



STAFF REPORT

THE CORPORATION OF THE TOWN OF COBOURG

Regular Council

Report to: Mayor, Deputy Mayor, and Councillors
From: Darryl Ashe, Acting Manager, Environmental Services
Report Number: PW-2024-015
Council Meeting Date: June 26 2024
Subject: **Procurement of Automated Screening System Plant 1**

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1. Recommendation:

THAT Council approve the purchase of a Green Frog Raked Bar Screen system at a cost of \$153,732 (price includes non-refundable HST) which is within the approved 2022 capital budget of \$200,000.

2. Executive Summary:

Automated screens are used at wastewater plants to remove unwanted material (rags etc.) from entering the plant. These materials can wreak havoc on pumps and other downstream processes. Water Pollution Control Plant #1 commissioned a new headworks building in 2019 utilizing one automated screen and one manual by-pass screen. If failure of the automated screen occurs during off-hours, the manual screen can become completely blocked by debris before an Operator has time to respond and raw sewage can begin overflowing into the room. In a worst-case-scenario the raw sewage could run out of the building and enter Cobourg Creek creating an environmental incident. Replacing the manual bar screen with a high throughput, self-cleaning screen will greatly reduce the risk of sewage overflows.

The supply contract was publicly tendered on Biddingo on April 11th 2024 and closed on May 14th 2024, which resulted in six (6) submissions from five (5) different suppliers. Upon evaluation by Staff and the Town's engineering

consultant, the highest scoring product both in technical requirements and lowest score was the **Green Frog 6.35 mm Raked Bar Screen** at a cost of \$153,732 (price includes non-refundable HST) which is within the approved 2022 capital budget of \$200,000.

3. Background

Water Pollution Control Plant #1 commissioned a new headworks building in 2019. The incoming raw sewage enters the new headworks wetwell and is then pumped into an upper level containing two channels with screens in each;

1. Primary Channel: One (1) automated 6 mm perforated screen.
2. Secondary Channel: One (1) coarse, 254 mm manual bar screen.

On occasions where the automated screen experiences a mechanical failure or becomes plugged with material due to high flows, it can cause the sewage level in the upper channel to rise. Upon reaching a pre-set level, an ultrasonic sensor triggers an automated gate to open and allow raw sewage to flow into a second channel containing a 254 mm static bar screen. The secondary bar screen has no automation and must be cleared manually by an Operator using a standard garden rake. If failure of the automated screen occurs during off-hours, the manual screen can become completely blocked by debris before an Operator has time to respond and raw sewage can begin overflowing into the room. In a worst-case-scenario the raw sewage could run out of the building and enter Cobourg Creek creating an environmental incident.

Replacing the manual bar screen with a high throughput, self-cleaning screen will greatly reduce the risk of sewage overflows.

This project was budgeted in 2022 however due to several capital projects being deferred or lengthened during the pandemic, other capital projects have taken priority.



4. Discussion:

Perforated screening systems provide the highest capture rate for debris and for this reason the primary screen at Plant #1 is of a (6 mm) perforated screen design. However, the high capture rate also renders it susceptible to rapid plugging during periods of high flow. Plant #1 only has two incoming channels for raw sewage making it imperative that the second channel never become plugged.

The main objective of the secondary screening system is therefore throughput and must possess the following attributes:

- (a) **High Flow Rate** – Allows large volumes of sewage to pass through it. Ideal system will possess the best capture ration while ensuring a continuous throughput of at least 45,000 m³/day (i.e., Plant #1 peak Headworks flow)
- (b) **Automatic, Rapid Screen Cleaning Rate** – Debris must be removed quickly and completely from the screen at a rate that prevents the screen from becoming plugged, even during periods of peak flow.

To ensure the most appropriate screen for the job is obtained, a scoring system was used to properly weigh all the required parameters. In this instance, a high capture rate is secondary to the need to maintain throughput. The scoring system employed rated each tender submission based on both price (50%) and their ability to provide the necessary technical functions (50%).

The supply contract was publicly tendered on Biddingo on April 11th, 2024, and closed on May 14th 2024, which resulted in six (6) submissions from five (5) different suppliers:

- 1. Huber (1)
- 2. ENV (1)
- 3. Claro 1)
- 4. Green Frog (2)
- 5. JWC (1)

The screening system is a critical piece of wastewater infrastructure and while it must be capable of providing a certain minimum capture ratio, it must also ensure a constant throughput in excess of 45,000 m³/day. The basic functional needs for which this equipment must provide and the price of the equipment have been equally weighted in the scoring system.

System Requirements:

- 1. **Efficient Screen Style** - effectively remove debris (ideally a capture rate >60%) and clean screen at a frequency that prevents it from plugging (i.e., maintains a throughput >45,000 m³/day)
- 2. **Corrosion Resistance** – 304 or 316 stainless steel

3. **Compatible with Existing Screening Equipment** (i.e., Washer/Compactor)
4. **Low Operating Cost** (e.g. Electrical/water costs, consumable parts)
5. **Reliability** (infrequent equipment failures)
6. **Warranty**
7. **Delivery Time**
8. **Local Servicing of Equipment**

5. Financial Impact and Budget

The equipment submissions were evaluated by Staff and the Town's engineering consultant and resulted in the following scores:

Supplier	Evaluation Score (%)
Huber	67
ENV	91
Claro	70
Green Frog (1)	91
Green Frog (2)	93
JWC (1)	70
JWC (2)	72

The recommendation, based on the above scoring, is for the Town to purchase the **Green Frog 6.35 mm Raked Bar Screen** for this project. This unit has the highest overall score, highest throughput and the lowest price. The screen will need to be installed in the second channel, connected via intrinsically safe (i.e., explosion-proof) wiring and incorporated into the Plant #1 SCADA computer program. It is estimated that the total cost of the commissioning will be ~\$45,000. The total cost of this project will not exceed the 2022 approved capital budget of \$200,000.

6. Relationship to Council's Strategic Plan Priorities 2023 to 2027 and beyond:

☒ Thriving Community

Provide the physical infrastructure to support a healthy community that will enable each of us to flourish and reach our full potential.

☐ Service Excellence

☐ Sustainability

Enhance our Financial and Asset Management Plans to provide appropriate levels of services and ensure long-term sustainability.

7. Public Engagement:

N/A

8. Attachments:

N/A

**9. Report Not Considered by
Standing Committee Because:**

☒ Time Sensitive Issue (information received too late for Standing Committee consideration). Delivery time is expected to be 12-20 weeks so it was important to have Council approval to proceed with the order prior to the summer break of Council meetings.

☐ Urgent Matter (issue arose after this month's Standing Committee Meeting)

☐ Other:

Report Approval Details

Document Title:	Automated Screening System Plant 1.docx
Attachments:	
Final Approval Date:	Jun 18, 2024

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

Laurie Wills, Director of Public Works - Jun 13, 2024 - 11:49 AM

Tracey Vaughan, Chief Administrative Officer - Jun 18, 2024 - 11:48 AM