South Huron Wastewater Collection System
and
Exeter Wastewater Treatment Facility

2024 Annual Report to Council

February 12, 2025

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I. DESCRIPTION OF EXETER WASTEWATER TREATMENT FACILITY AND SOUTH HURON WASTEWATER COLLECTION SYSTEM

System Overview

The Exeter wastewater treatment facility and South Huron wastewater collection system provides service to approximately 5,000 residents in Crediton, Centralia, Huron Park and Exeter. The Grand Bend area is serviced by a wastewater collection system and two sanitary pumping stations. Wastewater in Grand Bend is treated at the jointly owned Grand Bend Area Wastewater Treatment Facility operated by Jacobs Engineering Group and administered by Lambton Shores on behalf of the Grand Bend Area Joint Sewage board.

The Exeter wastewater treatment facility is an aerated sewage lagoon with intermittent sand filters. The wastewater collection system consists of sanitary sewers, forcemains and four sanitary pumping stations that convey wastewater to a wastewater treatment facility in Exeter. The system is continuously monitored by a computerized Supervisory, Control and Data Acquisition system. The receiving water course for the wastewater treatment facility is the Ausable River.

Detailed System Description

Exeter Wastewater Treatment Facility

The Exeter Wastewater Treatment Facility is located in the northwest area of Exeter at 71042 Airport Line. The facility is a sewage lagoon, with an aeration system, intermittent sand filters and has a rated capacity of 2,573,718m^3 per year.

Raw sewage is collected at the William Street and Snider Crescent Sanitary Sewage Pumping Stations in Exeter; at the Huron Park and Crediton Sanitary Sewage Pumping Stations; then pumped to the Wastewater Treatment Facility (WWTF) in Exeter. Treatment at the WWTF consists of a 3-cell lagoon system with phosphorus removal. Raw sewage flows into the first cell with assisted aeration and an effective storage volume of 313,000m^3. The second cell is for additional storage (pre or post treatment) with an effective volume of 343,500m^3. The third “L-shaped” cell has a total storage volume of 751,000m^3. Effluent from this third cell is directed to a 4-bed, intermittent sand filtration system with an average hydraulic loading rate of 475 L/s. Continuous liquid aluminum sulfate (alum) is used for phosphorus removal. Effluent can be discharged from the lagoon system to the receiving water course from April 1st to November 31st providing the effluent meets the criteria for “warm weather” discharge. Effluent can be discharged directly from the lagoon system to the receiving water course from December 1st to March 31st providing the effluent meets the criteria for “cold weather” discharge.

South Huron Wastewater Collection System

The South Huron wastewater collection system consists of approximately 67 km of sanitary sewers and forcemains conveying wastewater from Crediton, Centralia, Huron Park and Exeter to the South Huron wastewater treatment facility. Sewers and

forcemains range in size from 100mm to 600mm diameter. The pipe material consists of concrete, asbestos-cement, polyethylene, and polyvinylchloride (PVC).

Prior to 1960 some of the older areas of Exeter were serviced by combined sewers that discharged directly to the Ausable River. A sanitary pumping station located at the intersection of John and Marlborough Streets pumped combined sewage to the Ausable River via the William Street sewer. The majority of Exeter was serviced by private on-site septic systems and cess pools until the early 1960s. The current municipal wastewater collection system in Exeter was commissioned in 1963 and consisted of sanitary sewers, the William Street Sanitary Pumping Station, a forcemain, and a 2-cell oxidation pond on the current lagoon site. Combined sewers were gradually separated over the years and the wastewater collection system was expanded to serve new subdivisions in the 1970s and 1980s. The Snider Crescent Sanitary Sewage Pumping Station was constructed in 1991 to serve growth in the southwest area of Exeter. The John Street Sanitary Sewage Pumping Station became redundant and was decommissioned after the construction of the Snider Crescent Sanitary Sewage Pumping Station.

Huron Park is the oldest wastewater collection system in the Municipality. It was constructed in the early 1940's by the RCAF as part of the Airforce Station Centralia. The Base closed in 1967 and the ownership of the system was transferred to the former Stephen Township in 1983. The Huron Park Wastewater Treatment Facility was decommissioned in 2000 and sewage pumped to Exeter via a forcemain that approximately follows the Goderich-Exeter Railway line. The entire wastewater collection system in the Huron Park Residential Area was replaced in 2006 and the wastewater collection on Canada Avenue in the Industrial area was replaced in 2010.

