

Emergency Repairs to Raw Water Valves at F. J. Horgan Treatment Plant

Date: June 21, 2023

To: General Government Committee

From: General Manager, Toronto Water and Chief Procurement Officer

Wards: 25

SUMMARY

The purpose of this report is to advise Toronto City Council, pursuant to Chapter 195 of the Toronto Municipal Code (Purchasing By-law, Section 195-7.4), of an amendment to Purchase Order Number 6050742, issued to CIMA Canada Inc. (CIMA+), for additional contract administration related to emergency repairs to raw water valves at F. J. Horgan Treatment Plant in amount of \$530,503 net of all taxes and charges (\$539,840 net of HST recoveries), revising the current Purchase Order value from \$536,514 net of all taxes and charges (\$545,957 net of HST recoveries) to \$1,067,017 net of all taxes and charges (\$1,085,796 net of HST recoveries).

In addition, this report advises of an amendment to Purchase Order Number 6053360, issued to WSN Construction Inc. (WSN), for the emergency repairs to the raw water valves in the amount of \$1,096,113 net of all taxes and charges (\$1,115,405 net of HST recoveries), revising the current Purchase Order value from \$2,786,867 net of all taxes and charges (\$2,835,915 net of HST recoveries) to \$3,882,980 net of all taxes and charges (\$3,951,320 net of HST recoveries).

Toronto Municipal Code, Chapter 195, Purchasing, defines an emergency as, “Any situation of extreme urgency brought about by unforeseeable events that makes the procurement of goods and services necessary to address an immediate risk to health, safety, security, property, the environment or other public interests of the City”.

F.J. Horgan Water Treatment Plant provides water to customers in the east end of the City and the Region of York. It produces approximately 20% of Toronto’s drinking water and employs eight (8) raw water pumps to draw water from Lake Ontario. Repairs to raw water valves are required to ensure adequate drinking water supply is available to address health and safety risks and have four (4) of the raw water pumps back in service to meet the high-capacity requirements of the summer months. During the summer months, a 50% increase in production is needed at the F.J. Horgan Water Treatment Plant and a 25% increase in production is needed for the entire system to ensure an adequate drinking water supply is available.

Additional work was authorized to proceed on an emergency basis by the General Manager, Toronto Water and Chief Procurement Officer under Chapter 195-7.1(G) of the Municipal Code. Reporting back to City Council through the General Government Committee is required in accordance with Municipal Code Chapter 195, Purchasing, Section 195-7.4(B) where the potential value of the non-competitive contract exceeds \$500,000.

Through these emergency procurement activities, Toronto Water was able to expand existing contracts to include the additional and urgent work required at rates comparable to tender prices received for work of similar scope and scale.

RECOMMENDATIONS

The General Manager, of Toronto Water, and the Chief Procurement Officer recommend that:

1. City Council receive this report for information.

FINANCIAL IMPACT

The amendment of Purchase Order Number 6050742 with CIMA Canada Inc. by an additional amount of \$530,503 net of all taxes and charges (\$539,840 net of HST recoveries), has increased the purchase order value from \$536,514 net of all taxes and charges (\$545,957 net of HST recoveries) to \$1,067,017 net of all taxes and charges (\$1,085,797 net of HST recoveries), under the emergency provision of the Purchasing By-law.

The amendment of Purchase Order Number 6053360 with WSN Construction Inc. by an additional amount of \$1,096,113 net of all taxes and charges (\$1,115,405 net of HST recoveries), has increased the purchase order value from \$2,786,867 net of all taxes and charges (\$2,835,915 net of HST recoveries) to \$3,882,980 net of all taxes and charges (\$3,951,320 net of HST recoveries), under the emergency provision of the Purchasing By-law.

The above Purchase Order amendments provided for repairs to raw water valves required to address health and safety risks and to have four pumps back in service to ensure that adequate drinking water supply is available.

Funding is included in the Toronto Water 2023 Approved Capital Budget and 2024-2032 Approved Capital Plan, as summarized in Table 1 below:

Table 1: Financial Impact Summary

WBS Element	Description	2023	2024	Total (net of HST recoveries)
CWP062	FJ Horgan W.T.P. R&R	\$198,130	\$341,710	\$539,840

WBS Element	Description	2023	2024	Total (net of HST recoveries)
CWP062	FJ Horgan W.T.P. R&R	\$326,917	\$788,487	\$1,115,405

The Chief Financial Officer and Treasurer reviewed this report and agrees with the financial impact information.

