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**Subject:** Construction Contract: Dain City Sewage Pumping Station Forcemain Replacement

**Report to:** Public Works Committee

**Report date:** Tuesday, July 9, 2019

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## **Recommendation**

1. That Council **AUTHORIZE** staff to proceed with an award to V. Gibbons Contracting Ltd. in the amount of \$1,544,091 (including contingency and HST) to construct/replace the temporary forcemain in Dain City in accordance with Section 17 of Procurement By-law No. 02-2016, as amended on February 28, 2019.

## **Key Facts**

- During a rain event on April 16, 2018, several basements in Dain City experienced flooding. Region staff investigated the situation and found large quantities of a glycerine based substance had been deposited throughout the local sewage collection system.
- On January 1, 2019, the Dain City forcemain was found to be plugged, which necessitated staff hiring tanker trucks to haul sewage directly to the Welland Wastewater Treatment Plant (WWTP).
- The nature of the event met three of the requirements for consideration as a Special Circumstance occurrence as defined in the Region's Procurement By-law, namely:
  - i. an event that is exceptional or could not be foreseen and is likely to pose a threat to the health, safety or welfare of the public;
  - ii. an event that, unless immediately addressed, is likely to cause significant loss or damage to property;
  - iii. an event that has disrupted any essential service that needs to be re-established without delay;
- Staff, with the assistance of V. Gibbons Contracting Ltd., installed a temporary forcemain from the pump station to approximately 150 meters north of Forks Road in an effort to bypass the known blockage (Phase 1). The costs incurred to complete this work was funded with operating dollars.
- Staff are now recommending awarding with Council approval, a further single source contract to V. Gibbons Contracting Ltd. for the construction/replacement of the temporary forcemain (Phase 2) due to the risk that another blockage could result in increased costs of hauling sewage along with negative impacts to the environment and the public.
- As per Schedule B - Purchasing and Execution Authority of the Region's Purchasing Bylaw, the purchasing authority for Special Circumstance awards over \$1,000,000 is Regional Council.

- Design is under way for Phases 3 to 5 (refer to Appendix 1) with construction occurring from the fall of 2019 to late 2020. Design was procured through a competitive process and construction of these subsequent phases will be awarded through a competitive process.

## Financial Considerations

### Operating Costs

To date, staff have invested a considerable amount of time managing this special circumstance event including retaining many third party contractors to assist with the hauling of sewage, cleaning of piping, and construction of an overland forcemain to temporarily rectify the issues. The operating costs expended to date are summarized below (including 1.76% non-refundable HST if applicable):

Summary of Expenditures/Resources	Amount
Third party vendors (8 vendors)	\$ 1,042,889
Estimated internal staff time and fleet resources	167,719
Total	\$ 1,210,608

These costs have been identified as a pressure to the 2019 forecasted financial results.

Any further breaks and/or blockages occurring on the forcemain will result in further costs to Niagara Region in the amount of approximately \$226,300/month (\$51,900 /week) plus costs for repair/replacement of piping. In addition to the above expenditures, there will be a rental cost of \$9000 plus taxes per month for the temporary forcemain piping commencing July 1, 2019.

### Capital Costs

Staff have obtained an estimate from V. Gibbons Contracting Ltd. for the replacement in the amount of \$1,390,502 (including 1.76% non-refundable HST and including 20% contingency). Staff has reviewed this estimate and find that it is inline with past costs for like work. Sufficient budget exists in the project for these amounts (see Appendix 2 for a full budget breakdown).

Water and Wastewater Engineering staff have been providing a significantly higher than normal amount of resources throughout the project in order to manage the project and related issues.

## Analysis

The Dain City Sewage Pump Station (SPS) serves approximately 800 residents/workers in Dain City (Welland) by pumping sewage to the gravity sewer system on Gordon Street some three (3) km away.

During a rain event on April 16, 2018, several basements in Dain City experienced flooding. During that event, Region staff were relief pumping to the environment with the objective of minimizing the sanitary sewer surcharging and flooding.

Region staff investigated the situation and found large quantities of a glycerine based substance had been deposited throughout the local sewage collection system. The City of Welland staff carried out a flushing program to clean the local collection system. Subsequent to the City's cleaning efforts, Region staff further investigated the issue and found that the glycerine based deposits were present through out the pump station piping and the forcemain. In addition, the forcemain was found to have damage typical of that caused by hydrogen sulphide build up in the pipe. Staff then put the processes in place for budgeting to begin design and replacement of the entire forcemain.

Maintenance Staff cleaned out all of the pump station piping and the forcemain in the immediate area of the pump station and replaced the lift station pumps.