A municipal wastewater collection system was installed in Crediton and Centralia in 2008. A Sanitary Sewage Pumping Station was constructed at the east end of Crediton near the Ausable River and sewage is pumped via a forcemain to Exeter. The Centralia wastewater collection system is connected by gravity to the Huron Park residential area wastewater collection system, sewage then flows through a trunk sewer to the Industrial area where it is pumped to Exeter via an upgraded Huron Park Sanitary Sewage Pumping Station.

Sanitary Sewage Pumping Stations

William Street Sanitary Sewage Pumping Station

The original William Street Sewage Pumping Station was originally constructed in 1962, upgraded in 1999 and decommissioned/demolished in 2020, after completion of the new pumping station.

The new William Street Sewage Pumping Station is located at 28 William Street, near the Ausable River. It is a wetwell/drywell type sewage lift station, with a separate valve chamber and control building that houses electrical and control equipment.

The wetwell and valve chamber are separate structures outside the control building. The pumping station is equipped with three submersible pumps: a jockey pump with a rated capacity of 80 L/s; a duty pump with a rated capacity of 168 L/s; and standby/peak flow pump with a rated capacity of 286 L/s. The sewage pumps are fixed speed submersible units discharging into a common header in the valve chamber, then to a twin section of 350mm forcemain. The pumping station is equipped with a standalone 350kW emergency diesel generator, power distribution equipment, and control and monitoring devices.

The 350 mm diameter forcemain (twinned from SPS to GEXR) is approximately 1375m long and follows a 9.14m wide easement to the WWTF. The rate of flow is measured by a magnetic flow meter in the meter chamber at the treatment facility.

Snider Crescent Sanitary Sewage Pumping Station

The Snider Crescent Sewage Pumping Station was constructed in 1992 and significantly upgraded in 2020 with new pumps, electrical, mechanical and instrumentation. It is located at 31 Snider Crescent; it is a wetwell/drywell type sewage lift station with all process equipment housed in an above grade structure.

The wetwell is a separate structure outside the control building. The pumping station is equipped with three submersible pumps, each with a rated capacity of 155 L/s (alternating duty pumps). The sewage pumps are fixed speed submersible units discharging into a common header in the lower level of the control building. The pumping station is equipped with a standalone 200kW emergency diesel generator, power distribution equipment, and control and monitoring devices.

The 300 mm diameter forcemain is approximately 1480m long and follows a 6.1m wide easement to the WWTF. The rate of flow is measured by a magnetic flow meter in the meter chamber at the treatment facility.

Huron Park Sanitary Sewage Pumping Station

The Huron Park Sewage Pumping Station was constructed in 1999, after the Huron Park Sewage Treatment Plant was decommissioned, and upgraded in 2007 with VFD's and controls as part of the expansion of the wastewater collection system to service Centralia. It is located at 389 Canada Avenue in the Huron Park Industrial Area. It is a wetwell/drywell type sewage lift station with all process equipment housed in an above grade structure. The wetwell is a separate structure outside the generator/control building. The two sewage pumps are submersible units, driven by variable frequency drives, discharging into a common header in the lower level of the generator/control building. The generator/control building also houses a 150kW diesel generator set, power distribution equipment, and control and monitoring devices.

The 300mm diameter forcemain from the Huron Park SPS follows an easement to Airport Line, north on Airport Line to the Crediton Road; east on Crediton Road to the Goderich-Exeter Railway line, then along the GEXR right of way to the South

Huron WWTF. The rate of flow is measured by a magnetic flow meter in the meter chamber at the treatment facility.

Crediton Sanitary Sewage Pumping Station

The Crediton Sewage Pumping Station was constructed in 2007. It is located at 250 Victoria Street East, Crediton; it is a wetwell/drywell type sewage lift station with all process equipment housed in an above grade structure. The wetwell is a separate structure outside the Generator Building. The two sewage pumps are fixed speed submersible units discharging into a common header in the lower level of the Generator Building. The Generator Building also houses a 160kW diesel generator set, power distribution equipment, and control and monitoring devices.

