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REPORT
Meeting Date: 2023-02-09
Regional Council

REPORT TITLE: **Engineering Services for HVAC and Carbon Reduction Improvements at Tall Pines Long Term Care Facility - Document 2020-688p - City of Brampton, Ward 9**

FROM: Gary Kent, CPA, CGA, ICD.D, Chief Financial Officer and Commissioner of Corporate Services

RECOMMENDATION

That the contract (Document 2020-688P) for engineering services for various projects in the Region of Peel awarded to WSP Canada Inc. be amended in the estimated amount of $300,000 (excluding applicable taxes), under Capital Project 22-5406 ($6,543,243.38) for a revised contract total of $6,843,243.38 pursuant to Procurement By-law 30-2018, as amended.

REPORT HIGHLIGHTS

- In 2020 the Region of Peel awarded Document 2020-688P to WSP Canada Inc. to provide professional engineering services for various state of good repair projects including improvements to the cooling system at Tall Pines Long Term Care facility in the city of Brampton.
- In November of 2021, in alignment with Council's approved Climate Change Master Plan, the design was further enhanced for a low carbon cooling system to replace the existing cooling tower and chillers with an electric air-source heat pump system for cooling and pre-heating of the existing heating boilers.
- $1,400,000 of the cost to implement the enhancements was funded by existing approved budget for climate change initiatives.
- Due to current electrical supply capacity limitations to the facility, this would be considered Phase One of a greater carbon reduction initiative for Tall Pines.
- The additional engineering fees is approximately $300,000 and is for the additional time and effort required to support the additional scope of work.
- In accordance with Procurement By-law 30-2018, as amended, the required services are additional to the similar services being supplied under this contract and therefore requires Regional Council approval.
- In a future Phase One of the project, the full electrification and maximized carbon reduction of Tall Pines will be duly considered, designed and costed through a feasibility study.

DISCUSSION

1. Background

In 2020 the Region of Peel awarded Document 2020-688P to WSP Canada Inc. (WSP) to provide professional engineering services for detailed design and contract administration of various state of good repair projects throughout the Region of Peel including ongoing facility regeneration projects between 2021 and 2024 at various residential, Long-Term Care (LTC) and commercial facilities.

One of those projects included the improvements to the cooling system at Tall Pines Long Term Care facility in the City of Brampton.

This project involved a detailed investigation of the current cooling system and the design of the replacement system in order to improve overall air quality and resident comfort in the facility.

Tall Pines is located at 1001 Peter Robertson Boulevard in Brampton, ON. The building is a 3-storey long-term care facility. Based on the architectural drawings, the building was constructed in 2004 and has a total gross floor area of about 13,430 m². The cooling equipment consists of two chillers and one cooling tower, as well as a chemical treatment system, all of which were original to their installation date of 2004.

Based on the current performance and age of the system, the original project scope was to replace the cooling equipment with similar performing equipment.

2. Project Scope Changes

An opportunity arose that enabled staff to implement Council's direction to reduce greenhouse gas (GHG) emissions through its Climate Change Master Plan. The more climate friendly approach would see the existing cooling tower and chillers be replaced with an electric air-source heat pump system for cooling and utilize heat-recovery technology to pre-heat water destined for the existing natural-gas fired domestic hot water boilers. This scope change would have the net result of reducing the natural gas consumption of the water heating boilers by approximately 22 per cent. Given the extensive modernization of the proposed system, staff also agreed to additional scope changes to upgrade the existing Building Automation System to ensure optimal performance of the new system.

While this work at Tall Pines is seen as a valuable investment to help reduce GHG emissions through the implementation of low carbon technologies, it is considered Phase One as there is opportunity to substantially increase the amount of GHG reductions and optimize energy conservation by taking a holistic approach to upgrading the building envelop together with the further electrification of the HVAC and Hot Water technologies. However, due to current electrical supply capacity limitations, the more comprehensive climate work would be considered Phase One for Tall Pines as an electrical capacity upgrade to the building is implicated.

Phase Two has yet to be planned with staff but a feasibility study would review the scenarios of 100 per cent and 'nearly 100%' building electrification and include a full cost-benefit review of both scenarios as well as confirm greenhouse gas reductions and potential operational savings resulting from heat pump technologies, other low carbon options and building envelop upgrades. Staff will provide a follow up report once all scenarios have been assessed. At a high level, the approximate GHG reduction for the facility can be calculated as follows:

Tall Pines GHG emissions	**GHG (Tonnes)**	**GHG (%)**
Facility current GHG emissions (2021)	600	0
Phase 1 Reduction	118	22%
Phase 2 Reduction (100% electrification)	400	67%
Phase 1 & 2 Reduction	518	86%

3. Proposed Direction

The proposed change has been reviewed by staff within RPAM, Long Term Care and the Office of Climate Change and Energy Management to ensure it meets the requirements and outcomes for both long term care homes and climate change. The bulk of the incremental cost for Phase One ($1,425,000) will be funded through the existing budget for climate change initiatives.

The change in design to better support important climate outcomes represents a considerable increase in work effort from WSP for Phase One only, including additional electrical and structural reviews, redesign of the cooling system and the addition of other impacted HVAC systems and a significantly longer contract administration duration which will increase from approximately six to 12 months. The additional engineering fees is approximately $300,000 for the additional time and effort required to support the additional scope of work.

Extending the existing contract with WSP to accommodate Phase One will assist in achieving the earliest substantial completion date for the project and provide the greatest value to the Region as it would allow the project design to proceed to tender to facilitate installation in the fall of 2023. This is due mainly to the fact that the revised electric air-source heat pump system required for this contract has a current lead time of approximately eight to 10 months.

The additional WSP's fee in the amount of approximately $300,000 was reviewed by staff and determined to be reasonable for the duration and complexity of the additional scope.

Upon receipt of Council approval, the proposed amendment will meet the requirements of the Procurement By-law 30-2018, as amended. Execution of the associated contract document will follow the process outlined under the Document Execution By-law 32-2017, as amended.

The additional funds required to complete this contract will be funded under Capital Cost Centre 22-5406.

FINANCIAL IMPLICATIONS

There are sufficient funds available in the approved budget to carry out the direction noted in this report.

G. Kent.

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