Municipality of Lakeshore

Report to Council

Engineering & Infrastructure Services

Environmental Services

To:	Mayor & Members of Council
From:	Albert Dionne, C.E.T. Manager, Environmental Services
Date:	February 18, 2021
Subject:	Denis St. Pierre Sewage Treatment Plant – Pump Repairs

Recommendations

Receive the report of the Manager of Environmental Services regarding the emergency pump repairs for the Denis St. Pierre Sewage Treatment Plant; and,

Direct the Treasurer to fund the costs of the emergency pump repairs from the Wastewater Reserve in the amount of $441,970, as presented at the March 9, 2021 Council meeting.

Background

On October 2, 2019 the Municipality experienced a major failure with one of the two screw pump intakes at the Denis St. Pierre Water Pollution Control Plant (WPCP). These pumps provide the critical function of pulling and lifting the wastewater from the collection system into the plant to provide treatment.

Each of these screws typically manage a maximum of 300 litres per second (l/s) of wastewater. A single screw pump is capable of only handling the plant flows during normal dry weather periods whereby both screw pumps are required to accommodate the plant flows during wet weather conditions.

Council was informed of the failure of the pump on the evening of October 2, 2019 via email.

At that time of the failure (with the help of OCWA staff and neighboring municipalities) Administration managed to place three 6” pumps almost immediately to manage the wet weather flows that the station was experiencing. These pumps were temporarily put into place as an emergency measure to maintain sewage flows into the plant.

A temporary pump was purchased to provide the plant relief until the screw pump could be replaced.

The screw pump was replaced and put back into operation on June 24, 2020.

This report provides Council with an update regarding the final repair costs associated with the screw pump which was procured under the emergency provisions of the purchasing by-law.

Comments

While the Municipality relied on the emergency measure of utilizing the three 6" pumps, the following two items needed to be addressed:

1. Implement a short-term solution to manage flows until the screw could be repaired or replaced; and
2. Complete an assessment related to a long-term solution to determine the best direction, either to repair or replace the screw pump.

The below provides more detail related to the short and long term solutions that were assessed.

Short-Term Solution

To address the need for a short term solution, while the screw pump was permanently repaired or replaced, Administration directed OCWA to request quotations from pump suppliers in North America for the rental of a 12" pump to handle the flows during wet weather conditions.

The quotations received for a 12" pump rental for the expected 7 month duration was in excess of $100,000 plus HST.

In light of this significant cost, Administration further explored the cost to purchase a 12" pump in lieu of renting.

In consultation with the Director of EIS and Finance, it was determined that purchasing the pump in accordance with the Municipality's Procurement Policy for purchases of goods and services under Emergencies would provide the greatest benefit. It was further noted that since the Municipality had no contingency plan in place for a failure of this magnitude, purchasing this pump would assist with addressing any future failures of this magnitude at the plant and that this pump could also benefit not only the Wastewater division, but also the Water, Drainage and Public Works divisions to assist with any potential pumping measures needed under either emergency situations or planned projects where temporary pumping may be required.

Therefore, Administration proceeded with the purchase of a 12" pump for $159,000 plus HST. This purchase was incurred in 2019.

Further, the upcoming Denis St. Pierre Plant Expansion Project will be able to utilize this pump in order to provide occasional flow bypass at certain stages of work.

Long-Term Solution

For the long-term solution, Administration (with the support of OCWA) proceeded to review options for repairing the screw pump. It was determined that this would be extremely difficult based on its size and would require a crane to remove and place the pump after the repairs were completed. In addition, Contractors would not be able to provide a guarantee that the screw would be repaired and function properly. Following repair, this pump would require perfect placement to ensure that the bearings would not be damaged. It was determined that repairing the screw was risky and not a viable option.

The Municipality's preferred option was a full replacement. Administration contacted three manufacturers (worldwide) that manufacture screw pumps. After consultation with all manufacturers, the firm of Spaans-Babcock of Barrie, Ontario was selected to manufacture and complete the replacement work based on best pricing. Manufacturing of this would take approximately 6 months.

Once the short-term solution of the 12" pump was in place and considering the plant equipment age dating back to 1977 when plant was constructed, Administration completed an assessment on the condition of the second screw pump. It was determined that the second screw pump bearings and gear box were in need of maintenance and replacement.

Maintenance and replacement parts arrived within five weeks and maintenance work was completed on the second pump.

The new screw pump arrived on-site on May 26, 2020 and preparatory work began on June 1, 2020. Preparation work included the removal of the existing screw pump, bearings and gear box prior to the placement of the new screw pump. During this work the existing trough was inspected. It found to be in very good condition and the new screw fit snug. The new screw pump was placed and tested and was found to be operating very effectively. The work was completed and the pump commissioned into operation on June 24, 2020.

Financial Impacts

The 12" pump was purchased for $161,801 to accommodate the short term solution in order to maintain the flows until the replacement of the screw pump was completed. This was purchased in 2019.

Under the long term scenario, the original quote received from Spaans-Babcock to manufacture and install the replacement screw pump was $397,193 including a $50,000 contingency allowance and the non-refundable HST. The actual overall cost incurred was $280,169. These costs were incurred in 2020.

During construction, no significant issues were recognized which led to the contingency not being used ($50,000) along with an additional $15,000 savings as the existing screw trough did not require replacement.

This total cost of the project, combined with the short-term solution, was $441,970 including HST. This unbudgeted expenditure is recommended to be funded from the wastewater reserve fund.

Report Approval Details

Document Title:	Denis St. Pierre Treatment Plant - Pump Repairs .docx
Attachments:	
Final Approval Date:	Mar 3, 2021

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

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