The 200mm diameter forcemain from the Crediton SPS is located in the Crediton Road right of way and is connected to the 300mm forcemain from Huron Park at the intersection of Crediton Road and Airport Line. The rate of flow is measured by a magnetic flow meter in the meter chamber at the treatment facility.

Grand Bend Wastewater Area Collection System

The Grand Bend wastewater collection system was originally constructed in 1980 by the Ministry of the Environment to service the Village of Grand Bend (now Lambton Shores) and Grand Cove Estates and Green Forest Estates in the former Stephen Township (now South Huron). In 1980 after the Huron Country Playhouse septic system failed, approval was obtained from the MOE to connect to the Grand Bend Area Sewage Lagoon. The Playhouse has a private sewage pumping station discharging to a 100mm forcemain on B-Line, Grand Bend Line and Mollard Line to the Grand Bend Area Sewage Treatment facility. It should be noted that the Dark House Winery private sewage pumping station also discharges to this same 100mm forcemain on B-Line.

In 1992, an annexation agreement was negotiated between the Village of Grand Bend, Stephen Township and Bosanquet Township regarding adjustments to their boundaries. As part of the annexation negotiations there was an understanding amongst the municipalities regarding rights to access the Sewage Treatment Facility in Grand Bend; however, this did not form part of the Annexation Agreement. A subsequent agreement between the three municipalities included a clause to *"continue inter-municipal cooperation through the functioning of the Tri-Municipal Committee to provide joint servicing arrangements to the people of the Greater Grand Bend Area."*

Accordingly, in 1994 the former Stephen Township obtained approval to expand the Grand Bend wastewater collection system to include Oakwood Inn, additional lands in Grand Cove Estates, Grand Bend Airport property (proposed Industrial subdivision, Motorplex, and POG). In 2000 the Provincial Government transferred jointly to Village of Grand Bend (now Lambton Shores) and Stephen Township (now South Huron) the Grand Bend Sewage Lagoons, Main Pumping Station and forcemain between these facilities. The Grand Bend wastewater collection system was further expanded in 2006 to provide service to Oakwood Links Condominiums.

In 2014 the Grand Bend Area Joint Sewage Board was created to provide Ownership oversight for the jointly owned wastewater assets and the expansion/upgrade of the Wastewater Treatment Facility. Construction of a new mechanical wastewater treatment facility and upgrades to the Main Pumping Station in Grand Bend (PS2) were completed and became operational in 2016.

In 2021-22 a jointly owned trunk sanitary sewer was constructed from the Main Pumping Station in Grand Bend (PS-2) along Municipal Drive and Ontario Street to Indian Road to provide service to lands along the Highway #21 corridor from the Lambton Shores boundary northerly to Huron County Highway #83.

Sanitary Sewage Pumping Stations in the South Huron Grand Bend System

Oakwood Area Sanitary Sewage Pumping Station

The Oakwood Area SPS was constructed in 2006. It is located at 70773 Bluewater Highway; it's a wetwell/drywell type sewage lift station with all process equipment housed in an above grade structure. The wetwell is a separate structure outside the Generator Building. The two sewage pumps are submersible units, driven by variable frequency drives, discharging into a common header in the lower level of the Generator Building. The Generator Building also houses a 25kW diesel generator set, power distribution equipment, and control and monitoring devices.

The 100mm diameter forcemain from the Oakwood Area SPS is located in an easement on private property along the west side of the Bluewater Highway (MTO Hwy #21) right of way. This forcemain is connected to the Lambton Shores gravity wastewater collection system on Ontario Street North and eventually flows to the Main Pumping Station in Grand Bend. Wastewater is conveyed to the Grand Bend Area Wastewater Treatment Facility via a 350mm forcemain on Main Street East and Mollard Line. The rate of flow is measured by a magnetic flow meter in a meter chamber at the municipal boundary.

POG Sanitary Sewage Pumping Station

The POG SPS was constructed in 1999. It is located at 70244 Grand Bend Line; it's a wetwell type sewage lift station with all process equipment housed in above grade pole mounted enclosures. The two sewage pumps are fixed speed submersible units discharging into a common header. There is no emergency generator and no flow metering at this pumping station.

