MOUNT BRYDGES WASTEWATER TREATMENT FACILITY

2025 ANNUAL REPORT

as per ECA # 5933-C37KWJ Section 12.(4)
Works # 110001441

STRATHROY-CARADOC
URBAN OPPORTUNITY – RURAL HOSPITALITY

1. Influent Monitoring and Compliance Summary (Certificate of Approval 12. 4. (a))

The annual influent laboratory results for carbonaceous biochemical oxygen demand, total suspended solids, total phosphorus and total kjeldahl nitrogen (TKN) can be found in Appendix A. The incoming sewage characteristics are similar to the previous year.

2. Effluent Monitoring and Compliance Summary (Certificate of Approval 12. 4. (b))

The Mount Brydges WWTF has a design rated capacity of 825 m^3/day, with a peak flow rate of 1,650 m^3/day. During 2025, the annual average daily flow was 395 m^3/day, which is 48% of the design rated capacity for the treatment facility. The maximum daily flow was recorded at 550 m^3/day, which is 33% of the peak flow rate. Flow rates were slightly lower than the previous year.

The summary of the annual effluent laboratory results for carbonaceous biochemical oxygen demand, total suspended solids, total phosphorus, nitrogen, DO and pH is found in Appendix A. The comparison of these results to the compliance criteria can be found in Table 1 below. Parameters that did not meet effluent limits were reported to the MECP.

Table 1: Mount Brydges WWTF – Effluent Compliance Summary

Description	Range of Monthly Averages	Effluent Limits	# Months Limits Achieved/ # Months
	mg/L	mg/L	
CBOD5 (non-freezing period April-Oct)	2.40-8.5	10	7/7
CBOD5 (freeze period Nov - Mar)	2.40-10.81	15	5/5
Suspended Solids (non-freezing period April-Oct)	7.20-10.80	10	6/7
Suspended Solids (freeze period Nov- Mar)	8.13-16.5	15	4/5
Total Phosphorus (non-freezing period April-Oct)	0.12-0.33	0.5	7/7
Total Phosphorus (freeze period Nov- Mar)	0.12-0.56	1	5/5

Total Ammonia Nitrogen (non-freezing period April-Nov)	9.88-40.32	3	0/7
Total Ammonia Nitrogen (freeze period Nov-Mar)	16.38-39.25	5	0/5
E.Coli (counts/100mL)	0.00-11.32	200 (geometric mean)	7/7
DO (min)	6	>5	12/12
pH	6.40-7.6	6.0 - 9.5	12/12

3. Operating Issues and Corrective Actions (Certificate of Approval 12. 4. (c))

During the year, there were several exceedances of the Environmental Compliance Approval final effluent limits. These exceedances were reported to the MECP.

In August of 2024, an updated ECA was received for the conversion to an extended aeration process, which includes the addition of a headworks structure and the necessary equipment at the wastewater facility.

In 2025, R.V. Anderson Associates Limited completed the design for the extended aeration upgrades, and the construction contract was awarded to Birnam Excavating Ltd. Construction of the new aeration process is scheduled to begin in the spring of 2026.

4. Maintenance Summary (Certificate of Approval 12. 4. (d))

Routine maintenance was completed by the operators over the course of the year. A comprehensive list of maintenance activities is included in Appendix B.

5. Quality Assurance/Quality Control (Certificate of Approval 12. 4. (e))

On a monthly basis, the operator collected and submitted influent samples to SGS Canada Inc for total suspended solids, biochemical oxygen demand, TKN and total phosphorus analysis.

On a weekly basis, the operator collected effluent samples for analysis by SGS Canada Inc for total suspended solids, carbonaceous biochemical oxygen demand, total phosphorus, ammonia and E. Coli analyses. The operator performed analysis for pH, DO and temperature in-house.

In-house laboratory testing also included effluent monitoring of reactive phosphorus, total suspended solids, and ammonia.

6. Calibration/Maintenance Summary (Certificate of Approval 12. 4. (f))

Flow meter calibrations were completed by SCG in February 2025. SGS Canada Inc. performed all required analytical testing—both chemical and biological—on influent and effluent samples from the wastewater treatment facility.

7. Effluent Objectives (Certificate of Approval 12. 4. (g))

The Municipality worked to achieve the objectives outlined in the Environmental Compliance Approval (ECA) through ongoing testing and monitoring of the treatment system. To further support compliance with ECA requirements, R.V. Anderson Associates Limited completed the design for the extended aeration upgrades, as authorized under the updated ECA issued in 2024.

The upgrade to an extended aeration process will involve the following:

- Addition of a headworks building which includes blowers, screening and grit removal
- Facility updates to meet current building and fire codes
- Reuse of existing tanks by removing the Rotating Biological Contactors (RBC)
- Installation of a diffused air system
- Chemical system upgrades
- SCADA upgrades
- Waste activate sludge tank
- Site upgrades to accommodate the changes including lab facilities

In the table below, monitoring data and analytical results are compared to the Effluent Objectives as listed in the ECA.

