

# TOWN OF COLLINGWOOD

## 2020 Annual Wastewater Performance Report

## Contents

Acronyms .....	2
Executive Summary .....	3
Section 1: Introduction .....	5
Section 2: Wastewater System General Information.....	5
Section 3a: The Facility – Water Pollution Control Plant.....	5
Section 3b: The Facilities – Sewage Pumping Stations .....	6
<b>Section 4a: Reporting: Section 11 (3) of ECA - Collingwood Water Pollution Control Plant (WPCP).....</b>	<b>7</b>
11 (3) a) Influent, Imported Sewage Monitoring Data .....	7
11 (3) b) Final Effluent Monitoring Data .....	7
11 (3) c) Monitoring Schedule Deviation Summary.....	13
11 (3) d) Operating Issues .....	14
11 (3) e) Repairs and Maintenance .....	15
11 (3) f) Effluent Quality Assurance or Control Measures.....	16
11 (3) g) Calibration and Maintenance Summary .....	17
11 (3) h) Design Objectives Summary .....	17
11 (3) i) Sludge Volume and Disposal .....	18
11 (3) j) Complaints .....	20
11 (3) k) Bypasses, Overflows and Spills .....	20
11 (3) l) Notice of Modifications to Sewage Works .....	20
11 (3) m) Procedure F-5-1 Summary.....	20
11 (3) n) Proposed Works Schedule Changes .....	21
<b>Section 4b: Reporting: Sewage Pumping Station ECA's .....</b>	<b>22</b>
4.1 Operating Issues.....	22
4.2 Repairs and Maintenance .....	23
4.3 Calibration and Maintenance Summary .....	23
4.4 Complaints.....	24
4.5 Overflows.....	24
4.6 Monitoring Data .....	24
4.7 Notice of Modifications to Sewage Works.....	24
4.8 Procedure F-5-1 Summary .....	24
Section 5: Conclusion .....	25

## Acronyms

BOD	Biochemical Oxygen Demand
CBOD5	Carbonaceous Biochemical Oxygen Demand
cfu	Colony Forming Units
COD	Chemical Oxygen Demand
DO	Dissolved Oxygen
ECA	Environmental Compliance Approval
Hg	Mercury
FP	Filtered Phosphorous
HP	Horsepower
kg	Kilograms
kW	Kilowatt
MECP	Ministry of Environment, Conservation and Parks
mg/L	Milligrams per litre
ML/d	Mega litres per day
m <sup>3</sup> /d	Cubic metres per day
NH <sub>3</sub>	Ammonia
NO <sub>2</sub>	Nitrites
NO <sub>3</sub>	Nitrates
SPS	Sewage Pumping Station
SVI	Sludge Volume Index
TBOD	Total Biochemical Oxygen Demand
TKN	Total Kjeldahl Nitrogen
TP	Total Phosphorous
TS	Total Solids
TSS	Total Suspended Solids
UV	Ultraviolet
VFA	Volatile Fatty Acids
VS	Volatile Solids
WPCP	Water Pollution Control Plant

## Executive Summary

This report covers the period from January 1, 2020 to December 31, 2020.

The Town of Collingwood owns and operates the Collingwood Water Pollution Control Plant and eight sewage pumping stations in accordance with Certificate of Approvals (CoA's) and Environmental Compliance Approvals (ECA's) as shown in the table below:

*Table a – Executive Summary - Approvals*

Name	Approval Type	Number	Date
<b>Water Pollution Control Plant</b>	ECA	9825-BPDH52	May 4, 2020
	ECA (air)	7583-BTALXW	Sept 4, 2020
<b>Black Ash Creek</b>	ECA	1908-B97UD8	Mar 5, 2019
<b>Cranberry</b>	CoA	5925-5EATK8	Oct 8, 2002
<b>Minnesota</b>	ECA	8852-AUTS83	Jan 18, 2019
<b>Paterson Street</b>	CoA	2905-655M6H	Oct 4, 2004
<b>Pretty River Estates</b>	CoA	2372-7PRP2Z	May 7, 2009
<b>St. Clair Street</b>	CoA	1434-622JRK	Jun 21, 2004
<b>Silver Glen</b>	CoA	1809-7GMQ32	July 18, 2008
<b>Tenth Line (Public Works)</b>	T.B.D.	T.B.D.	T.B.D.

Annual Performance Reports are required to be prepared and submitted to the Ministry of the Environment, Conservation and Parks (MECP) by March 31<sup>st</sup>.

## WPCP Treatment Capacity

The WPCP has a treatment capacity rating of 24,548 m<sup>3</sup>/d based on average day sewage influent flows. The average day flow at the WPCP was 18,854 m<sup>3</sup>/d, indicating the WPCP is operating at 74% of the rated treatment capacity.

*Table b - 2020 WPCP Treatment Capacity*

2020 Flows at a Glance	
<b>Total Flow to WPCP</b>	6,881,850 m <sup>3</sup>
<b>Design Average Daily Flow</b>	24,548 m <sup>3</sup> /d
<b>Average Daily Flow</b>	18,854 m <sup>3</sup> /d

A review of the influent and effluent flow monitoring data for the WPCP was completed while preparing the 2019 report. This data review identified a gap in the Town's database from the influent flow meters. As such, effluent flow rates are used to represent the WPCP flows from January 1<sup>st</sup> to April 30<sup>th</sup>. The WPCP database has since been re-programmed to ensure that influent flow rates are now being recorded along with the effluent flow rates.

## WPCP Effluent Quality

In addition to treatment capacity limitations, ECA 5807-B8GM4G specifies final effluent quality objectives and compliance limits for the WPCP. Final effluent samples are collected throughout the year and the results are reviewed and compared to these objectives and compliance limits to ensure the WPCP is operating properly. Adjustments to the WPCP operation are made based on the results of this sampling program.

