



City of Moose Jaw

COMMUNICATION # CC-2019-0250

TITLE: Request to Proceed with Construction of the New Fluoridation System
WW16 BPWTP Water Supply Transmission Line Project – Phase II

TO: Special City Council

FROM: Department of Engineering Services

DATE: November 22, 2019

PUBLIC: PUBLIC DOCUMENT

RECOMMENDATION

THAT City Council approve construction of the new Fluoridation System at the Buffalo Pound Water Treatment Plant (BPWTP) and Northeast Reservoir (NER) influent line including tie ins and increase the 2020 capital budget to \$2,300,000.

TOPIC AND PURPOSE

The purpose of this report is to obtain approval for the additional cost to proceed with construction of the new Fluoridation System and NER influent line including tie ins.

BACKGROUND

The City retained Stantec Consulting Ltd. as the engineering consultant for this project. The project has two phases: 1) The Pipeline Construction and 2) The Pumps & Electrical Upgrades. This phasing is based on BPWTP current improvements and upgrades to their electrical systems that will also house the City's pumps and electrical system. This work at BPWTP was completed this spring of 2019 and therefore, Phase II – Pumps & Electrical Upgrades construction can be carried out.

Construction of Phase I began on November 30, 2017 and was substantially completed on December 4, 2018 after a successful pressure test of 750 mm diameter, 19 kilometres long PVC pipe with 17 trenchless crossings.

The NER pumphouse and influent line were constructed and commissioned in 1982. Replacement of this line was not considered during preliminary design in 2011 due to its current service life at that time. The plan was to carry out an assessment to determine the condition of the steel line. Assessment ranges from \$25k to \$50k depending on the extent of work, which partially covers the replacement cost. Upon further review of methodology and associated cost, it was concluded to not undertake this assessment.

The City Council, at its regular meeting held dated April 22, 2019 approved to complete the detailed design of a fluoridation system to replace the old fluoridation system, which has exceeded its service life. The existing fluoride system had experienced several mechanical and hardware issues. It is currently out of service because replacement parts are difficult to obtain and/or obsolete.

DISCUSSION

This report addresses two issues related to the Buffalo Pound Transmission Line Project – Phase II – Pumps and Electrical Upgrades.

1. Fluoride system – replacement of an existing system. This was not previously budgeted and not part of the original scope. It is recommended to be included due to failure of the existing system.
2. Influent tie in at the Northeast reservoir – replacing existing tie in line. This was not previously included in the budget and was not part of the original scope. It is now recommended to be included as the line is reaching the end of its expected life and would be the only section of the transmission line not replaced, and a contractor will be doing tie in work at the plant.

These items require additional budget, the overall budget impact is outlined in this report. Both items are being considered to be included as part of the Phase II – Pumps and Electrical Upgrades tender package, scheduled for tender this year.

Fluoride system

The current system has failed and is no longer operational. The regulatory permit to operate includes fluoridation of our water at the BPWTP. Council approved design of the replacement system and design of the fluoride system is now complete. A letter from Saskatchewan Health Authority was received by the Department of Engineering Services in support for community water fluoridation. The letter states *"that many governments and health organizations in Canada support the fluoridation of drinking water as an important public health measure to prevent tooth decay. Community water fluoridation remains a safe, cost-effective and equitable public health practice and an important tool in protecting and maintaining health and well-being of Canadians."* The advantages and benefits are also stated in this letter. See Attachment i.

Influent tie in at Northeast reservoir

This is the replacement of the section of line from the new transmission line to the Northeast reservoir. It includes a new Flow Control Valve (FCV), 160m of pipe and an access for maintenance

Replacement the NER influent line is recommended based on the following factors:

1. Age – the line is approaching 38 years of its service life.
2. Swabbing structures – no pig launch and retrieval.
3. Maintenance, serviceability and operations.
4. Appropriate sizing and optimum capacity.

Under normal conditions, a steel water pipe service life span is about 20 to 50 years. For steel water pipes, it is recommended to carry out swabbing as a preventive measure to maintain and prolong its service life. Not having these structures will expedite the deterioration of its condition.

