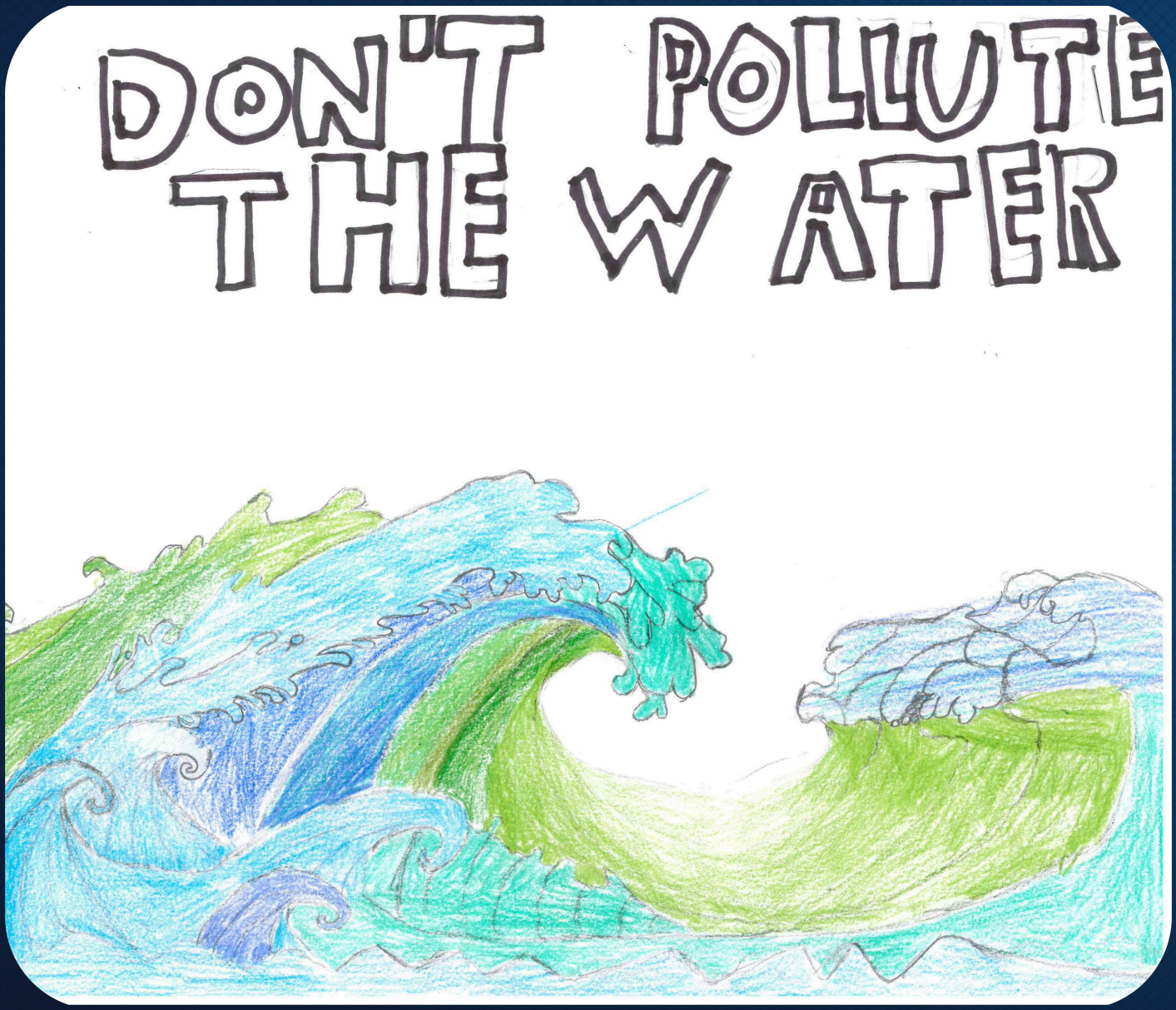
Cannington Water Pollution Control Plant
2025 Annual Performance Report



The Regional Municipality of Durham
Cannington Water Pollution Control Plant 2025 Annual Performance Report

Environmental Compliance Approval (ECA): 8730-8CYU2X Dated June 28, 2012

The Cannington Water Pollution Control Plant (WPCP) 2025 Annual Performance Report provides staff, stakeholders and customers an overview of the performance of the Cannington WPCP. Further, this report fulfills the annual reporting requirements of the Ontario Ministry of the Environment, Conservation and Parks (MECP). This report demonstrates the commitment of ensuring that the WPCP continues to deliver wastewater services to our customers in an environmentally responsible manner.