On January 1, 2019, the Dain City forcemain was found to be plugged, which necessitated staff hiring tanker trucks to haul sewage directly to the Welland Wastewater Treatment Plant (WWTP) in order to protect residents' basements and avoid spills of untreated sewage to the environment.

On average, one and a half 43,000 litre trucks were filled every hour for the duration of the bypass effort. Total cost of trucking sewage from January 1st to February 26th was \$415,520 (\$226,300/month) excluding taxes.

Staff, with the assistance of Kerry T. Howe Engineering Limited and V. Gibbons Contracting Ltd., established a method to locate the blockage and by February 26, 2019, Gibbons installed a temporary forcemain (temporary in-ground and above ground piping) from the pump station to approximately 150 meters north of Forks Road, connecting to the existing forcemain in an effort to bypass the known blockage.

While this temporary main has allowed staff to avoid the continuing high cost of trucking the sewage, it is temporary and above ground, and thus could be subject to damage. It is staff's opinion that the forcemain needs to be replaced as soon as possible with a permanent, in-ground forcemain to avoid further risk to public safety and the environment.

On April 25, 2019, a new forcemain break was discovered along the railway lines in the area north of Humberstone Road and sewage was again hauled by sewage haulage tankers to the Welland WWTP for a two (2) day period to enable staff to make repairs.

These issues (blockage and leaks) were unforeseen and would pose a risk to the public and/or environment if left unchecked. The forcemain is now monitored on a daily basis so that immediate action can be taken if necessary due to the additional concerns associated with operating the temporary above ground pressurized sewage main. This temporary forcemain needs replacement to restore confidence in at least this section of the forcemain until the entire system is designed and constructed, thus providing continued sewage services to the residents of the Dain City area. There is pressure from the Dain City residents to remove the above ground forcemain. Any delay in completion of this work increases the already high chances of sewage spills to the environment, continued safety and liability concerns with the overland piping, and continuing high costs for trucking of sewage if blockages/leaks occur again.

Design of the replacement is complete and will replace the temporary above ground piping. V. Gibbons Contracting Ltd. have given their commitment to proceed immediately with this construction upon receiving approval from Niagara Region of the sole source award.

## **Alternatives Reviewed**

**Tender construction contract with tender period** – this alternative will result in at least an additional three (3) months time for development and finalization of tender documents and facilitating the tender period and award, resulting in further delayed completion of the work to eliminate the temporary overland forcemain. This delay will increase the risk to the public and environment related with long term operation of the temporary overland forcemain.

Any further breaks and/or blockages occurring on the forcemain will result in further costs to the Region in the amount of approximately \$226,300/month (\$51,900 /week) plus costs for repair/replacement of piping.

## **Relationship to Council Strategic Priorities**

This recommendation is related to the public safety and servicing strategic priority since the planned upgrades will ensure reliable and safe infrastructure within the Niagara Region.

**Other Pertinent Reports**

None

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**Prepared by:**

Richard Gabel, P.Eng.  
Senior Project Manager, Area 2  
Water & Wastewater Services  
Public Works Department