In addition, the new influent line is designed to accommodate future expansions of the reservoir. A reservoir expansion is one of the recommendations stated in Associated Engineering's *Potable Water Storage and Pumping Facilities Conceptual Study* dated August 2018 to meet current capacity requirements of two times average day demand (short term) and to meet projected demand for a population of 45,000 (long term). The replacement of NER influent line will complete the renewal of the entire transmission line, which will ensure a safe and reliable supply of potable water.

With the construction contract for Phase II scheduled to be committed in January 2020, it is recommended the full amount be available to proceed with the construction and complete the project in its entirety.

The total estimated cost of the entire project is summarized below:

	Description	Subtotal	10% Contingency	PST (6%)	Total
	Engineering Services - Stantec	\$ 1,976,520.96	\$ -	\$ -	\$ 1,976,520.96
Phase I	Pipeline Contract - Hamm	\$ 17,090,020.65	\$ -	\$ 1,025,401.24	\$ 18,115,421.89
	Land Management Services (TWS, Crop Loss, Easement, land reinstatement & others)	\$ 269,880.11	\$ -	\$ 4,235.57	\$ 274,115.68
Phase II	Pumps Upgrades**	\$ 3,230,000.00	\$ 323,000.00	\$ 213,180.00	\$ 3,766,180.00
	BPWTP Tie Ins**	\$ 1,100,000.00	\$ 110,000.00	\$ 72,600.00	\$ 1,282,600.00
	HSR Tie Ins**	\$ 780,000.00	\$ 78,000.00	\$ 51,480.00	\$ 909,480.00
	NER Tie Ins**	\$ 860,000.00	\$ 86,000.00	\$ 56,760.00	\$ 1,002,760.00
	Fluorosilicic Acid System**	\$ 1,030,000.00	\$ 103,000.00	\$ 67,980.00	\$ 1,200,980.00
	TOTAL	\$ 26,336,421.72	\$ 700,000.00	\$ 1,491,636.81	\$ 28,528,058.53

** Class 2 estimate with -10% to +15% accuracy range.

Current: 2019-2023 Capital Budget

Budget allocated	2018 CF	2019	2020	2021	2022	2023	Total
	\$ 3,659,694	\$ 3,500,000	\$ 100,000	\$ 0	\$ 0	\$ 0	\$ 7,259,694

Proposed: 2020-2024 Capital Budget

Phase II	2019 CF	2020	2021	2022	2023	2024	Total
	\$ 6,100,000	\$ 2,300,000	\$ 0	\$ 0	\$ 0	\$ 0	\$ 8,400,000

Market conditions will determine the final construction costs.

OPTIONS TO RECOMMENDATION

1. Reject this report and not replace the Fluoridation System at Buffalo Pound Water Treatment Plant and the influent line at Northeast Reservoir, and direct Administration to make changes to the City's permit to operate with the provincial regulator.
2. Other City Council direction to proceed with one or the other of the fluoride systems or influent line at the Northeast Reservoir.

OTHER CONSIDERATIONS/IMPLICATIONS

There is no policy or privacy implications, official community plan implementation strategies or other considerations.

PUBLIC NOTICE

Public Notice pursuant to the Public Notice Policy is not required.

PRESENTATION

VERBAL: Administration from the Department of Engineering Services will provide a verbal overview of the report.

ATTACHMENT

- i. Saskatchewan Health Authority – Position Statement on Community Water Fluoridation dated April 16, 2019.

REPORT APPROVAL

Written by: Mark Caringal, Engineering Technologist
Reviewed by: Josh Mickleborough, Director of Engineering Services
Tracy Wittke, Assistant City Clerk
Approved by: Jim Puffalt, City Manager
Approved by: Fraser Tolmie, Mayor

To be completed by the Clerk's Department only.

Presented to Regular Council or Executive Committee on _____.

No. _____ Resolution No. _____

Report Approval Details

Document Title:	WW16 Transmission Line - Phase II Fluoridation System and Northeast Reservoir Influent - CC-2019-0250.docx
Attachments:	- Attachment i - Letter Public Health Services - Water Fluoridation.pdf
Final Approval Date:	Nov 27, 2019

This report and all of its attachments were approved and signed as outlined below:



Josh Mickleborough



Tracy Wittke



Jim Puffalt



Fraser Tolmie