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TO:	CHAIR AND MEMBERS CIVIC WORKS COMMITTEE MEETING ON MONDAY, AUGUST 21, 2012
FROM:	JOHN BRAAM, P.ENG. ACTING EXECUTIVE DIRECTOR, PLANNING, ENVIRONMENTAL & ENGINEERING SERVICES & CITY ENGINEER
SUBJECT:	SINGLE SOURCE PURCHASE OF NEW DOME BRICKS FOR THE GREENWAY SLUDGE INCINERATOR

RECOMMENDATION

That, on the recommendation of the Acting Executive Director, Planning, Environmental and Engineering Services and City Engineer, the following actions **BE TAKEN** with regards to rebuilding the Greenway incinerator dome (ES5283):

- a) the price submitted of \$265,683.58, excluding HST, to supply replacement refractory dome bricks for the Greenway Incinerator by NCL Novenco Consultants Limited, 2773 White Street, Val Caron, Ontario, P3N 1B2 **BE ACCEPTED**;
- b) that financing for this purchase **BE APPROVED** as set out in the Source of Financing Report attached hereto as Appendix "A";
- c) the Civic Administration **BE AUTHORIZED** to undertake all the administrative acts that are necessary in connection with this purchase; and
- d) 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.

BACKGROUND

Purchasing Process:

Approval for these purchases is requested in accordance with the Purchasing By-law, Section 14.4.

Purpose:

This report has been prepared to provide background information and secure council approval to purchase replacement refractory dome bricks for the Greenway incinerator. Only one supplier of OEM bricks was found. The Greenway incinerator will be a main component of London's biosolids disposal system for the next 20-30 years.

Context:

During a recent inspection of the incinerator, small hairline cracks were noticed forming in many of the bricks comprising the dome. The hairline cracks are attributable to the hostile environment within the incinerator and the numerous heat/cool cycles associated with its ongoing operation. Dome replacements are expected in fluidized bed incinerators and the original dome in the Greenway incinerator was replaced in 2000 and has not been replaced since. Ten years is the expected life expectancy of a dome. Failure of the dome would be catastrophic and the unit would be out of service until new bricks were ordered and installed. Delivery time for bricks is 20 weeks. Although a major refurbishment was completed on the Greenway Incinerator in 2009, the dome was not replaced at that time as it was in good condition when inspected prior to the rebuild.

Discussion:

The Greenway fluidized bed incinerator was commissioned in 1988 and handles all the sludge generated at London's Wastewater Treatment Plants. Air preheated to 600 degrees Celsius is pumped into a 1.2 metre thick bed of sand heated to 750 degrees Celsius. When heated to this temperature the sand bed displays the same fluid characteristics as water, hence its designation as a fluidized bed incinerator. The sand bed is supported by a self supporting dome manufactured of refractory brick and the air is injected through an array of nozzles (tuyeres) embedded in the dome. Sludge is injected just above the dome-sand interface where it is incinerated by the high temperatures combined with abrasive action of the fluidized sand.

The fluidized bed incinerator is a specialized and unique piece of equipment with limited suppliers available for replacement components. Of the suppliers researched, only NCL Novenco Consultants Limited (NCL), a specialized refractory brick manufacturer could offer a brick matching the original "as built" system. A second supplier offered replacement bricks that would have to be drilled after installation to accommodate the tuyeres. The structural integrity of that system is questionable and would result in higher construction costs. A third supplier offered replacement bricks, including tuyeres, and was significantly higher at \$647,440. Further, the dome for that system would be structurally different and may perform differently and as such was deemed not to be a true "like" for "like" replacement.

The replacement dome will be ordered now and can be installed pending coordination with other incinerator work or in the event the existing dome fails. A future contract will be issued to cover removal of the existing dome and installation of the new system when an installation time is known.

Financial Impact:

Funding for this acquisition is provided in the Capital Works Budget ES5283.

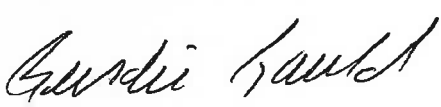


There are no anticipated additional operating costs in the Environmental and Engineering Services in 2012 and subsequent years associated with the approval of this acquisition.

Conclusions:

Given the lengthy delivery times, the appearance of hairline cracks in some of the existing dome bricks, limited supplier availability to provide the needed components and the high costs associated with a dome failure, it is recommended that the City purchase the replacement brick for the Greenway incinerator dome at this time.

Acknowledgements:

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

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

July 26, 2012

PR/pr

Attach: Appendix "A" – Sources of Financing

c.c. John Braam
Mike Turner

Chair and Members
Civic Works Committee

August 10, 2012
(Award Contract)

**RE: Single Source Purchase of New Dome Bricks for the Greenway Sludge Incinerator
Capital Project ES5283 - Incinerator Refurbishing & Replacement - Phase 2
NCL Novenco Consultants Limited - \$265,683.58 (excluding H.S.T.)**

FINANCE DEPARTMENT REPORT ON THE SOURCES OF FINANCING:

Finance Department confirms that the cost of this project can be accommodated within the financing available for it in the Capital Works Budget and that, subject to the adoption of the recommendation of the Acting Executive Director, Planning, Environmental & Engineering Services Department & City Engineer, the detailed source of financing for this project is:

<u>ESTIMATED EXPENDITURES</u>	<u>Approved Budget</u>	<u>Committed To Date</u>	<u>This Submission</u>	<u>Balance For Future Work</u>
Engineering	\$208,926	\$101,883		\$107,043
Construction	614,794		270,360	344,434
City Related Expenses	176,280	1,650		174,630
<u>NET ESTIMATED EXPENDITURES</u>	<u>\$1,000,000</u>	<u>\$103,533</u>	<u>\$270,360</u>	<u>\$626,107</u>
<u>SUMMARY OF FINANCING:</u>				
Debenture Quota	2) \$1,000,000	\$103,533	\$270,360	\$626,107
<u>TOTAL FINANCING</u>	<u>\$1,000,000</u>	<u>\$103,533</u>	<u>\$270,360</u>	<u>\$626,107</u>

1) **Financial Note:**

	<u>Total</u>
Estimated Expenditure	\$265,684
Add: HST @13%	34,539
Total Contract Price Including Taxes	300,223
Less: HST Rebate	29,863
Net Contract Price	<u>\$270,360</u>

2) **NOTE TO CITY CLERK:**

Administration hereby certifies that the estimated amounts payable in respect of this project does not exceed the annual financial debt and obligation limit for the Municipality of Municipal Affairs in accordance with the provisions of Ontario Regulation 403/02 made under the Municipal Act, and accordingly the City Clerk is hereby requested to prepare and introduce the necessary authorizing by-laws.

An authorizing by-law should be drafted to secure debenture financing for Project ES5283 - Incinerator Refurbishing & Replacement, Phase 2, for the net amount to be debentured of \$1,000,000.

EH

Alan Dunbar
Manager of Financial Planning & Policy