*Table c – Final Effluent Objectives*

<b>Final Effluent Objectives</b>		
<b>Parameter</b>	<b>Averaging Calculator</b>	<b>Limit</b>
<b>CBOD5</b>	Annual Average	15 mg/L
<b>Total Suspended Solids</b>	Annual Average	15 mg/L
<b>Total Phosphorous</b>	Monthly Average	0.8 mg/L
<b>E-Coli</b>	Monthly Geometric Mean Density	100 cfu/100mL
<b>pH</b>	Single Sample Result	6.5 – 9.0

*Table d – Final Effluent Concentration Limits*

<b>Final Effluent Concentration Limits</b>		
<b>Parameter</b>	<b>Averaging Calculator</b>	<b>Limit</b>
<b>CBOD5</b>	Annual Average	25 mg/L
<b>Total Suspended Solids</b>	Annual Average	25 mg/L
<b>Total Phosphorous</b>	Monthly Average	1.0 mg/L
<b>E-Coli</b>	Monthly Geometric Mean Density	200 CFU/100 mL
<b>pH</b>	Single Sample Result	6.0 – 9.5

*Table e – Final Effluent Loading Limits*

<b>Final Effluent Loading Limits</b>		
<b>Parameter</b>	<b>Averaging Calculator</b>	<b>Limit</b>
<b>CBOD5</b>	Annual Average Daily Loading	613.7 kg/L
<b>Total Suspended Solids</b>	Annual Average Daily Loading	613.7 kg/L
<b>Total Phosphorous</b>	Monthly Average Daily Loading	24.5 kg/d

The final effluent concentration and loading compliance limits were achieved throughout 2020. There was 1 bypass event at the water pollution control plant when heavy rainfall caused high flows into the plant. The UV system was partially bypassed for a short time during this event, details can be found in section 11(3)k).

## Section 1: Introduction

This report has been prepared to address the annual performance reporting requirements for the Collingwood Water Pollution Control Plant (WPCP) as outlined in Condition 11 of Environmental Compliance Approval (ECA) 9825-BPDH52.

The Reporting requirements of the ECA's for Black Ash Creek and Minnesota Street have been compiled in Section 4b. There are no reporting requirements in the CoA's for the remaining stations but reports have been completed for consistency and information.

Section 4 of this report has been subdivided into subsections that specifically address the reporting requirements identified in the ECA's. Additional information may also be provided to support and substantiate the required content.

This annual report has been presented to Council. A notice has also been placed in local newspapers notifying the public and any interested authority that the Collingwood Wastewater System's 2020 Annual Performance Report can be viewed and downloaded on the website or upon request a copy will be made available free of charge.

## Section 2: Wastewater System General Information

The WPCP operates under the amended ECA Number 9825-BPDH52 dated May 14, 2020 and amended ECA 7583-BTALXW dated September 23, 2020.

*Table 2 – Wastewater System Information*

System Information	
Wastewater System Name	Collingwood Water Pollution Control Plant
Wastewater Works Number	120000550
Wastewater System Owner	Town of Collingwood
Wastewater System Category	Class III Certification
Period Reported	January 1, 2020 – December 31, 2020

## Section 3a: The Facility – Water Pollution Control Plant

The Collingwood WPCP, owned and operated by the Town of Collingwood, is a conventional activated sludge plant with alum addition for phosphorus removal. Treated effluent from the plant is discharged to Collingwood Harbour, which is situated in Georgian Bay on the south shore of Nottawasaga Bay.

The plant was first constructed in 1958 to provide primary treatment of the Town's domestic and industrial wastewater. The primary plant was expanded in 1968. Secondary treatment was added in 1981. The rated flow capacity is 24,548 m<sup>3</sup>/day with a peak flow

rate of 60,900 m<sup>3</sup>/day. Wastewater from the serviced area flows to the plant by gravity with the assistance of eight (8) pumping stations to boost the flow where required.

Major unit operations at the Collingwood WPCP include the following:

- Headworks - which provides the following preliminary process treatments:
  - Emergency plant bypass
  - Automated mechanical raked raw sewage screen
  - Manual raked bypass raw sewage screen
  - Raw sewage pumping station
  - Grit removal
  - Bio scrubber for headwork's odour control
  - Septic/leachate handling
- Primary Sedimentation
- Activated Sludge with Alum addition for Phosphorus Removal
- Secondary Clarification
- Disinfection with Ultraviolet irradiation (UV)
- Effluent discharge to Collingwood Harbour
- Thickening of waste activated sludge by Dissolved Air Flotation
- Anaerobic Sludge Digestion
- Odour control
- Liquid Digested Sludge Land Utilization Disposal
- Sludge Storage Lagoon (off site)
- Standby power source (diesel driven generator)
- Co-generation System

### Section 3b: The Facilities – Sewage Pumping Stations

The sewage pumping stations each contain a wet well and pumps discharging to a forcemain.

*Table 3b - 2020 Station Capacity Sewage Pumping Stations*

<b>Station Capacity</b>		
<b>Sewage Pumping Station</b>	<b>Firm L/s</b>	<b>Maximum L/s</b>
<b>Black Ash Creek</b>	212	318
<b>Cranberry</b>	32.8	65.6
<b>Minnesota</b>	210	315
<b>Paterson Street</b>	72	108
<b>Pretty River Estates</b>	29	58
<b>Silver Glen</b>	16	32
<b>St. Clair Street</b>	155	310
<b>Tenth Line (Public Works)</b>	T.B.D.	T.B.D.

## **Section 4a: Reporting: Section 11 (3) of ECA - Collingwood Water Pollution Control Plant (WPCP)**

### **11 (3) a) Influent, Imported Sewage Monitoring Data**

*A summary and interpretation of all influent, imported sewage monitoring data, and a review of the historical trend of the sewage characteristics and flow rates*

### **11 (3) b) Final Effluent Monitoring Data**

*A summary and interpretation of all final effluent monitoring data, including concentration, flow rates, loading and a comparison to the design objectives and compliance limits in the ECA, including an overview of the success and adequacy of the works*

Monitoring data for influent, imported sewage and final effluent is provided in the tables and charts below.

There is insufficient data for influent monitoring and flows in previous years to provide historical trending. Effluent data will be used to provide trending until influent data is accumulated over time.

In summary, all objective targets and compliance requirements were achieved in 2020.

Two results for e.coli were above the set compliance limit of 200 CFU/100 mL. The results were 300 on June 23, 2020 and 1800 on June 29,2020. The high readings were caused by an adjustment to the UV system which was then corrected. The objective and compliance limits do not apply to individual readings but rather the geometric mean for the month. The final geometric mean for the month of June was 36, well within the objectives and compliance limits.

Monitoring data shows a very slight rise in CBOD5, TSS, and TP with a slight drop in TKN this year. The average annual day had fallen in the last 2 years but this year rose to 74%, matching the previous 5-year high in 2017.