The 100mm diameter forcemain from the POG SPS is located in an easement across private property directly west of the pumping station, then south in the Mollard Line right-of-way to the Grand Bend Area Sewage Treatment Facility.

Control System

The South Huron Wastewater System is monitored and controlled by a PLC based Supervisory, Control and Data Acquisition (SCADA) system. Remote processing units (RPUs) are located at remote facilities and communicate through a third-party internet

provider. The SCADA system is continuously monitored, backed up, and has failsafe measures built into the system.

II. MECP INSPECTION, ORDERS AND COMPLIANCE ISSUES

MECP Inspection

There was no inspection by the Ministry of Environment, Conservation and Parks of the Exeter Wastewater Treatment Facility in 2024.

Compliance issues and Orders

There were no compliance issues, no effluent quality exceedances and no Ministry Orders issued for the South Huron Wastewater Treatment Facility or Wastewater Collection System in 2024.

III. SUMMARY OF INFLUENT, IMPORTED SEWAGE AND PROCESSED ORGANIC WASTE.

The Exeter Wastewater Treatment Facility does not receive any Imported Sewage or Processed Organic Waste. The following is a summary of Influent monitoring data:

2024 Lagoon Influent Flows and Raw Water Quality

	<----------Raw Flows---------->			Avg Raw	Avg Raw	Avg Raw
Month	Total Flow m3	Avg Day m3	Max Day m3	BOD mg/L	SS mg/L	Phos. mg/L
JAN	199,682	6,441	26,669	477.0	158.0	2.2
FEB	91,533	3,156	5,534	152.0	112.0	1.7
MAR	129,179	4,167	7,470	43.0	27.0	0.9
APR	135,776	4,526	13,435	187.0	153.0	2.3
MAY	94,134	3,037	6,649	125.0	133.0	2.4
JUN	71,239	2,375	3,572	265.0	122.0	2.9
JUL	96,370	3,109	8,285	368.0	195.0	4.7
AUG	63,511	2,049	2,685	300.0	207.0	3.4
SEP	56,374	1,879	2,256	258.0	178.0	4.7
OCT	58,797	1,897	4,158	236.0	188.0	0.9
NOV	72,287	2,410	4,493	275.0	151.0	2.9
DEC	221,189	7,135	27,663	77.0	84.0	1.2
Total Annual:	1,290,071					
Summer Avg	81,061	2,660	5,692	251.8	165.9	3.0
Winter Avg	160,396	5,225	16,834	187.3	95.3	1.5
MAX:	221,189	7,135	27,663	77.0	207.0	4.7

Historical Influent Flows	
Year	**Flow (m3)**
2024	1,290,071
2023	1,532,601
2022	1,210,896
2021	1,216,942
2020	1,084,999
2019	971,008
2018	971,008
2017	1,420,844
2016	1,227,452
2015	1,023,136
2014	1,616,994
2013	958,514
Average	**1,203,127**

Influent, monitoring data, and historical trends of the sewage characteristics and flow rates were reviewed. Influent flows historically continue to be less than 50% of the design capacity of the WWTF. Influent quality remains essentially unchanged from previous years and is within the capabilities of the wastewater treatment system to achieve the effluent quality limits.

IV. SUMMARY OF FINAL EFFLUENT MONITORING DATA

The following is 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 this Approval, including an overview of the success and adequacy of the Works.

The South Huron Wastewater Treatment Facility has a design capacity of an average daily flow (ADF) of 7,051m^3/day; a maximum annual discharge of 2,573,718m^3. In 2024 the average daily effluent flow was 7,204m^3/day. The 2024 the warm weather effluent discharge was 855,215m^3 and the cold weather discharge was 347,797m^3. The 2024 total annual discharge was 1,203,012m^3 or 47% of the total allowable discharge.

A review of the 2024 flow data indicates that there may be inflow and infiltration issues in the wastewater collection system. Staff will continue to address inflow and infiltration by implementing mitigation measures, such as capping abandoned sewers in the Huron Park Industrial area. In Exeter, sanitary sewers continue to be replaced in conjunction with street reconstruction projects as part of an overall asset management program and to reduce inflow and infiltration. Staff continue to investigate and undertake measures and initiatives to identify, quantify, and reduce inflow/infiltration in the wastewater collection system.

