum technical score, their financial proposal is returned unopened.

Proposals were evaluated in accordance with the Region's Purchasing Bylaw. Technical and financial results for proposals that met the minimum technical score requirements are summarized in Table 1.

Table 1

P-20-144 Evaluation Summary

Consulting Engineering Firms	Technical Score (out of 80)	Financial Score (out of 20)	Total Score (out of 100)	Total Fee ($) (excluding HST)
CH2M HILL Canada Limited	68.95	12.57	81.53	$2,683,280.00
AECOM Canada Ltd.	56.50	12.03	68.54	$2,804,520.00
R.V. Anderson Associates Limited	49.60	20.00	69.60	$1,686,971.61

CH2M HILL Canada Limited received the highest technical and overall evaluation score

Evaluation of technical proposals determined that CH2M HILL Canada Limited demonstrated a thorough understanding of the project, presented a comprehensive approach to undertake the work and put forward a project team of well qualified professionals with extensive experience along with the expected level of effort to complete the work.

The difference in technical scoring between R. V. Anderson Associates Limited and CH2M HILL Canada Limited is largely due to underestimation of the level of effort required to meet the project's comprehensive requirements. The level of effort required for project management, quality assurance and control, and preparation of the preliminary designs, proposed by CH2M HILL Canada Limited reflected a deeper understanding of the required scope to successfully deliver this large complex project.

One proponent did not have a passing technical score and as a result their financial proposal was not opened. Their proposal did not achieve minimum requirements as identified in the Request for Proposal including requisite project team resources and suitable work scope.

The Procurement Office facilitated the evaluation process and issued its report confirming that CH2M HILL Canada Limited be recommended as the successful proponent to undertake the assignment.

Groundwater Treatment System Preliminary Design supports objectives of the Region's Strategic Plan

The Groundwater Treatment System Preliminary Design and subsequent facility upgrades work supports the Region's Strategic Plan priority of delivering trusted and efficient services through advancing technological solutions. Accumulation of iron and manganese settlement requires long-term investment in infrastructure asset maintenance that may be reduced by applying effective treatment technologies. Furthermore, discoloured water at the tap, due to the presence of iron and manganese, undermines customer trust in the drinking water

system. Use of iron and manganese removal technologies provides an opportunity to enhance aesthetics, reduce public complaints and improve trust in service delivery.

This work aligns with the Region's Strategic Plan priority to support health, safety and well-being objectives through capital upgrades. Reducing manganese concentrations in drinking water has the benefit of addressing potential future changes to the Ontario Drinking Water Standards, should the Ministry of the Environment, Conservation and Parks adopt Health Canada's Drinking Water Quality Guidelines on manganese.

In 2019, Health Canada published new guidelines that reduced the aesthetic objective for manganese in drinking water to 0.02 mg/L and established, for the first time, a health based maximum acceptable concentration of 0.12 mg/L. There is no indication from the province whether they will adopt these new guidelines, however, the Groundwater Treatment upgrades position the Region well for any future changes.

5. Financial

The upset limit fee submitted by CH2M HILL Canada Limited for engineering services is $2,683,280.00, excluding HST. The financial proposal submitted by CH2M HILL Canada Limited is within the estimated fee range and staff believes the proposal represents good value to the Region.

There is sufficient Capital Spending Authority for this project in the approved 2020 10-Year Capital Plan.

On October 13, 2020, Infrastructure Canada confirmed approval of $18,107,200 in funding through the Disaster Mitigation & Adaptation Fund towards Groundwater Supply System Improvements. This funding supports iron and manganese removal upgrades at well facilities within blended distribution systems which are supplied with both surface water and groundwater including the sites identified for this procurement.

6. Local Impact

On-going system maintenance will still be required to reduce the amount of iron and manganese sediment that can settle and accumulate in distribution and storage systems. The facility upgrades should lessen the extent and frequency of maintenance activities like flushing and swabbing and provide improvement to the system. This represents a potential long-term positive impact for the Region and local municipalities in optimizing resources and supporting system longevity.

In some systems, reduced iron and manganese deposition in distribution systems and storage facilities will also help lessen chlorine disinfection demand. This helps to maintain levels of disinfectant residual and lessen the risk of adverse water quality incidents.

Reducing iron and manganese concentrations in groundwater supply will also improve the appearance of municipal drinking water. Improving water aesthetics can reduce public

complaints about discoloured water and increase confidence in the safety of drinking municipal water.

7. Conclusion

Four proposals were received and evaluated for the Groundwater Treatment System Preliminary Design project in accordance with the Region's Purchasing Bylaw. The proposal submitted by CH2M HILL Canada Limited demonstrates a thorough understanding of the work and represents good value to the Region.

It is recommended that CH2M HILL Canada Limited be engaged to undertake engineering services for the Groundwater Treatment System Preliminary Design for an upset limit fee of $2,683,280.00, excluding HST.

For more information on this report, please contact Mike Rabeau, Director, Capital Planning and Delivery at 1-877-464-9675 ext. 75157. Accessible formats or communication supports are available upon request.

Recommended by: **Erin Mahoney, M. Eng.**
Commissioner of Environmental Services

Approved for Submission: **Bruce Macgregor**
Chief Administrative Officer

November 12, 2020
Attachments (1)
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