Table 11(3)ab1 - 2020 Monitoring Data – Collingwood WPCP

2020	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
<b>BOD5</b>												
Influent (mg/L)	no data	no data	no data	no data	98	153	200	108	82	55	77	166
<b>CBOD5</b>	<i>Effluent Average Annual: Objective 15 mg/L, Compliance Concentration Limit 25 mg/L, Compliance Loading Limit 613.7 kg/d</i>											
Influent (mg/L)	28	84	47	60	no data	no data	no data	no data	no data	no data	no data	no data
Effluent (mg/L)	3	3.5	4.25	3	3	3	3	3	3	3	3	4.4
	<b>Average Annual Concentration:</b>				3.3	mg/L	<b>Annual Average Loading:</b>			60.67	mg/L	
<b>TSS</b>												
<i>Effluent Average Annual: Objective 15 mg/L, Compliance Concentration Limit 25 mg/L, Compliance Loading Limit 613.7 kg/d</i>												
Influent (mg/L)	56	150	260	74	120	190	340	115	75	80	200	280
Effluent (mg/L)	7.25	6	10.5	7.2	6.25	9.4	7.75	4.5	4	4	7	5.8
% Removal	87%	96%	96%	90%	95%	95%	98%	96%	95%	95%	97%	98%
	<b>Average Annual Concentration:</b>				6.6	mg/L	<b>Annual Average Loading:</b>			123.43	mg/L	
<b>TP</b>												
<i>Effluent Average Monthly: Objective 0.8 mg/L, Compliance Concentration Limit 1 mg/L, Compliance Loading Limit 24.5 kg/d</i>												
Influent (mg/L)	1.07	10.3	4.56	2.5	2.83	3.3	4.89	3.14	1.8	2.03	2.3	0.38
Effluent (mg/L)	0.23	0.37	0.30	0.65	0.45	0.21	0.25	0.19	0.17	0.08	0.13	0.10
% Removal	79%	96%	93%	74%	84%	94%	95%	94%	91%	96%	94%	73%
	<b>Average Annual Concentration:</b>				0.26	mg/L	<b>Annual Average Loading:</b>			4.84	mg/L	
<b>TKN</b>												
Influent (mg/L)	10.3	110	36	19.2	18.1	28.6	44.8	24.4	11.2	14.7	16.4	27.4
Effluent (mg/L)	7.775	4.85	4.05	4.38	2.175	2.1	6.2	1.375	1.54	1.35	1.575	1.7
<b>TAN</b>												
Effluent (mg/L)	5.11	3.04	2.03	2.59	0.71	0.36	3.95	0.15	0.48	0.29	0.35	0.47
<b>pH</b>												
<i>Effluent Single Sample: Objective 6.5 to 9.0, Compliance Limit 6.0 to 9.5</i>												
Effluent Min	7	6.9	7.2	6.8	7.1	7.1	7	6.9	6.7	6.7	6.6	6.7
Effluent Max	7.3	7.3	7.5	7.55	7.6	7.6	7.6	7.6	7.1	7.3	6.7	7
<b>E-Coli</b>												
<i>Effluent Monthly Geometric Mean: Objective 100 CFU/100 mL, Compliance limit 200 CFU/100 mL</i>												
Effluent (CFU/100mL)	4	2	12	4	3	36	5	3	3	2	8	6

Table 11(3)a1 - 2020 Imported Septage Monitoring mg/L

2020	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Annual average
<b>BOD5</b>	no data	no data	no data	no data	4880	3340	507	849	280	2690	2720	912	2,022
<b>CBOD5</b>	1640	3540	1640	1120	no data	no data	no data	no data	no data	no data	no data	no data	1,985
<b>TSS</b>	1200	20000	26000	520	6200	8000	950	3200	7400	16000	15000	2600	9,334
<b>TP</b>	39.7	45.5	171	25.1	190	66.1	27.7	51.1	212	136	132	36.3	231
<b>TKN</b>	449	129	547	120	934	586	235	134	614	903	1250	259	1,404

Table 11(3)a2 - 2020 Raw Influent Flows m3- Collingwood WPCP

2020	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Total volume	688,020	492,550	783,440	524,460	504,770	525,860	518,390	527,110	514,760	564,700	556,170	681,620
Mean day	22,194	16,984	25,272	17,482	16,283	17,529	16,722	17,004	17,159	18,216	18,539	21,988
Max day	44,020	20,110	48,370	23,260	20,450	28,590	20,950	32,930	21,610	23,880	26,420	30,620
Min day	16,750	14,790	17,030	13,770	13,420	13,650	13,770	12,920	14,340	15,200	12,390	15,370

Effluent flow readings used from January - April

Table 11(3)b - 2020 Final Effluent Flows m3- Collingwood WPCP

2020	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Total volume	688,020	492,550	783,440	524,460	479,250	502,120	508,280	512,930	482,180	547,290	560,780	706,380
Mean day	22,194	16,984	25,272	17,482	15,460	16,737	16,396	16,546	16,073	17,655	18,693	22,786
Max day	44,020	20,110	48,370	23,260	18,630	29,690	20,640	36,750	21,420	26,320	30,230	33,680
Min day	16,750	14,790	17,030	13,770	10,810	11,820	13,410	12,160	12,540	13,400	13,610	16,610