All flows to the South Huron Wastewater Treatment Facility in 2024 were within the design capacities in the Environmental Compliance Approval (ECA). The total annual effluent discharge in 2024 of 47% of the rated capacity is confirmation of sufficient sewage treatment capacity in the Exeter Wastewater Treatment Facility.

The following is a summary of the monthly wastewater flows:

EXETER WASTEWATER TREATMENT FACILITY

MONTH	INFLOW (M3)	EFFLUENT (M3)	A/B
JAN	199,682	0	
FEB	91,533	347,797	B
MAR	129,179	0	
APR	135,776	0	
MAY	94,134	187,786	A
JUN	71,239	178,187	A
JUL	96,370	171,278	A
AUG	63,511	191,657	A
SEP	56,374	126,307	A
OCT	58,797		
NOV	72,287		
DEC	221,189		
TOTAL	**1,290,071**	**1,203,012**	
(A) TOTALS		**855,215**	
(B) TOTALS		**347,797**	
DAYS DISCHARGING		**167**	
AVERAGE DAY FLOW	**3,534**	**7,204**	

ECA	ANNUAL DISCHARGE (M3)	ACTUAL DISCHARGE (m3)	PERCENTAGE DISCHARGED
(A)	No Limit	**855,215**	N/A
(B)	No Limit	**347,797**	N/A
TOTAL	**2,573,718**	**1,203,012**	**47%**

(A) = Warm Weather Discharge Apr 1 - Nov 30
(B) = Cold Weather Discharge Dec 1 - Mar 31

INFLOW	DISCHARGE	DIFFERENCE	% OF INFLOW
1,290,071	1,203,012	87,059	93%

Lagoon Capacity Evaluation			
Year	**Effluent Flow (m3)**	**Rated Capacity (m3)**	**Percentage Utilized**
2024	1,203,012	2,573,718	46.74%
2023	528,760	2,573,718	20.54%
2022	1,041,471	2,573,718	40.47%
2021	924,559	2,573,718	35.92%
2020	1,234,268	2,573,718	47.95%
2019	1,157,189	2,573,718	44.96%
2018	971,008	2,573,718	37.72%
2017	1,420,844	2,573,718	55.21%
2016	1,227,452	2,573,718	47.69%
2015	1,023,136	2,573,718	39.75%
2014	1,616,994	2,573,718	63.00%
2013	958,514	2,573,718	37.24%
Average	**1,108,934**		**43.09%**

Opinion of Available Sewage Treatment Capacity

In March 2014 BM Ross Engineers evaluated the capacity of the South Huron Wastewater Treatment Facility and the following is a summary of their opinion of the estimated life expectancy of the WWTF:

> *"MOE Procedure D-5-1 suggests using a 3 to 5 year average as a basis to determine the current available capacity. Using the slightly higher 3 year average of 3,360m^3/d the total current reserve capacity is 3,691m^3/d (ie. 7,051m^3/d - 3,360m^3/d).*
>
> *A projected annual growth rate of 0.5% would generate an annual increase of approximately 17m^3/d. At this growth rate the available reserve capacity would be adequate for over 200 years. (ie. 3,691m^3/d ÷ 17m^3/d).*
>
> *The Exeter WWTP is, with the exception of only random, occasional events, meeting required treatment levels. It is currently operating at approximately 48% of its rated hydraulic capacity. At a projected growth rate of 0.5% per year there is adequate total reserve capacity for more than 200 years."*

In October 2017 GMBluePlan Engineers reviewed the Intermittent Sand Filters after declining performance in recent years. GMBluePlan confirmed that rehabilitation of the sand filters was required to restore their original design flows and to maintain treatment capacity. Preliminary engineering work has been completed for the planned future rehabilitation of the sand filters. Sand filter performance has improved with increased tilling of the filter beds. This has given the municipality more time before rehabilitation is required and allowed the rehabilitation work to be phased. The Sand Filters are scheduled in the 10-year capital forecast for rehabilitation over 2025/2026.

In April 2021 B.M. Ross Engineers completed a review of the Filter Building Pumping Station. B.M. Ross confirmed that upgrades/rehabilitation of the filter pumping station was required to restore their original design flows and to maintain treatment capacity. The Filter Building Pumping Station upgrades were completed in 2023.