Table 2: Mount Brydges WWTF – Effluent Design Objective Summary

Description	Range of Monthly Averages	Effluent Objectives	# Months Objectives Achieved/# Months
	mg/L	mg/L	
CBOD5 (non-freezing period April-Oct)	2.40-8.5	5	5/7
CBOD5	2.40-10.81	10	4/5

(freeze period Nov - Mar)			
Suspended Solids (non-freezing period April-Oct)	7.20-10.80	5	0/7
Suspended Solids (freeze period Nov - Mar)	8.13-16.5	10	2/5
Total Phosphorus (non-freezing period April-Oct)	0.12-0.33	0.3	6/7
Total Phosphorus (freeze period Nov-Mar)	0.12-0.56	0.8	5/5
Total Ammonia Nitrogen (non-freezing period April-Oct)	9.88-40.32	1	0/7
Total Ammonia Nitrogen (freeze period Nov-Mar)	16.38-39.25	3	0/5
E.Coli (counts/100mL)	0.00-11.32	150 (geometric mean)	12/12
pH	6.40-7.6	6.5 - 8.5	11/12

8. Sludge Management (Certificate of Approval 12. 4. (h))

Waste activated sludge is discharged into the tank located beneath the RBC. The sludge was pumped out and hauled to the City of London, Greenway Pollution Control Centre. The sludge can be taken to the Strathroy sludge lagoon for disposal when the City of London is not accepting sludge. Each load is approximately 12 m^3. The table below summarizes the sludge removed from the plant:

Table 3: Mount Brydges WWTF – Sludge Removal

Month	Sludge Volume (m^3)	Month	Sludge Volume (m^3)
January	**15 loads**	**July**	**9 loads**
February	**14 loads**	**August**	**9 loads**

March	**14 loads**	**September**	**9 loads**
April	**9 loads**	**October**	**9 loads**
May	**9 loads**	**November**	**8 loads**
June	**8 loads**	**December**	**10 loads**

The sludge production and sludge handling methods for 2025 are estimated to be the same as in 2024.

9. Complaints Summary (Certificate of Approval 12. 4. (i))

There were no documented complaints regarding the Mount Brydges WWTF in 2025.

10. Summary of By-pass, Spill or Abnormal Events (Certificate of Approval 12. 4. (j))

There were no by-pass, spills or abnormal events to report.

11. Notice, Modifications/Summary of Alterations (Certificate of Approval 12. 4. (k & l))

There were no modifications to the Sewage Works completed under the Limited Operational Flexibility provisions in the ECA.

The following list details alterations, extensions or replacements that were implemented or in process in 2025.

- Mount Brydges WWTF Process Upgrades Design

For 2025, the following are proposed and provide a benefit to the operation of the Mount Brydges WWTF.

- Mount Brydges WWTF Process Upgrades Construction Award

12. Changes/Updates in Schedule (Certificate of Approval 12. 4. (m))

R.V. Anderson Associates Limited completed the design for the extended aeration upgrades, as authorized under the updated ECA issued in 2024. The construction contract has been awarded to Birnam Excavating Inc., with work scheduled to begin in the spring of 2026.

13. Summary of Monitoring Schedule (Certificate of Approval 12. 4. (n))

Routine weekly effluent sampling was conducted on Fridays for 2025. This sampling will be complete on Tuesdays for 2026.