Chart 11(3) b1 - Carbonaceous Biochemical Oxygen Demand

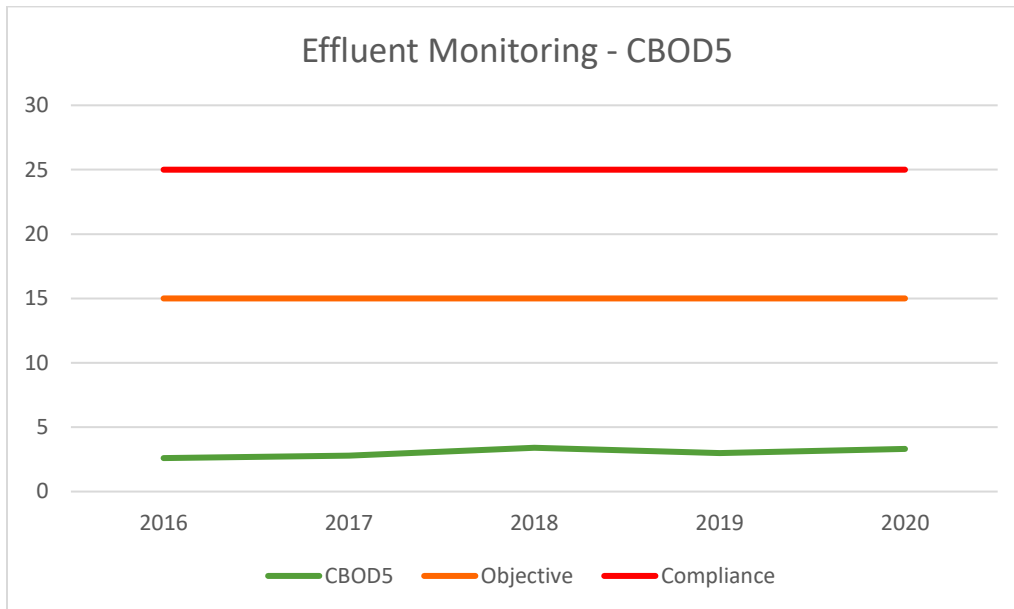


Chart 11(3) b2 - Total Suspended Solids

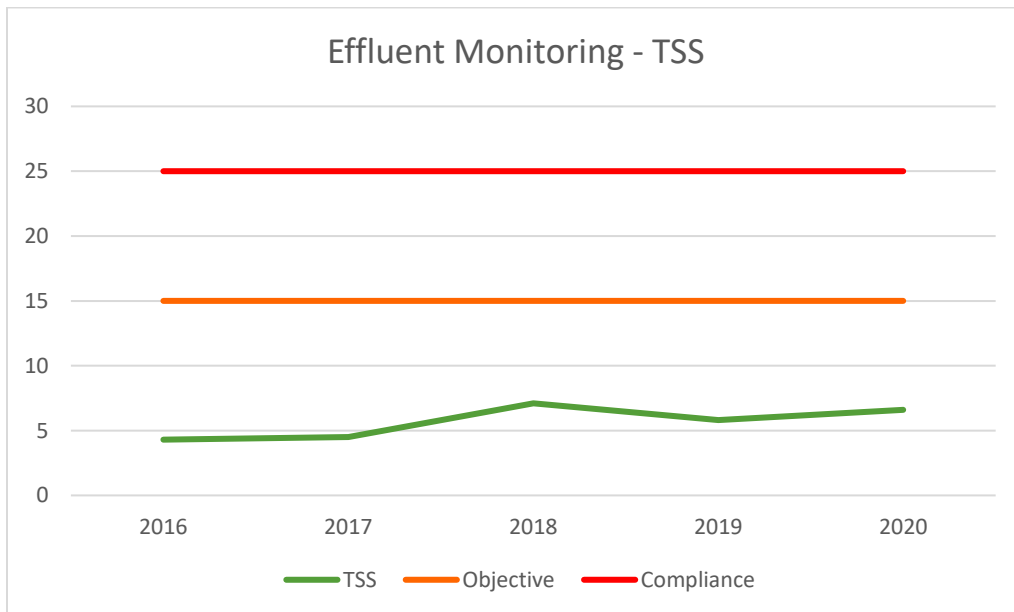


Chart 11(3) b3 - Total Phosphorous

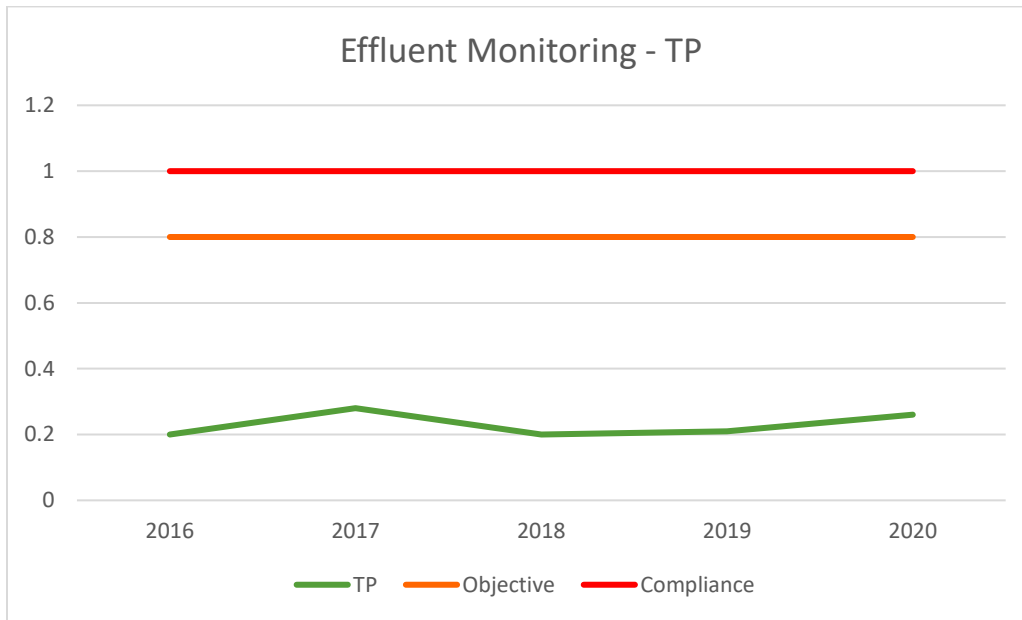
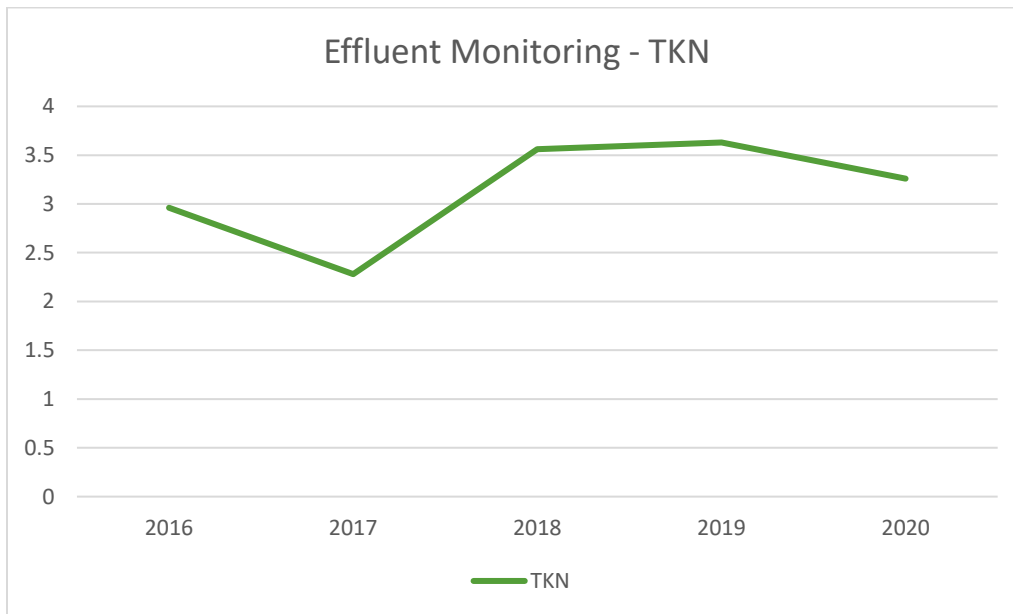