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**Recommended by:**

Catherine Habermehl  
Acting Commissioner  
Public Works Department

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**Submitted by:**

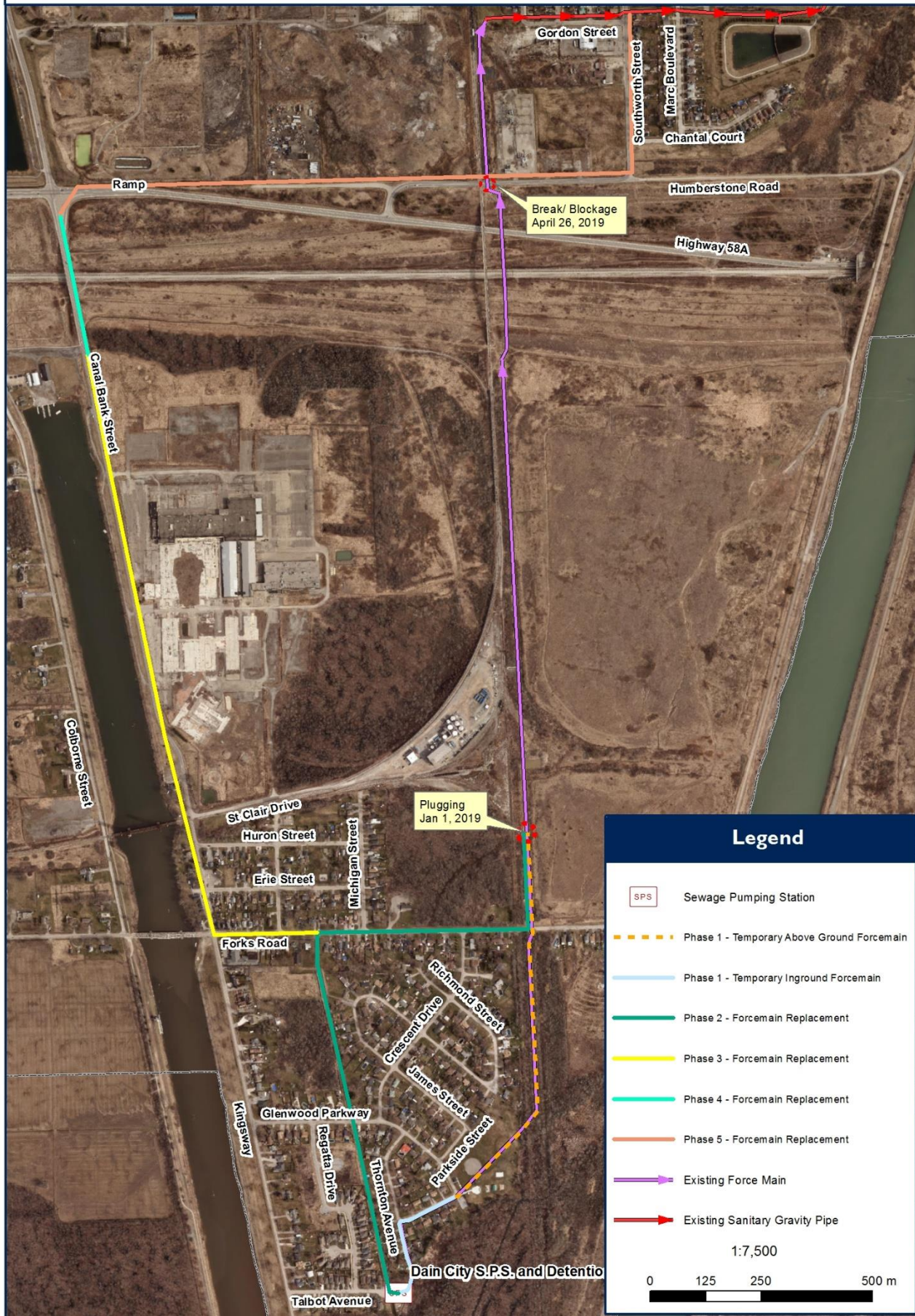
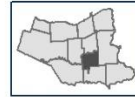
Ron Tripp, P.Eng.  
Acting Chief Administrative Officer

*This report was prepared in consultation with Pamela Hamilton, Program Financial Specialist W-WW, and reviewed by Tony Cimino, Associate Director W-WW and Joseph Tonellato, P.Eng., Director W-WW.*

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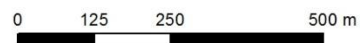




### Legend

- SPS Sewage Pumping Station
- Phase 1 - Temporary Above Ground Forcemain
- Phase 1 - Temporary Inground Forcemain
- Phase 2 - Forcemain Replacement
- Phase 3 - Forcemain Replacement
- Phase 4 - Forcemain Replacement
- Phase 5 - Forcemain Replacement
- Existing Force Main
- Existing Sanitary Gravity Pipe

1:7,500



**PW 42-2019 APPENDIX 2**  
**TOTAL ESTIMATED PROJECT COST**  
**Contract Award**

**Dain City Forcemain Replacement**

	<b>Total Council Approved Budget</b>	<b>Budget Increase / Reallocation</b>	<b>Revised Council Approved Budget</b>	<b>Expended &amp; Committed as of June 12, 2019</b>	<b>Forecasted Costs</b>	<b>Budget Remaining</b>
	<b>(A)</b>	<b>(B)</b>	<b>(C) = (A) + (B)</b>	<b>(D)</b>	<b>(E)</b>	<b>(F) = (C)-(D)-E</b>
<b><u>Total Estimated Project Cost 20000881 *</u></b>						
(a) Construction (includes contract contingency)**	5,129,999	(25,000)	5,104,999	163,061		4,941,938
1. Sole Source Award					1,390,502	(1,390,502)
2. Remaining Construction					3,551,436	(3,551,436)
(b) Project Contingency	500,000		500,000	-	500,000	-
(c) Consulting Engineering Services (Design, Contract Administration, & Inspection)	220,000	25,000	245,000	242,354	2,646	-
(d) Project Management & Internal Costs	175,000		175,000	12,476	162,524	-
<b>Total Estimated Project Cost</b>	<b>6,024,999</b>	<b>-</b>	<b>6,024,999</b>	<b>417,892</b>	<b>5,607,107</b>	<b>-</b>

\* All costs above include the non-refundable 1.76% portion of HST.

\*\* Total contract award is equal to i) \$1,366,452; ii) \$1,390,502 including 1.76% non-refundable HST; iii) \$1,544,091 including 13% HST