APPENDIX A

Mt Brydges WWTF

Year: 2025

		January	February	March	April	May	June	July	August	September	October	November	December	Average	Total
Flows, Average Daily Flow 825 m3/day															
Effluent Total	m^3	12,947	11,583	13,538	13,587	12,787	11,761	11,494	11,480	11,243	11,523	10,846	11,822	12,051	144,611
Effluent Average	m^3/day	418	399	437	453	412	392	371	370	375	372	362	381	395	
Effluent Max	m^3/day	479	457	530	550	517	440	426	413	426	411	418	497	464	
cBOD, Monthly Average Concentration Limits Freezing 15mg/L, Non-Freezing 10mg/L,															
Raw Average BOD	mg/L	271	199	264	296	338	382	178	244	322	335	208	217	271	
Eff cBOD Avg (BOD5)	mg/L	4.40	10.81	6.56	8.50	5.90	2.75	2.75	3.00	2.50	2.40	4.25	2.40	4.69	
Suspended Solids, Monthly Average Concentration Limits Freezing 15mg/L, Non Freezing Limit 10mg/L															
Raw Average	mg/L	226.0	42.0	223.0	259.0	190.0	397.0	70.0	106.0	206.0	230.0	106.0	184.0	186.6	
Eff Avg SS	mg/L	13.60	13.56	8.13	9.50	7.90	7.50	8.50	10.80	8.50	7.20	16.50	8.60	10.02	
Total Phosphorus, Monthly Average Concentration Limits Freezing 1mg/L, Non Freezing 0.5mg/L															
Raw Average	mg/L	6.3	5.6	5.7	4.9	6.0	6.7	5.3	6.3	6.2	6.3	4.9	6.9	5.9	
Effluent Average TP	mg/L	0.33	0.56	0.32	0.33	0.20	0.18	0.12	0.24	0.23	0.17	0.37	0.12	0.26	
Nitrogen, Monthly Average Concentration Limits Freezing 5mg/L, Non Freezing 3mg/L															
Raw Average TKN	mg/L	58.30	55.40	53.30	46.20	53.60	53.60	52.40	52.10	59.40	57.90	56.10	53.70	54.33	
Eff Avg Total N	mg/L	17.70	35.76	39.25	38.20	40.32	23.65	9.88	10.48	14.78	14.96	17.63	16.38	23.25	
Nitrogen Loading	kg/D	7.39	14.28	17.14	17.30	16.63	9.27	3.66	3.88	5.54	5.56	6.37	6.25	9.44	
Effluent TKN	mg/L	18.86	37.45	37.63	38.78	40.20	23.00	10.83	11.36	16.20	15.96	19.18	16.94	23.86	
Nitrate as Nitrogen	mg/L	8.45	4.01	2.76	2.84	3.36	7.06	8.76	6.51	6.83	7.91	7.85	9.06	6.28	
Nitrite as Nitrogen	mg/L	0.11	0.06	0.04	0.07	0.11	0.23	0.22	0.14	0.14	0.12	0.11	0.23	0.13	
Unionized Ammonia Avg	mg/L	0.04	0.19	0.23	0.12	0.13	0.27	0.02	0.04	0.04	0.04	0.04	0.04		
Unionized Ammonia Min	mg/L	0.02	0.0290	0.1260	0.0720	0.0440	0.0200	0.0180	0.0110	0.0200	0.0260	0.0270	0.0220		
Unionized Ammonia Max	mg/L	0.07	0.2370	1.1300	0.1530	0.1930	0.9600	0.0220	0.0770	0.0640	0.0520	0.0680	0.0660		
E. Coli, Monthly Geometric Average Limit Non Freezing 200 Counts/mL															
E.Coli Geo Mean	CFU/ 100mL	0.0	0.9	1.6	0.8	11.3	0.6	0.1	0.0	0.0	0.0	0	0	1	
pH 6.0 -9.5, DO > 5.0															
pH Min	SU	6.80	7.05	7.20	6.80	6.69	6.50	6.40	6.60	6.50	6.70	6.90	6.80	6.75	
pH Max	SU	7.30	7.60	7.50	7.40	7.30	7.10	7.00	7.40	7.30	7.10	7.20	7.30	7.29	
pH Average	SU	7.05	7.30	7.32	7.16	7.10	6.79	6.71	6.94	6.92	6.91	6.99	7.00		
Temperature MIN	°C	9.80	9.70	9.90	10.10	11.70	13.40	16.90	17.80	17.60	16.30	13.60	10.90	13.1	
Temperature MAX	°C	13.00	11.30	11.90	12.30	14.00	17.60	18.90	19.30	18.60	18.70	16.20	14.00	15.5	
DO Min	mg/L	7.1	6.6	6.8	7.3	6.9	6.5	6.0	6.0	6.3	6.0	6.7	6.4	6.6	
Non-Freezing (N) Freezing (F)		F	F	F	N	N	N	N	N	N	N	F	F		

APPENDIX B

2025 Mount Brydges Wastewater Treatment Facility Maintenance Summary

January

- replaced burnt out UV bulbs
- pulled and cleaned sludge pump # 1 in Clarifier #1
- changed rail guide and chain on sludge pump #1 in Clarifier #1
- replaced salt bridge on online PH probe
- ran generators

February

- annual flow meter calibration
- Hach verified and performed maintenance on PH meters, suspended solids meter and DR3900 meter
- replaced main disconnect on Napier Reid electrical panel
- CSA on site to approve both the final and raw sampler
- cleaned UB bulbs in both banks
- ran generators

March

- remove RBC #1 drum for repairs
- cleaned RBC #1 and Clarifier #1
- pulled and cleaned sludge pump #1 in Clarifier #2
- added oil to air compressor #1
- cleaned and replaced burnt out UV bulbs
- air compressors serviced
- Clarifier #1 mechanically checked over
- ran generators

April

- cleaned and replaced burnt out UV bulbs
- cleaned suspend solids probe
- installed air tube in RBC #1
- RBC #1 drum installed
- ran generators

May

- cleaned and replaced burnt out UV bulbs
- cleaned UV channel
- pulled and cleaned both inline PH probe and suspended solids probe
- annual service of generator

June

- cleaned head works of Treatment Facility
- repaired and serviced air compressors
- ran generators

July

- installed new belts on air compressors
- ran generators

August

- replaced salt bridge on online PH probe
- ran generators

September

- cleaned inline PH probe and suspended solids probe
- installed new heat trace on both alum lines
- ran generators

October

- pulled and cleaned sludge pumps from both clarifiers
- replaced chain on sludge pump #1 in clarifier #2
- replaced battery for generator
- ran generators

November

- pulled and cleaned sludge pumps in both clarifiers
- replaced grinder pump in basement sump pit
- repaired leak from effluent line on alum pump #1
- cleaned RBC #2
- ran generators

December

- cleaned UV bulbs and channel
- replaced burnt out UV bulbs
- replaced sludge pump #1 in Clarifier #2
- ran generators