



Carruthers Creek Sanitary Sewage Pumping Station 2023 Annual Performance Report





The Regional Municipality of Durham

Carruthers Creek Sanitary Sewage Pumping Station 2023 Annual Performance Report

Environmental Compliance Approval (ECA): 4217-C73JE5 Dated December 14, 2021

The Carruthers Creek Sanitary Sewage Pumping Station (SSPS) 2023 Annual Performance Report provides staff, stakeholders and customers an overview of the performance of Carruthers Creek SSPS in 2023. Further, this report fulfills the annual reporting requirements of the Ontario Ministry of Environment, Conservation and Parks (MECP). This report demonstrates the commitment of ensuring that the SSPS continues to deliver wastewater collection services to our customers in an environmentally responsible manner.

Sanitary Sewage Pumping Station Process Description

General

Carruthers Creek SSPS located in the Town of Ajax is owned and operated by the Regional Municipality of Durham (Region). The pumping station is operated according to the terms and conditions of the ECA. Wastewater from Carruthers Creek SSPS is conveyed to Duffin Creek Water Pollution Control Plant (WPCP), a Class 4 conventional activated sludge treatment plant located in the City of Pickering.

Proposed Works:

- a new pump with a rated capacity of 100 litres per second (L/s) and
- a chemical storage and dosing system to be used on as needed basis, designed for hydrogen sulphide control in collection system downstream of the Carruthers Creek Sewage Pumping Station

Existing Works:

- a dry well/wet well type sewage pumping station located at 71 Greenhalf Drive, Town of Ajax, equipped with 2 submersible pumps (one standby) with variable frequency drives, each rated at 317 L/s at Total Dynamic Head (TDH) of 56.6 metres, with provision for future installation of 2 pumps of similar capacity to provide total (3 duty, 1 standby) rated capacity of 950 L/s,
- forcemain from the Carruthers Creek Sewage Pumping Station to an existing trunk gravity sanitary sewer located at Harwood Avenue between Highway 401 and Highway 2.

Environmental Compliance Approval (ECA)

Under Condition 8.(3) of ECA #4217-C73JE5 the Region must produce an annual performance report that must contain the following information:



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a) Summary of all operating issues encountered and corrective actions taken;

Daily flow patterns have caused duty pumps to remain off for extended periods leading to increased concentrations of hydrogen sulfide in the forcemain. A new jockey pump and chemical dosing system is currently being installed to reduce hydrogen sulfide buildup.

b) Summary of all normal and emergency repairs and maintenance activities carried out on any major structure, equipment, apparatus or mechanism forming part of the Works;

Major maintenance items in 2023 included:

- Greased line shaft and bar screen,
- Replaced sump pump pipe,
- Replaced compressor pressure switch,
- Cleaned force main padding air tanks.

c) Summary of the calibration and maintenance carried out on all monitoring equipment;

Calibration of the flow meter was not performed in 2023 but was calibrated on February 22, 2024.

Complete SSPS alarm testing conducted every 2 months.

Flight balls level control function verified every 2 months.

d) Summary of any complaints received during the reporting period and any steps taken to address the complaints;

All complaints received from the public are administered and tracked through a central database. No complaints were received in 2023.

e) Summary of Overflows, other situations outside Normal Operating Conditions and spills within the meaning of Part X of EPA and abnormal discharge events;

There were no overflow events in 2023.

f) Summary of all Notice of Modifications to Sewage Works completed under Paragraph 1.b. of Condition 7, including a report on status of implementation of all modifications;

There were no Notices of Modification to Sewage Works submitted in 2023.

g) Summary of efforts made to achieve conformance with Procedure F-5-1 including but not limited to projects undertaken and completed in the sanitary sewer system that result in overall Overflow elimination including expenditures and proposed projects to eliminate Overflows with estimated budget forecast for the year following that for with the report is submitted;

There were no projects in 2023.



- h) Any changes or updates to the schedule for the completion of construction and commissioning operation of major process(es)/equipment groups in the Proposed Works;**

Proposed Alterations, Extensions or Replacements

Chemical dosing system

The pumping station chemical dosing system utilizing calcium nitrate solution will be replaced with ferrous chloride solution for odour control in the forcemain. Chemical treatment of wastewater helps eliminate buildup of hydrogen sulfide in the forcemain.

Jockey pump

A jockey pump will be installed in the dry well to better manage low flow. Maintaining constant flow at the pumping station will help eliminate the buildup of hydrogen sulfide in the forcemain. Construction for both projects commenced on November 24, 2023 with an anticipated completion date of April 30, 2024.



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Table 1 Overflow Events

Month	Estimated or measured volume of the Overflow in cubic metre (m³)	Biochemical Oxygen Demand (BOD₅) average (avg.) concentration (conc.) milligrams per litre (mg/L)	Total Suspended Solids (TSS) avg conc. mg/L	Total Phosphorus (TP) avg conc. mg/L	Total Kjeldahl Nitrogen avg. conc. mg/L
January	0	0	0	0	0
February	0	0	0	0	0
March	0	0	0	0	0
April	0	0	0	0	0
May	0	0	0	0	0
June	0	0	0	0	0
July	0	0	0	0	0
August	0	0	0	0	0
September	0	0	0	0	0
October	0	0	0	0	0
November	0	0	0	0	0
December	0	0	0	0	0
Total	0				
Average	0	0	0	0	0
Minimum	0	0	0	0	0
Maximum	0	0	0	0	0