



WASTEWATER OPERATIONS MEMORANDUM

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TO: DEPUTY MAYOR, B. WARD AND MEMBERS OF COUNCIL

FROM: G. JORDEN, MANAGER OF WASTEWATER OPERATIONS

NOTED: S. DIEMERT, P. Eng., DIRECTOR OF INFRASTRUCTURE

B. ARANIYASUNDARAN, P. Eng., PMP, GENERAL MANAGER OF INFRASTRUCTURE AND GROWTH MANAGEMENT

MICHAEL PROWSE, CHIEF ADMINISTRATIVE OFFICER

RE: 2021 WASTEWATER OPERATIONS ANNUAL REPORTS (FILE: A22-AN)

DATE: MAY 30, 2022

The purpose of this Memorandum is to provide members of Council with a summary on the 2021 operation of the Wastewater Treatment Facility (WwTF), and the Wastewater Collection System (WWCS). The Ministry of Environment, Conservation and Parks (MECP), as part of the Environmental Compliance Approvals (ECAs), for each of these facilities, requires that a report be submitted annually.

Both reports were submitted to the MECP on March 31, 2022, satisfying the requirements of the ECAs.

Copies of the complete 2021 Annual Reports have been posted on the City's website and on the Wastewater Operations Branch page on InSite.

2021 Wastewater Treatment Facility Annual Report:

<https://www.barrie.ca/Living/Environment/Wastewater-And-Sewers/Documents/2021%20Wastewater%20Treatment%20Facility%20Annual%20Report.pdf>

2021 Wastewater Collection System Annual Report:

<https://www.barrie.ca/Living/Environment/Wastewater-And-Sewers/Documents/2021%20Wastewater%20Collection%20System%20Annual%20Report.pdf>

Wastewater Treatment Facility

The City of Barrie's WwTF is located at 249 Bradford Street and operates under the MECP's Amended ECA No. 0284-B2ML52 dated August 24th, 2018. Fully treated effluent is discharged to Kempenfelt Bay, residual solids are converted to biosolids through dual digestion (aerobic & anaerobic), biosolids are used as a fertilizer on local farms, and methane gas generated from the digester process and is used for co-generation of heat and electricity, offsetting approximately \$450,000.00 in electricity charges annually.

In 2021, the effluent average daily flow of 50.7 mega litres per day (MLD) of treated sewage represented approximately 66.7% of the plant's rated capacity of 76 MLD. The maximum daily effluent flow was 73.1 MLD on September 22, 2021, which was the result of runoff from precipitation accessing the sanitary collection system.

The WwTF maintained full compliance with all required effluent concentration and loading limits. Additionally, the plant met all ECA Objectives with few exceptions. Over the reporting period the WwTF functioned exceptionally well, producing a high quality of treated effluent. The effluent annual average phosphorous concentration was 0.03 mg/L (99.5% removal by concentration), and the average ammonia effluent concentration was 0.25 mg/L (99.0% removal).



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Phosphorous and ammonia are nutrients that contribute to plant growth and oxygen depletion in receiving waters, with ammonia also being toxic to fish. Final effluent phosphorous is also subject to the limits and objectives of the Lake Simcoe Protection Act and the Lake Simcoe Phosphorous Reduction Strategy. The final effluent phosphorous annual loading was 555 kg, which is 20% of the annual compliance loading maximum of 2,774 kg, and the actual effluent annual average phosphorous concentration of 0.03 mg/L for 2021 fully met the Lake Simcoe Phosphorus Reduction Strategy limit of 0.1 mg/L.

All other reportable parameters were treated to levels well below their regulated limits. These include Total Suspended Solids (99.0% removal), and cBOD (98.3% removal).

Wastewater Collection System

The City of Barrie owns and operates a WWCS that terminates at the WwTF. The WWCS currently operates under MECP ECA No. 5921-ATUKKR dated January 10, 2018. The WWCS is comprised of 12 sewage pumping stations (SPS) and over 550 km of gravity flow sewers. Additionally, the City assumes responsibility for the maintenance of sanitary laterals from the sewer main to the property line when the lateral experiences a structural failure. In 2021, the City completed or oversaw the repair or replacement of 34 sanitary laterals.

There were no spills, overflows, and/or related sewer use bylaw issues related to any SPS.

Within the gravity sewer portion of the system, there were 10 incidents related to potential spills, overflows, and/or related sewer use bylaw issues that required an investigation and/or response from City staff, either by Wastewater Operations or Environmental Compliance. Of the 10 incidents, five were the result of private-side misuse of the sewer resulting in an overland spill, two were due to the failure of contractor bypass pumps on construction projects, two are ongoing investigations related to possible cross-connections of the sanitary and storm systems, and one was a completed investigation of a potential cross-connection that did not exist. All 10 incidents were reported to the MECP, in accordance with all regulatory requirements. No directives or orders have been issued to the City because of these incidents.

This Memorandum provides a compilation of information that demonstrates the commitment of the Branch in protecting the health of Lake Simcoe and the residents of Barrie.

If you have any questions or require further information, please contact Greg Jorden, Manager of Wastewater Operations, at extension 4349.