



INFRASTRUCTURE DEPARTMENT MEMORANDUM

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TO: MAYOR NUTTALL AND MEMBERS OF COUNCIL

FROM: G. JORDEN, MANAGER OF WASTEWATER OPERATIONS, EXT. 4349

NOTED: S. DIEMERT, P. ENG., DIRECTOR OF INFRASTRUCTURE
B. ARANIYASUNDARAN, P. ENG., PMP, GENERAL MANAGER OF
INFRASTRUCTURE AND GROWTH MANAGEMENT
M. PROWSE, CHIEF ADMINISTRATIVE OFFICER

RE: 2022 WASTEWATER OPERATIONS BRANCH ANNUAL REPORTS (ALL WARDS)

DATE: MAY 3, 2023

The purpose of this memorandum is to provide members of Council a summary of the 2022 operations 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 30, 2023, satisfying the requirements of the ECAs.

Copies of the complete 2022 Annual Reports have been posted on the City's website and on the Wastewater Operations Branch page on InSite.

2022 Wastewater Treatment Facility Annual Report: <https://www.barrie.ca/sites/default/files/2023-04/2022-Wastewater-Treatment-Facility-Annual-Report.pdf>

2022 Wastewater Collection System Annual Report: <https://www.barrie.ca/sites/default/files/2023-04/2022-Wastewater-Collection-System-Annual-Report.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 is used for co-generation of heat and electricity, offsetting approximately \$450,000 in electricity charges annually.

The effluent average daily flow of 48.8 mega litres per day (MLD) of treated sewage represented approximately 64.2% of the plant's rated capacity of 76 MLD. The maximum daily effluent flow was 68.4 MLD on December 31, 2022, which was the result of precipitation and snowmelt 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 0.02 mg/L (99.6% removal by concentration) and the average ammonia effluent concentration was 0.41 mg/L (98.4% 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 427 kg, which is 15% of the annual compliance loading maximum of 2,774 kg. The actual effluent annual average phosphorous concentration of 0.02 mg/L, which 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 (99.1% removal), and cBOD (98.5% 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. The City completed or oversaw the repair or replacement of 47 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 2 incidents related to 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. Both incidents were the result of private-side misuse of the sewer resulting in an overland spill and 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.

Wastewater Operations Branch Successes

The WWOB had several successes that are not reflected within the annual reports. Notable accomplishments include:

- Operational process improvements resulted in less trucking required for biosolids, creating \$315k in savings and reducing greenhouse gas emissions.
- Reinitiated the septage receiving program in June, generating \$125k in revenue.
- Continued success supporting the Provincial COVID monitoring program which will continue in 2023 and expand to include monitoring for influenza.
- Development of a program in collaboration with the City's CAM group to address significant inflow and infiltration issues within the sanitary sewers, with a goal of reducing flows to the WwTF, and lowering treatment costs.

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