Chart 11(3) b4 - Total Kjeldahl Nitrogen



Note: There is no objective listed on the ECA for TKN

Chart 11(3) b5 - Annual Average Day Flow Volume

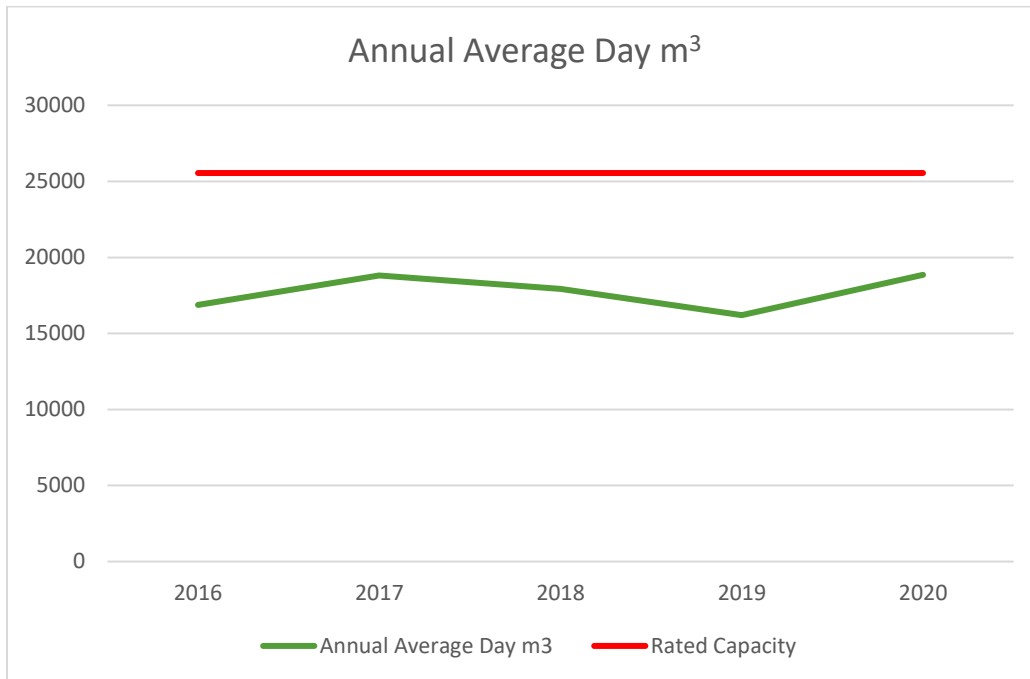
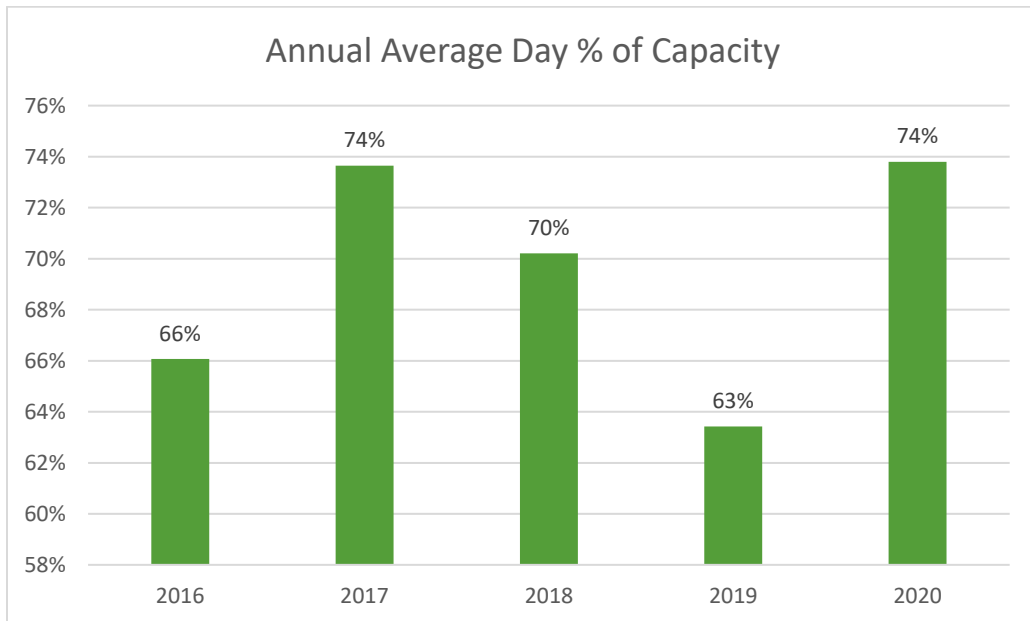


Chart 11(3) b6 - Annual Average Day as % of Capacity



## 11 (3) c) Monitoring Schedule Deviation Summary

*A summary of any deviation from the monitoring schedule and reasons for the current reporting year and a schedule for the next reporting year.*

In previous years, compliance samples were taken on Wednesdays. It was discovered in April 2020 that the ECA monitoring requires a rotation of the sampling day each year. As such, from January 1, 2020 through May 4, 2020 all compliance samples were collected on Wednesdays. Starting May 5, 2020 lab samples were collected on Tuesdays.

