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TO:	**CHAIR AND MEMBERS CIVIC WORKS COMMITTEE MEETING ON MONDAY, MAY 26, 2014**
FROM:	**JOHN BRAAM, P.ENG. MANAGING DIRECTOR, ENVIRONMENTAL & ENGINEERING SERVICES & CITY ENGINEER**
SUBJECT:	**SINGLE SOURCE PURCHASE OF PRE-HEATER HEAT EXCHANGER AND RE-HEATER HEAT EXCHANGER AT GREENWAY WASTEWATER TREATMENT CENTRE**

RECOMMENDATION

That, on the recommendation of the Managing Director, Environmental and Engineering Services and City Engineer, the following actions **BE TAKEN** with respect to the purchase of replacement pre-heater and re-heater heat exchangers at Greenway Wastewater Treatment Centre:

a) approval hereby **BE GIVEN** to enter into negotiations for the single source purchase of new pre-heater and re-heater heat exchangers from Alstom Power Inc;

b) the approval given herein **BE CONDITIONAL** upon the Corporation negotiating satisfactory prices, terms and conditions with Alstom Power Inc., to the satisfaction of the Managing Director, Environmental and Engineering Services and City Engineer, it being noted that there will not be sufficient time to adhere to the normal Committee and Council contract approval process due to escalating steel commodity prices resulting in limited price guarantees; and,

c) the approval hereby **BE CONDITIONAL** upon the Corporation entering into a formal contract or issuing a purchase order relating to the subject matter of this approval.

PREVIOUS REPORTS PERTINENT TO THIS MATTER

ETC Report of 2007-01-29, Appointment of Consulting Engineer for the detailed design for the repairs/ refurbishment of the incinerator and ancillary works at the Greenway Pollution Control Centre, Capital Project ES5282.

BOC Report of 2007-08-08, Single Source Purchase of Pre-heater and Re-heater Heat Exchangers at the Greenway Pollution Control Centre

BOC Report of 2007-12-12, Award of Contract for the Greenway Pollution Control Centre Incinerator Refurbishment Project No. ES5282

BACKGROUND

Purpose:

This report seeks approval of the Municipal Council to procure equipment through negotiations and in accordance with Section 14.4 (e) of the Procurement of Goods and Services Policy, being the required goods and/or services are to be supplied by a particular supplier having special knowledge, skills, expertise or experience.

Context:

The existing pre-heater heat exchanger and re-heater heat exchanger are very near to the end

of their useful life and are in need of replacement. With an estimated value of over $1M, Municipal Council approval is needed to issue purchase orders for this work. Both units are critical operating components necessary for a functional incinerator. In a 2009 Incinerator Assessment Update report, Aecom identified these heat exchangers for replacement in 2014; funding was added to project ES3080 to cover the replacement units. Significant operating cost increases and negative impacts to the City's landfill site are risks of premature failure of the heat exchangers.

Discussion:

The Greenway fluidized bed incinerator was commissioned in 1988 and handles all the sludge generated at London's Wastewater Treatment Plants. In the incinerator a 1.2 metre thick bed of sand is heated to 750 degrees Celsius. The sand bed is supported by a refractory brick dome. Waste heat from the incineration process is scavenged by the pre-heater to heat the combustion air to 600 degrees Celsius prior to injection into the sand bed through an array of nozzles (tuyeres) embedded in the dome. Sludge is introduced just above the dome-sand interface where it is incinerated by the high temperatures in combination with abrasive action of the fluidized sand. Ash is the main product of the combustion process and is removed from the incinerator exhaust using a venturi scrubber which produces an ash slurry. The re-heater is the final process and is used to heat the exhaust air to prevent condensation prior to discharge through the stack. Failure of either of these heat exchangers can render the incineration system inoperable until repairs or replacements are completed.

The existing pre-heater and re-heater were purchased in 2008 through a single source contract with Cannon Boiler Works, New Kensington, Pennsylvania, USA. Cannon had also supplied the previous heat exchangers which were installed in 1999 and had been the most robust of the four previous units installed at Greenway. Proven alternate manufacturers and designs were not available for comparison at the time as heat exchangers for municipal biosolids incinerators is a relatively small market. Since 2007, Alstom Power Inc., 6500 Brooktree Road, Wexford Pennsylvania, 15090, USA has built and installed several units at a number of installations including multiple units in Durham and Peel Regions as well as in the United States. The Alstom units have proven to be more robust with an extended service life in comparison to the units presently used at Greenway. Alstom has also patented some design components including field replaceable compensators which would have prolonged the service life of the existing Greenway unit had they been included in its design.

Single Sourcing and pre-purchasing are necessary to expedite the replacement of this equipment given the lengthy delivery times and the poor condition of the existing units. Fabrication and delivery of new units will take eight months from contract award. Biosolids disposal costs increase in the order of $9,500 per day should the existing units fail before replacement units are delivered.

Alstom has estimated the combined price of the heat exchangers at $1.32M based on sizes similar to Greenway's. The design, specifications and specialty steel pricing need to be finalized before a firm price can be submitted, noting that the steel used in the heat exchangers requires a special mill run and pricing cannot be held for an extended period while securing Municipal Council approval. The Cannon units purchased in 2008 were $1.14M (US), and were purchased using the same process and for the same reasons as articulated in this report.

Financial Impact:

Funding for replacement heat exchangers is provided for in the approved Capital Works Budget Account ES3080. The work has been expected and budgeted for.

There are no anticipated additional operating costs in the Environmental and Engineering Services in 2014 and subsequent years associated with the approval of this acquisition.

Conclusions:

Given the proven performance of the Alstom units at installations similar to the Greenway facility a Single Source Purchase of Alstom heat exchangers for Greenway is recommended. Pre-purchasing the units will expedite fabrication and delivery which is necessary given the poor condition of the existing units. Trucking, chemical and landfill disposal fees will increase

biosolids disposal costs by approximately $9,500 per day should the existing units fail before the new units are installed.

The equipment is to be ordered now and delivery coordinated with a future installation contract.

Acknowledgements:

This report was prepared by Perry Rose, Senior Engineering Technologist, Wastewater and Treatment Operations.

PREPARED BY:	**REVIEWED AND CONCURRED BY:**
GEORDIE GAULD **DIVISION MANAGER,** **WASTEWATER AND TREATMENT OPERATIONS**	**JOHN LUCAS, P. ENG. DIRECTOR,** **WATER AND WASTEWATER**
REVIEWED AND CONCURRED BY:	**RECOMMENDED BY:**
MIKE TURNER **DEPUTY CITY TREASURER**	**JOHN BRAAM, P.ENG.** **MANAGING DIRECTOR,** **ENVIRONMENTAL & ENGINEERING SERVICES & CITY ENGINEER**

May 21, 2014

PR/pr

cc: John Freeman, Manager, Purchasing and Supply Chain

Jeff Smith, Procurement Officer, Purchasing and Supply Chain