DECISION HISTORY

On June 25, 2020, the Chief Procurement Officer authorized the award of Request of Quotation Number Doc2310649092 (9117-20-7020) to CIMA+ for the design, construction, and post-construction engineering services related to the F. J. Horgan raw water valves upgrades for a total contract award of \$462,814 net of all taxes and charges. On March 8, 2021, a Purchase Order Amendment (POA) was issued, for \$73,700 net of taxes and charges for additional services relating to the addition of retaining plates to the valves increasing the value of the purchase order to \$536,514 net of all taxes and charges.

At its meeting held on May 2, 2022, the Bid Award Panel adopted Item No. BA186.9, thereby authorizing the award of Request of Tender No. Doc3342724104 to WSN Construction Inc. for the F. J. Horgan Water Treatment Plant Raw Water Valves Upgrades for Toronto Water, in the amount of \$2,786,866 net of all applicable taxes and charges.

The Bid Award Panel decision can be found at:
<https://secure.toronto.ca/council/agenda-item.do?item=2022.BA186.9>

COMMENTS

1. F. J. Horgan Raw Water Valves Emergency Repairs

F.J. Horgan Water Treatment Plant, opened in 1979, and provides water to customers in the east end of the City and the Region of York. It produces approximately 20% of Toronto’s drinking water and can produce 800 million litres daily. The plant has eight (8) raw water pumps to draw water from Lake Ontario, six (6) of which were commissioned in 1980, with the remaining two (2) in 2012.

In 2020, the City retained CIMA Canada Inc. (CIMA+) to perform a comprehensive design for the installation of six (6) check valves, butterfly valves, and flowmeters. These items were pre-purchased in a previous capital project with the intention of replacing the existing units on the raw water discharge of the original six pumps commissioned in 1980. In May 2022, WSN Construction Inc, (WSN) was awarded the contract for the project with site construction commencing in June 2022.

CIMA+ proposed a two-phase construction approach during the low-flow season (i.e. Fall, Winter, and Spring), with each phase requiring a two-month shutdown period to guide the contractor's proposed work. However, construction work cannot proceed to Phase 2 until the equipment in Phase 1 is back in service following satisfactory testing and commissioning.

Unfortunately, at the start of construction, the isolation butterfly valve could not close tightly, posing a risk of flooding the facility. As a result, the original construction sequence, which consisted of two (2) phases, needed modification.

The project team created a revised construction sequence that included three (3) construction phases, as presented below:

- a. Phase 1 - shut down the west side four (4) pumps.
- b. Shut down the whole plant for four (4) days to replace the isolation butterfly valve.
- c. Phase 2 - shutdown six (6) pumps (i.e. west side four (4) and east side two (2))
- d. Phase 3 - shutdown east side four (4) pumps.

During Phase 1 of the construction project, which involved shutting down four (4) of the west pumps, the contractor discovered unforeseen corrosion conditions in the existing pipes, elbows, valves, fittings, and supports. It is assumed that the same corrosion conditions may be present in other pumps, pipes, and fittings currently in operation.

Repairs to raw water valves are required to ensure adequate drinking water supply is available to address health and safety risks and have four (4) of the raw water pumps in Phase 1 back in service to meet the high-capacity requirements of the summer months. During the summer months, a 50% increase in production is needed at the F.J. Horgan Water Treatment Plant and a 25% increase in production is needed for the entire system in to ensure an adequate drinking water supply is available.

Work was authorized to proceed on an emergency basis by the General Manager, Toronto Water and Chief Procurement Officer under Chapter 195-7.1(G) of the Municipal Code. Reporting back to City Council through the General Government Committee is required in accordance with Municipal Code Chapter 195, Purchasing, Section 195-7.4(B) where the potential value of the non-competitive contract exceeds \$500,000.

2. Emergency Amendment to Purchase Order 6053360 with WSN Construction Inc.

On March 15, 2023, CIMA+ submitted a letter recommending the repairs to the raw water valves for a total cost of \$1,096,113 net of taxes and charges. A summary of the scope of work is as follows:

a. Replacement of the Isolation Butterfly Valve.

The replacement of the isolation butterfly valve requires the removal of the existing Victaulic coupling and a pipe spool that is directly connected to the valve. Due to the age of the coupling, CIMA+ recommended its complete replacement.

b. Replacement of existing pipes, elbows, and valves due to corrosion.

During Phase 1 of the construction project, unforeseen corrosion conditions were discovered in the existing pipes, elbows, valves, fittings, and supports. It is assumed that similar corrosion conditions are present in all other pumps, pipes, and fittings currently in operation and these would need to be replaced.

c. Installation of flanges to prevent flooding.