In 2021, samples were collected on Wednesday for the month of January. For the remainder of 2021 (February – December), samples are being collected on Thursdays (see below summary table).

*Table 11(3)c - 2021 Sampling Program Schedule*

Sample Location	Parameters	Sample Type	Minimum Sampling Frequency	2021 Sample Collection Schedule
Influent Sewage	BOD5 TSS TP TKN	24-hour Composite	Monthly	First Thursday of each month
Imported Sewage	BOD5 TSS TP TKN	Grab	Monthly	First Thursday of each month
Final Effluent	CBOD5 TSS	24-hour Composite	Monthly	Every Thursday (weekly)
	TP TAN	24-hour Composite	Weekly	Every Thursday
	E.coli	Grab	Weekly	Every Thursday
	pH Temperature	Grab	3 times/week	Monday, Tuesday, Wednesday, Thursday, Friday (excluding stat holidays)
Sludge/Biosolids	TS TP TAN Nitrate as Nitrogen Metals Scan	Grab	Bi-weekly	Every second Thursday

Sample Location	Parameters	Sample Type	Minimum Sampling Frequency	2021 Sample Collection Schedule
Leachate	Boron Cobalt Magnesium Manganese Potassium Strontium Bis (2-ethylhexyl) Phthalate	Grab	Quarterly	February May August November

### 11 (3) d) Operating Issues

*A summary of all operating issues encountered and corrective actions taken:*

*Table 11(3)d – Operating Issues summary*

Date	Description
March – December 2020	The COVID Pandemic resulted in having to change operator work hours and implement new health and safety protocols. Non-essential tasks have been delayed during times of lockdown. All essential operations have continued as required.
March 2020 – November 2020	Staffing shortage due to various factors in 2020 led to 3 vacant positions; all vacancies filled by the end of 2020.
May 2020	Operation staff became aware that the current ECA scheduled monitoring program had been changed from the previously issued ECA. The new monitoring program requires a rotation of the scheduled sampling day for the year. Previous samples had been obtained on Wednesday's, once this change had been discovered operations changed the sampling day to Tuesday's each week. A schedule of the sampling days has been created and included within this report.
11 May 2020 and 14 May 2020	The new generator installation required the plant to be without power on two separate occasions. In order to meet all requirements from the Ministry of the Environment, Conservation and Parks as well as Environment Canada, operations staff emptied and lowered tank levels to maximize the treatment plant capacity to prevent outflow from the facility while without power.
22 June 2020	High flow event due to large amounts of rainfall causing the WPCP to become hydraulically overloaded creating a by-pass of the U.V channel – informed all of the required authorities. See section 11 (3) k) Bypasses, Overflows and Spills for details.
23 June 2020 and 29 June 2020	Individual e.coli results post-UV were reported as 300 and 1800 respectively. The UV system dosing had been turned down and it was later determined that UV dosing was based on a manually

	programmed transmittance and changes to transmittance could lead to insufficient disinfection. A UVT analyzer will be installed to allow actual measurements to be used in calculating the dose.
14 July 2020	A delay in the courier delivery time caused an E.coli sample to expire before it could be analyzed by the laboratory. The lab informs us they cannot provide accurate results. A new procurement requirement for lab services requires all samples to be received by the lab within 24 hours in an effort to reduce the likelihood that courier delays will lead to sample expiration.

### 11 (3) e) Repairs and Maintenance

*A 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*

A log is kept for each piece of equipment at the Collingwood plant. These logs are available for inspection at the plant.

*Table 11(3)e1 – Scheduled Maintenance*

<b>Equipment</b>	<b>Description</b>
Boiler and pressure vessel	Annual inspection.
Clarifiers	Primary and secondary clarifiers are taken out of service for annual inspection, maintenance and repairs as required.
Gas Monitoring Equipment	Annual calibration, inspection and maintenance.
Electrical systems, pumps and motors	Electrical maintenance program including thermography, voltage, load and harmonic checks, vibration analysis etc.
Standby generator	Semi-annual inspection and maintenance. Bi-weekly operations test, inspection and maintenance
Flow Meter Calibration	Annual calibration of flow meters to ensure they are accurately measuring flows
Digester waste gas system	Annual inspection of gas lines, flame arrestors and valving
Influent Bar Screen	Annual inspection of all mechanical part including bar screen conveyor and grit classifier



*Table 11(3)e2 – Unscheduled Maintenance / Emergency Repairs*

<b>Equipment</b>	<b>Description</b>
Aeration tank	Tank was drained and the aeration header repaired
Air compressor	Install new valve plates and head
Co-generator	Oil leak in sight glasses is pending repair.
DAF Thickening Unit	Replace Variable speed drive belt
Digester mixer #1	Remove and clean, realignment, crane was brought on-site to remove hairball from one mixer (second mixer continued to operate); full clean out planned for early 2021
Digester mixer #2	Remove and clean, realignment, full clean out planned for 2022
Digester recirculation pump	Realignment of pump and belt tensioning
Influent Barscreen	Disassemble and remove for repair and refurbishment
Raw Sewage Pump #2	Rebuild check valve seats
Raw Sewage Pump #3	Rebuild check valve seats
Raw Sludge pump #1	Remove and replace packing
Raw Sludge pump #2	Replace shear pin, remove main drive shaft and rebuild
Raw Sludge Pump #3	Replace shear pin
Sludge Loading Pump	Replace coupling and laser align pump
Supernate pump	Replace all bearing within the pump
Thickened Waste Activated pump	Replace gear joint
Thickened Waste Activated Sludge pump	Remove and replace packing and realignment of packing gland
Ultra Violet (UV) Disinfection unit	Remove and replace UVI sensor and tube

### 11 (3) f) Effluent Quality Assurance or Control Measures

*A summary of any effluent quality assurance or control measures undertaken*

Final effluent quality assurance is provided through sampling and monitoring programs using an accredited laboratory to meet ministry requirements. An on-site laboratory

provides monitoring of process steps to allow operators to perform adjustments as required to produce the desired quality effluent.

### 11 (3) g) Calibration and Maintenance Summary

*A summary of the calibration and maintenance carried out on all influent, imported sewage and final effluent monitoring equipment to ensure that the accuracy is within the tolerance of that equipment as required in the ECA or recommended by the manufacturer*

Flows at the Collingwood WPCP are monitored using in-line flow meters, including ultrasonic meters for two of the influent sewage pumps, a magnetic flow meter for the third influent sewage pump, and a level to flow transducer at the final effluent weir. The manufacturer recommends annual calibration of these flow measuring devices.