Water Pollution Control Plant Process Description

General

The Cannington WPCP located in the Community of Cannington in the Township of Brock is owned and operated by the Regional Municipality of Durham (Region). The plant is operated according to the terms and conditions of the ECA. This MECP Class 1 wastewater treatment plant is designed to treat wastewater at a rated capacity of 1,068 cubic metres per day (m^3/d) and utilizes a seasonal retention wastewater stabilization lagoon system. The Cannington WPCP services a population of approximately 2,235 residents. The treated effluent is discharged to the Beaver River in accordance with the conditions listed in the ECA.

Raw Influent Pumping

Wastewater is collected in approximately 12.6 kilometres of sanitary sewers in the Cannington service area and is conveyed to the treatment facility by a sanitary sewage pumping station (SSPS) located on Laidlaw Street. Aluminum sulphate is added at Laidlaw Street SSPS to enhance the settling of solids and phosphorus removal.

Lagoon Treatment

The Cannington WPCP is a seasonal wastewater stabilization lagoon facility consisting of a two-cell lagoon system that is operated as a seasonal retention facultative waste stabilization pond providing a retention time of approximately 190 days. Flow to the Cannington WPCP is distributed to each cell through an influent distribution chamber. Each cell is equipped with an outlet chamber and one outfall pipe leading to the Beaver River. The ECA permits two seasonal discharge periods per year. Spring discharge is from March 1 to May 31 and fall discharge is from October 1 to December 31. Prior to and during discharge to the Beaver River, samples are collected to verify the effluent meets the limits established in the ECA.

Environmental Compliance Approval (ECA)

Under Condition 9(4) of ECA #8730-8CYU2X the Region of Durham must produce an annual performance report that must contain the following information:

a) **Summary and interpretation of all monitoring data and a comparison to the effluent limits**

The raw wastewater flowing into the Cannington WPCP is analyzed for its chemical and physical composition. Monitoring of the raw wastewater is performed in accordance with the conditions in the ECA. Table 2 Raw Influent Analyses summarizes the raw wastewater characteristics during the reporting period.

The Cannington WPCP effluent was determined to be compliant with the approval limits during the reporting period. The plant operated at 90% of its rated capacity and received a maximum daily flow of 5,023 cubic metres per day (m^3/d) on April 2, 2025. The total treated effluent discharged to the Beaver River in 2025 was calculated to be 462,728 cubic metres (m^3).

b) **Description of any operating problems encountered and corrective actions taken**

No operating problems were encountered in 2025.

c) **Summary of all maintenance carried out on any major structure, equipment, apparatus, mechanism or thing forming part of the Works**

No major maintenance was performed in 2025.

d) **Summary of any effluent quality assurance or control measures undertaken in the reporting period**

In-house lab test results are compared to the results of the Regional Environmental Laboratory on comparable samples to determine the in-house accuracy. Temperature and pH are monitored in the field, all other routine process control tests are performed at the Lake Simcoe WPCP laboratory in Beaverton.

e) **Summary of the calibration and maintenance carried out on all effluent monitoring equipment**

Calibration of the flow meter located at Laidlaw Street SSPS was conducted on November 25, 2025.

f) **Estimate of the sludge settling capacity of the lagoons and its annual depletion;**

The annual depletion of the sludge settling capacity is negligible. There was no removal of sludge during the reporting period.

g) **Description of efforts made and results achieved in meeting the effluent objectives**

The Region continually strives to achieve the best effluent quality at all times and remain below the objectives specified in the ECA:

- The Total Suspended Solids objective of 20 mg/L was exceeded in 3 of 32 samples (9.4%).

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

All complaints received are administered, investigated and documented using a central database. No complaints were received in 2025.

i) Summary of all By-pass, spill or abnormal discharge events

An overflow occurred on April 3, 2025 at the Laidlaw Sanitary Sewage Pumping Station. The event duration was four hours, and an estimated volume of 576 cubic meters was discharged to Beaver River.

j) Status update of the initial effluent characterization

The initial effluent characterization report was submitted to MECP in April 2016.

k) Information required by Ministry of the Environment, Conservation and Parks (MECP) District Manager

No additional information was requested.

MECP Inspection

The plant was inspected by the MECP on October 24, 2023.