Installation of blind flanges in the raw water suction well inlet pipes is critical to isolate Lake Ontario water in the well from the raw water suction lines and prevent flooding of the eight (8) raw water pump motors and associated electrical equipment.

3. Emergency Amendment to Purchase Order 6050742 with CIMA Canada Inc

In response to the issues and project concerns identified in this report, CIMA+ submitted a quote in the amount of \$530,503.00 net of all taxes and charges. The scope of work includes revisions to the staging plans, design for the valve disconnect switch, updates to control wiring, additional review coordination, additional meetings with staff, as-built drawings, additional site inspection, contract administration, project management, and contingency.

4. Status of Emergency Raw Water Valves Upgrades

Work related to the repairs on the west four (4) pumps is currently underway, with mechanical commissioning scheduled for July 2023.

In April the isolation butterfly valve was delivered to the site. The four-day shutdown of the plant to allow for the replacement of the butterfly valve and associated coupling was completed on June 8. The repairs can now proceed and it is anticipated that the four (4) west pumps can be put back in service by late-July.

Once the high-capacity pumping requirements of the summer months are over, work can proceed on Phase 2 and Phase 3 of the project. The schedule for this work has not yet been determined with the contractor, however, it is anticipated that work can be completed by the end of the year.

5. Ensuring Value Under Emergency Procurement

Through these emergency procurement activities, Toronto Water was able to approve the work required to conduct the repairs and recast the project schedule which resulted in a reduced risk of equipment downtime and project delays. The project team reviewed the quotations received for additional work and found them to be reasonable compared to tender prices received for work of similar scope and scale.