The flow meters are calibrated annually for accuracy (must be +/- 15% of flow rate) to satisfy condition 9 (4) of the ECA.

*Table 11(3)g – Calibration and Maintenance Summary*

<b>Date</b>	<b>Equipment Calibrated/ Maintained</b>	<b>Pass / Fail</b>	<b>Comments</b>
28 July 2020	Raw Sludge Flow	Pass	Heartbeat verification failed. Clamp on comparison passed.
28 May 2020	Influent 1 and 3	Pass	Two devices wired to one transmitter
28 May 2020	Influent 2	Pass	
28 May 2020	Final Effluent	Pass	
28 July 2020	Thickened Waste Activated Sludge (TWAS)	Pass	
n/a	Sludge Loading	Fail	Capital project in progress to replace meter in 2021

### 11 (3) h) Design Objectives Summary

*A summary of efforts made to achieve the design objectives in the ECA, including an assessment of the issues and recommendations for pro-active actions if any are required under the following situations:*

- i. when any of the design objectives is not achieved more than 50% of the time in a year, or there is an increasing trend in deterioration of Final Effluent quality;*
- ii. when the Annual Average Daily Influent Flow reaches 80% of the Rated Capacity;*

Final effluent objectives were achieved at all times in 2020 and final effluent quality trends are stable.

The ECA specifies that the plant is rated to treat an average daily flow of 24,548 m<sup>3</sup>/day and a peak flow of 60,900 m<sup>3</sup>/day. The Annual Average Daily Influent Flow to the WPCP in 2020 was 18,854 m<sup>3</sup>/d, which is 74% of the design capacity, therefore an expansion to the WPCP is not required at this time.

*Table 11(3)h – Design Objectives Summary*

Measurement	Design	Current Year	% of Capacity
Average day flow m <sup>3</sup> /d	24,548 m <sup>3</sup> /d	18,854 m <sup>3</sup> /d	74%
Peak flow m <sup>3</sup> /d	60,900 m <sup>3</sup> /d	48,370 m <sup>3</sup> /d	79%

### 11 (3) i) Sludge Volume and Disposal

*A tabulation of the volume of sludge generated, an outline of anticipated volumes to be generated in the next reporting period and a summary of the locations to where the sludge was disposed; Sludge volume is to be measured every five (5) years, but may be estimated in the interim years. A summary of disposal locations and volumes of sludge disposed of must also be provided if sludge was disposed of during the reporting period*

The WPCP currently stabilizes its bio solids (sludge) through anaerobic digestion comprised of 2 primary digesters, each with a capacity of 1,223 m<sup>3</sup>, one (1) secondary digester for separation of digested sludge and collection and storage of gas, with a capacity of 1,223 m<sup>3</sup> and one (1) sludge holding tank with continuous air supply and a capacity of 990 m<sup>3</sup>. A waste gas burner with a rated capacity of 560 m<sup>3</sup>/hr is connected to the system.

Stabilized bio solids are spread on licensed agricultural land as a nutrient and soil conditioner.

Sludge produced at the Collingwood WPCP meets the quality criteria specified in the Ontario Guidelines for Sewage Sludge Utilization on Agricultural Lands. Sludge is applied in accordance with these guidelines and the conditions set out in the site Environmental Compliance Approval.

Sludge disposal through direct utilization on land is not practical during winter months, during periods of inclement weather and when agricultural fields are inaccessible. The provincial guidelines for bio solids utilization on land recommends municipalities provide 6 months sludge storage facilities. The Town of Collingwood contracts three 6,800 m<sup>3</sup> STF from a private contractor to achieve this guideline.

Sludge disposal operations are currently contracted to a private hauler.

A total volume of 31,671.20 m<sup>3</sup> of biosolids was disposed of from the Collingwood facility in 2020. A total volume of 32,758.90 m<sup>3</sup> of biosolids were land applied from the storage lagoons in 2020. It is estimated that 33,500 m<sup>3</sup> of biosolids will be generated at the Collingwood facility in 2021 due to growth.

*Table 11(3)i a – Sludge Disposal Volume m<sup>3</sup>*

	<b>Sludge Hauled to Lagoon (m<sup>3</sup>)</b>
January	2,286.40
February	2,489.40
March	2,992.60
April	2,429.40
May	1,752.80
June	3,481.80
July	2,239.60
August	3,082.80
September	2,103.40
October	3,344.60
November	2,415.00
December	3,053.40
<b>Total</b>	<b>31,671.20</b>

*Table 11(3)i b– Sludge Land Application Volume m<sup>3</sup>*

<b>NASM#</b>	<b>April</b>	<b>July</b>	<b>August</b>	<b>October</b>	<b>November</b>	<b>Total</b>
22848	742.00					<b>742.00</b>
23109	1,675.60					<b>1,675.60</b>
23140		4,019.40				<b>4,019.40</b>
23407	5,179.00					<b>5,179.00</b>
23735 F1		507.40				<b>507.40</b>
23735 F2		3,243.80				<b>3,243.80</b>
23760				3,252.80	3,351.20	<b>6,604.00</b>
23851			198.80			<b>198.80</b>
24321		1,470.40	7,925.60			<b>9,396.00</b>
24367		150.00				<b>150.00</b>
24380				330.40		<b>330.40</b>
24096 F1	435.00					<b>435.00</b>
24096 F2	277.50					<b>277.50</b>
<b>Total</b>	<b>8,309.10</b>	<b>9,391.00</b>	<b>8,124.40</b>	<b>3,583.20</b>	<b>3,351.20</b>	<b>32,758.90</b>

## 11 (3) j) Complaints

*A summary of any complaints received and any steps taken to address the complaints*

*Table 11(3j) – Complaints Summary*

<b>Date</b>	<b>Nature of Complaint</b>	<b>Corrective Action</b>
Nov 27, 2020	Odour coming from WPCP	Check Flare, measure LEL's at source and follow up with complainant
June 30, 2020	Floating debris in the harbour	Inspect and retrieve sample for analysis. It is determined that the floating debris is organics and not a product from the WPCP.