Table 1 Raw Influent Flows

Month	Total Flow to Plant* cubic metre (m^3)	Average Daily Flow cubic metre per day (m^3/d)	Maximum Daily Flow m^3/d
January	27,967	902	1,314
February	20,012	715	814
March	66,360	2,141	3,473
April	53,333	1,778	5,023
May	34,314	1,107	1,486
June	26,348	812	1,050
July	18,217	588	705
August	15,236	491	585
September	15,443	515	547
October	17,305	558	727
November	26,278	876	1,280
December	30,019	968	1,409
Total	350,832		
Annual Average	29,236	961**	
Minimum	15,236		
Maximum	66,360		5,023
ECA Limit		1,068**	
Compliance Met		Yes	

*Metered at Laidlaw Street Pumping Station

**Annual Average Daily Flow

Table 2 Raw Influent Analyses

Month	Carbonaceous Biochemical Oxygen Demand average (avg.) concentration (conc.) milligrams per litre (mg/L)	Biochemical Oxygen Demand avg. conc. mg/L	Total Suspended Solids avg. conc. mg/L	Total Phosphorus (TP) avg. conc. mg/L	Total Ammonia Nitrogen avg. conc. mg/L	pH minimum	pH maximum	Temperature Degree Celsius avg.
January	94	164	173	5.3	32.20	8.0	8.2	9.4
February	113	185	210	5.6	37.70	8.1	8.3	10.1
March	63	111	116	3.3	17.80	7.9	8.1	9.3
April	73	80	99	3.0	15.40	7.6	7.9	10.0
May	74	134	133	4.6	26.30	7.3	8.4	12.1
June	112	191	195	5.4	33.40	7.2	8.1	14.0
July	138	195	181	5.9	40.70	7.5	8.2	15.4
August	127	202	275	8.1	52.30	7.5	8.3	16.8
September	141	163	268	8.7	57.60	6.0	8.1	17.8
October	151	150	313	7.9	53.90	7.0	7.9	Not Applicable
November	148	222	486	7.6	35.60	6.7	7.3	13.9
December	100	130	179	5.3	29.40	6.7	7.8	10.4
Average	111	160	219	5.9	36.03			12.7
Minimum	63	80	99	3.0	15.40	6.0		9.3
Maximum	151	222	486	8.7	57.60		8.4	17.8
Sampling Frequency Requirement Met	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table 3 Calculated Effluent Flows

Month	Effluent Flow cubic metre
January	
February	
March	49,838
April	237,760
May	51,274
June	
July	
August	
September	
October	
November	82,102
December	
Total	420,974
Annual Average	105,244
Minimum	49,838
Maximum	237,760

Table 4 Final Effluent Analyses

Month	Carbonaceous Biochemical Oxygen Demand average (avg.) concentration (conc.) milligrams per litre (mg/L)	Biochemical Oxygen Demand avg. conc. mg/L	Total Suspended Solids avg. conc. mg/L	Total Phosphorus (TP) avg. conc. mg/L	TP loading kilograms per month
January					
February					
March	10.4	13.3	10.2	0.22	11
April	4.8	6.1	9.4	0.17	40
May	7.3	8.9	8.4	0.19	10
June					
July					
August					
September					
October					
November	4.0	6.3	10.4	0.14	11
December					
Annual Loading					73
Average	6.6	8.6	9.6	0.18	19
Minimum	4.0	6.1	8.4	0.14	10
Maximum	10.4	13.3	10.4	0.22	40
ECA Limit	25*		30*		117**
ECA Objective	15		20	0.5	
Lake Simcoe Phosphorus Reduction Strategy				0.25*	97**
Within Compliance	Yes		Yes	Yes	Yes
Sampling Frequency Requirement Met	Yes	Yes	Yes	Yes	

*Annual Average Concentration
**Total Annual Loading, kg/year

Table 4 Final Effluent Analyses continued

Month	Total Ammonia Nitrogen average (avg.) concentration (conc.) milligrams per litre (mg/L)	pH minimum	pH maximum	Temperature Degree Celsius avg.
January				
February				
March	14.68	7.2	7.5	4.6
April	10.85	7.1	7.8	7.2
May	11.51	7.1	7.9	15.5
June				
July				
August				
September				
October				
November	9.22	7.4	7.9	n/a
December				
Average	11.57			9.1
Minimum	9.22	7.1		4.6
Maximum	14.68		7.9	15.5
ECA Limit		6.0	9.5	
ECA Objective		6.5	8.0	
Within Compliance		Yes	Yes	
Sampling Frequency Requirement Met	Yes	Yes	Yes	No

Table 5 Chemical Usage

Month	Aluminum Sulphate litres
January	8,435
February	6,086
March	11,550
April	8,840
May	8,045
June	3,549
July	4,019
August	4,199
September	4,546
October	4,836
November	7,170
December	7,821
Total	79,096