CONTACT

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SIGNATURE

Lou Di Gironimo
General Manager, Toronto Water

Geneviève Sharkey
Chief Procurement Officer, Purchasing and Materials Management

ATTACHMENTS

1. Raw Water Valves Upgrade Images

Attachment 1: F. J. Horgan Raw Water Valves Images



Figure 1 - Raw Water Pumps and Motors



Figure 2 - Raw Water Pump Discharge Piping



Figure 3 - Raw Water Pipes Demolishing



Figure 4 - Unforeseen Corrosion Conditions of a Drain Line Component

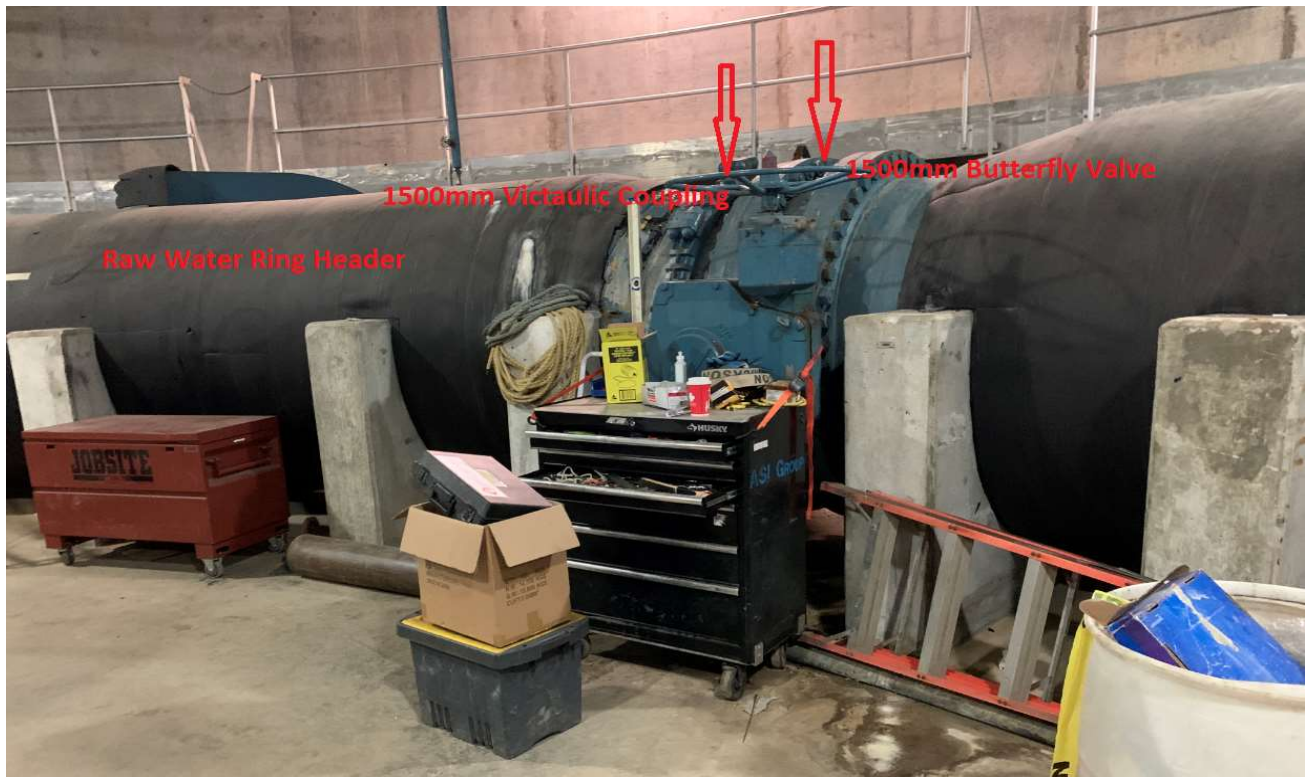


Figure 5 - Existing 1500mm Isolation Butterfly Valve and Victaulic Coupling

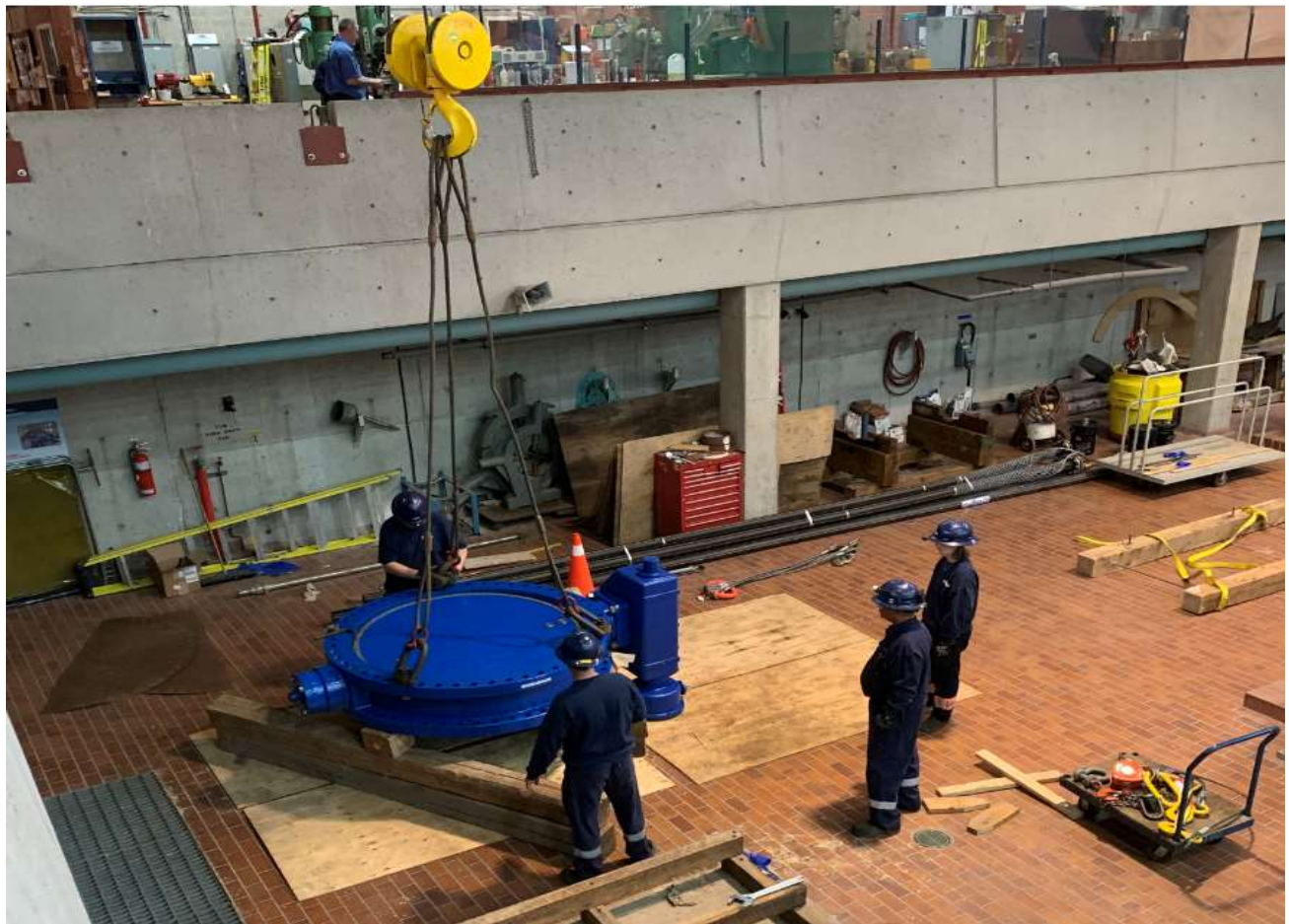


Figure 6 - New 1500mm Isolation Butterfly Valve



Figure 7 - New Fabricated Spools



Figure 8 - Site Closing for Lead Abatement



Figure 9 - Existing Coating on Exterior of Elbow

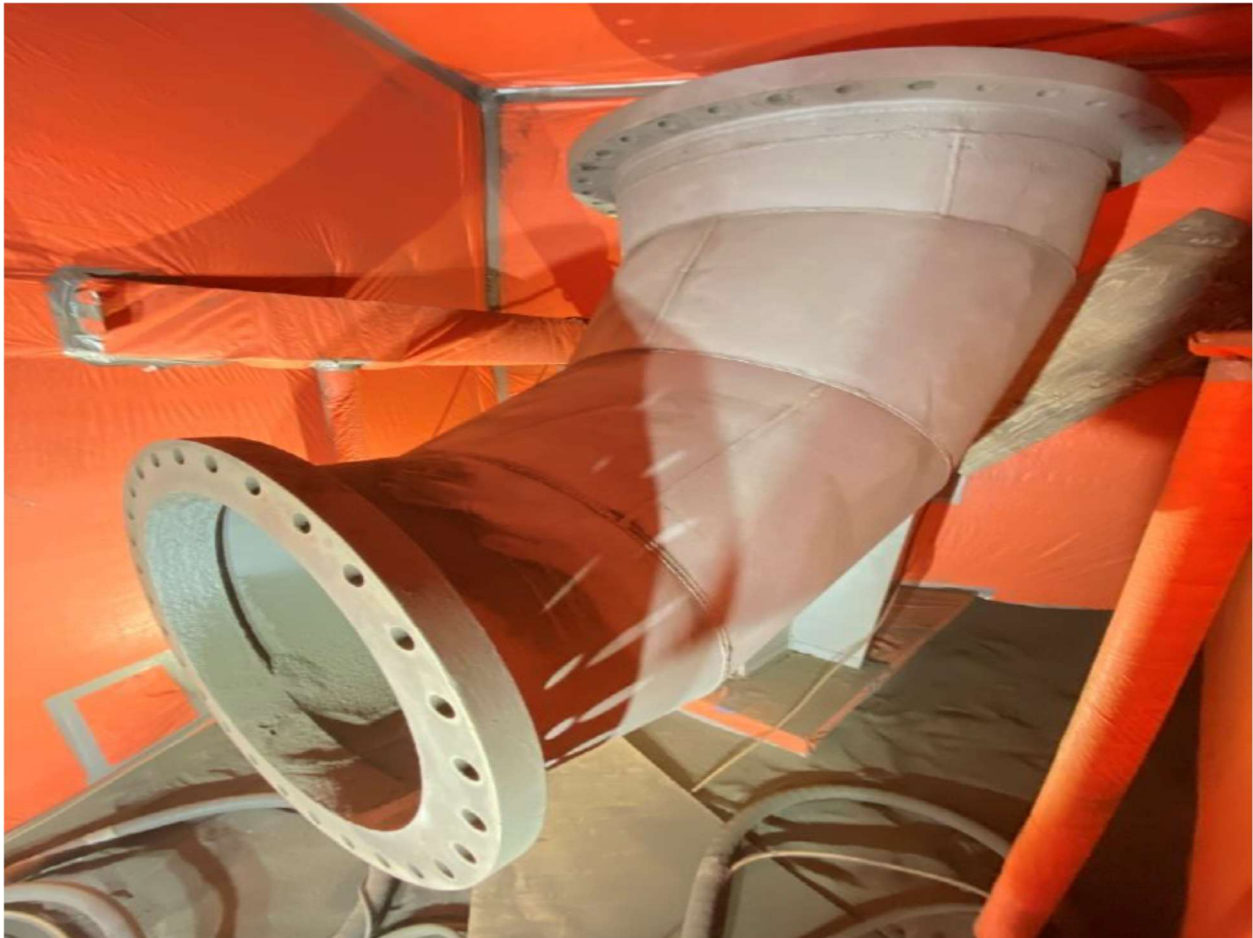


Figure 10 - Exterior Surface after the Sand Blasting to Remove Coating