## 11 (3) k) Bypasses, Overflows and Spills

*A summary of all Bypasses, Overflows, other situations outside Normal Operating Conditions and spills within the meaning of Part X of EPA and abnormal discharge events*

There was one bypass and no overflows or other situations outside normal operating conditions and spills within the meaning of Part X of EPA and abnormal discharge events in 2020.

On June 22/2020 the Water Pollution Control Plant experienced high flows due to large amounts of rain. The hydraulic overload caused a portion of the final effluent to bypass the U.V disinfection stage. Details of the event were sent to the Ministry of the Environment, Conservation and Parks on June 23, 2020 describing actions taken and authorities that had been informed. The Ministry was satisfied with the notification and no further actions were required.

## 11 (3) l) Notice of Modifications to Sewage Works

*A summary of all Notice of Modifications to Sewage Works completed under Paragraph 1.d. of Condition 10, including a report on status of implementation of all modification*

There were no Notice of Modifications to Sewage Works completed under Paragraph 1.d. of Condition 10 of the ECA in 2020.

## 11 (3) m) Procedure F-5-1 Summary

*A 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 bypass/overflow elimination including expenditures and proposed projects to eliminate bypass/overflows with estimated budget forecast for the year following that for which the report is submitted*

In 2020, the Town replaced 345 metres of sanitary sewer on Napier Street from Hume to Dillon, installed 3 meters of lining in a failed/collapsed sanitary sewer on High Street, replaced 3 metres of collapsed sanitary sewer on Fourth Street, and repaired/lowered approximately ten (10) manhole lids to help prevent inflow and infiltration (I/I) into the wastewater collection system and reduce the occurrence of bypasses/overflow events at the WPCP.

Another \$10,000 has been allocated for manhole repairs in 2021, and budget has been approved to evaluate possible infrastructure solutions to reduce the occurrence of bypasses/overflow events at the WWTP. Engineering design is also planned for the replacement of a section of sanitary sewer on Fifth Street.

### 11 (3) n) Proposed Works Schedule Changes

*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*

Not applicable.

## Section 4b: Reporting: Sewage Pumping Station ECA's

The Reporting requirements of the ECA's for Black Ash Creek and Minnesota Street have been compiled below. Although there are no requirements for the remainder of the sewage pumping stations, reporting in this section includes all stations.

### 4.1 Operating Issues

*A summary of all operating issues encountered and corrective actions taken*

*Table 4.1a Operating Issues Summary – All SPS*

Location	Description
Black Ash Creek	The grinder in the existing pump station required a new cutting edge, and without it the pumps to continually plugged up with rags. Daily cleaning and de-ragging of pumps was required to maintain adequate flow while major upgrades at the pump station were completed. The newly constructed pump station was commissioned in November 2020, and included a new grinder to eliminate the pump clogging issues.
Cranberry	A town wide power outage caused a fuse to blow in the PLC panel at the Cranberry pump station creating a loss of communications. An operator was called in to manually operate the pumps until an automation programmer/electrician arrived to change the fuse and restore the programming.
Minnesota Street	A town wide power outage created a glitch in the PLC programming. The pump station lost its level sensor communication and reverted to running the pumps in float mode. The on call operator attended the site along with an automation programmer/electrician who restored the programming.
Paterson Street	n/a
Pretty River Estates	n/a
Silver Glen	n/a
St. Clair Street	n/a
Tenth Line	n/a

## 4.2 Repairs and Maintenance

*A 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*

*Table 4.2a Scheduled Maintenance – All SPS*

Type	Description
Electrical systems, pumps and motors	Electrical maintenance program including thermography, voltage, load and harmonic checks, vibration analysis etc.
Standby generators	Semi-annual inspection and maintenance. Bi-weekly operations test, inspection and maintenance
Wet well cleaning	As needed
Grease bearings	As scheduled with preventative maintenance program

*Table 4.2a Unscheduled Maintenance / Emergency Repairs*

Location	Description
Black Ash Creek	n/a
Cranberry	n/a
Minnesota Street	n/a
Paterson Street	n/a
Pretty River Estates	n/a
Silver Glen	n/a
St. Clair Street	Rebuilt Flygt pump 3 including cartridge seal, bearings, o-rings, cooling jacket, flow diffuser, balancing and glycol replaced
Tenth Line	n/a

## 4.3 Calibration and Maintenance Summary

*A summary of the calibration and maintenance carried out on all monitoring equipment.*

Flow meter calibrations were not completed in the sewage pumping stations in 2019 or 2020. All flow meters have been included on the calibration schedule and will be completed annually beginning in 2021.



## 4.4 Complaints

*A summary of any complaints received and any steps taken to address the complaints*

No complaints were received with regards to the sewage pumpage stations.

## 4.5 Overflows

*A 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** overflows or other situations outside normal operating conditions and spills within the meaning of Part X of EPA and abnormal discharge events in 2020.

## 4.6 Monitoring Data

*A summary and interpretation of all monitoring data, including an overview of the success and adequacy of the Works; - Note: Monitoring data required only during an overflow event.*

There were no overflow events in 2020 and therefore no monitoring data to report.

## 4.7 Notice of Modifications to Sewage Works

*A summary of all Notice of Modifications to Sewage Works completed under the ECA, including a report on status of implementation of all modifications. Notifications to be attached.*

There were no Notice of Modifications to Sewage Works completed under the ECA's in 2020.

Black Ash Creek SPS was issued a new ECA for major upgrades to the works. The original scheduled estimated completion in April 2020. Unexpected delays to the schedule were brought on by the COVID19 pandemic and included working restrictions, equipment and material shipment delays and scheduling issues with utility contractors (Enbridge, Bell, Epcor). In addition inclement weather, along with an unforeseen rerouting of existing underground piping that was not as shown on the record drawings, meant that the project was not substantially completed until November 2020.

## 4.8 Procedure F-5-1 Summary

*A 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 bypass/overflow elimination including expenditures and proposed*

*projects to eliminate bypass/overflows with estimated budget forecast for the year following that for which the report is submitted*

This information was reported in section 4a, 11 (3) m) above.

## Section 5: Conclusion

This report has been compiled in accordance with the reporting requirements of Condition 11 of ECA 5807-B8GM4G and Condition 10 of CofA 2639-5TLQB2. If further clarification is required please do not hesitate to contact:

Jennifer Adams  
Supervisor, Wastewater Treatment Operations  
jadams@collingwood.ca  
705-445-1351, Ext. 3315