Summary of Effluent Quality Analytical Data

The Exeter Wastewater Treatment Facility Effluent Limits for discharges are set out in the Environmental Compliance Approval (ECA). Discharges are based on “Warm Weather” criteria between April 1st and November 31st and “Cold Weather” criteria between December 1st and March 31st of each year.

Effluent quality discharge criteria for “Warm Weather” are based on discharging through the sand filters. However, discharges can be made through the sand filters at any time during the year, providing the filters are functional. All effluent quality criteria parameters are limited by the Annual Average loading limits. The following are the final effluent compliance limits in the Environmental Compliance Approval for the Exeter Wastewater Treatment Facility:

Concentration Limits		
Final Effluent Parameter	**Averaging Calculator**	**Limits** (milligrams per litre unless otherwise indicated)
$CBOD_5$	Monthly Average Effluent Concentration	10.0 mg/L (Apr 01 - Nov 30) 25.0 mg/L (Dec 01 - Mar 31)
Suspended Solids	Monthly Average Effluent Concentration	10.0 mg/L (Apr 01 - Nov 30) 25.0 mg/L (Dec 01 - Mar 31)
Total Phosphorus	Monthly Average Effluent Concentration	0.6 mg/L (Apr 01 - Nov 30) 1.0 mg/L (Dec 01 - Mar 31)
pH	Single Sample Event	6.0 - 9.5 inclusive
Total Ammonia Nitrogen (*)	Monthly Average Effluent Concentration	4.0 mg/L (Apr 01 - Nov 30)
Unionized Ammonia	Monthly Average Effluent Concentration	0.1 mg/L
Dissolved Oxygen (**)	Single Sample Event	>5.0 mg/L
E. Coli	Monthly Geometric Mean Density	<200CFU/100mL (#) (Apr 01 - Nov 30)

Note:

(*) During the operation of the intermittent sand filers, the Total Ammonia Nitrogen concentrations are based on assumed temperature and pH conditions which will result in 0.1 mg/L or less unionized ammonia concentration in the discharge.

(**) The dissolved oxygen value shown is a minimum; verses for the other variables the values are maximums.

(#) If the MPN method is utilized for E. coli analysis the limit shall be 200 MPH/100mL

The following are the final effluent loading limits in the Environmental Compliance Approval for the Exeter Wastewater Treatment Facility:

Loading Limits		
Final Effluent Parameter	**Averaging Calculator**	**Limits** (maximum unless otherwise indicated)
$CBOD_5$ (a)	Seasonal Average Daily Effluent Loading	70.51 kg/day
$CBOD_5$ (b)	Seasonal Average Daily Effluent Loading	176.28 kg/day
Suspended Solids (a)	Seasonal Average Daily Effluent Loading	70.51 kg/day
Suspended Solids (b)	Seasonal Average Daily Effluent Loading	176.28 kg/day
Total Phosphorus (a)	Seasonal Average Daily Effluent Loading	4.23 kg/day
Total Phosphorus (b)	Seasonal Average Daily Effluent Loading	7.05 kg/day
Total Ammonia Nitrogen (a)	Seasonal Average Daily Effluent Loading	28.20 kg/day

Note:

(a) From April 1 to November 30 (warm weather season)
(b) From December 1 to March 31 (cold weather season)

The following is a summary of the monthly effluent quality results for the Exeter Wastewater Treatment Facility:

2024 MONTHLY EFFLUENT SUMMARY

MONTH / Days of Effluent Discharge	CBOD (MG/L)	LOADING	SS	LOADING	TP	LOADING	Un-ionized AMMONIA	NH3	NH3 LOADING	DO	E COLI GM.
Unit Measurements	**mg/L**	**kg/d**	**mg/L**	**kg/d**	**mg/L**	**kg/d**	**mg/L**	**mg/L**	**kg/d**	**(mg/l)**	**gm/100mL**
DEC											
JAN											
FEB / 27 days (B)	7.20	92.75	10.2	131.39	0.11	1.42	0.0270	3.32	42.77	11.6500	574.00
MAR											
Seasonal Daily Average	7.20	92.75	10.2	131.39	0.11	1.42	0.0270			11.6500	
Cold Season Effluent : Monthly Average Concentration / Seasonal Average Daily Effluent Loading Limit	25 mg/L	176.28 kg/day	25 mg/L	176.28 kg/day	1 mg/L	7.05 kg/day	0.1 mg/L in Effluent	N/A	N/A	5 mg/L > min in Effluent	N/A
% IN COMPLIANCE	100%	100%	100%	100%	100%	100%	100%	N/A	N/A	100%	N/A
APR											
MAY / 27 days (A)	4.00	27.82	2.0	13.91	0.12	0.83	0.0020	0.10	0.70	8.3400	12.3400
JUNE / 26 days (A)	4.00	27.41	2.0	13.71	0.13	0.89	0.0020	0.10	0.69	7.6800	2.1400
JULY / 28 days (A)	4.00	24.47	2.0	12.23	0.15	0.92	0.0030	0.10	0.61	7.6400	4.9100
AUG / 31 days (A)	3.80	23.49	2.0	12.36	0.20	1.24	0.0030	0.10	0.62	7.2200	5.8000
SEPT / 26 days (A)	4.00	19.43	2.0	9.72	0.20	0.97	0.0030	0.10	0.49	7.9700	1.1900
OCT											
NOV											
Seasonal Daily Average	3.96	24.52	2.0	12.39	0.16	0.97	0.0026	0.10	0.62	7.7700	5.2760
Warm Season Effluent : Monthly Average Concentration / Seasonal Average Daily Effluent Loading Limit	10 mg/L	70.51 kg/day	10 mg/L	70.51 kg/day	0.6 mg/l	4.23 kg/day	0.1 mg/L in Effluent	4.00 mg/L	28.20 kg/day	5 mg/L > min in Effluent	200 cfu/100 ml
% IN COMPLIANCE	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

A review of the 2024 effluent quality analytical data confirmed that the Exeter Wastewater Treatment Facility met all effluent quality parameters for warm season discharge. All cold season discharge met the effluent quality parameters. This review confirms that the wastewater treatment process was adequate for the influent treated at

this facility. The Exeter Sewage Treatment Facility has consistently achieved the effluent quality requirements in the Environmental Compliance Approval (ECA), especially the summer discharge through the sand filters. However, to keep winter discharges within compliance, future upgrades will be required.

V. SUMMARY OF DEVIATIONS FROM MONITORING SCHEDULE

There were no deviations from the monitoring schedule for the current reporting year and no schedule revisions planned for the next reporting year.

VI. SUMMARY OF OPERATING ISSUES AND CORRECTIVE ACTIONS

The most common operating issues in 2024 were high levels and control failures at sewage pumping stations. The corrective action was to respond, diagnose, conduct an emergency repair as necessary to correct the issue. The long-term corrective action is future pumping stations upgrades. The following is a summary of operating issues and corrective action taken:

2024 Operating Issues and Correction Actions			
Date	**Location**	**Description of problem**	**Corrective action**
9-Jan	William St Sewage Pumping Station	Pump #3 Failure	Reset Pumps on Site
11-Jan	Lagoons	Transducer Failure	Replace Transducer
11-Jan	Huron Park Sewage Pumping Station	Generator High Temperature	Repair Cooling System
24-Jan	Lagoons	Transducer Failure	Replace Transducer Wire to Filter Building
26-Jan	Huron Park Sewage Pumping Station	High Level	Bypass
30-Jan	Lagoons	Inaccurate Flow Registering	Instrumentation Tech Repaired
6-Jun	Crediton Sewage Pumping Station	Pressure Transmitter Failure	Technician Replaced Transmitter
10-Jul	POG Pumping Station	Pump #2 Failure	Pump Sent Away to be Rebuilt
16-Aug	Crediton Sewage Pumping Station	Pump #2 Failure	Pump Sent Away to be Rebuilt
22-Aug	Lagoons	Filter Bed Lateral Break	Repair Section of Filter Bed Lateral Pipe
29-Oct	William St Sewage Pumping Station	Generator Failure	Complete Emergency Repair.
12-Dec	Lagoons	Blower Failure	Repair Belts on Blower #3
29-Dec	Huron Park Sewage Pumping Station	High Level	Bypass

VII. SUMMARY OF NORMAL REPAIRS, EMERGENCY REPAIRS AND MAINTENANCE ACTIVITIES

The following is 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 in 2024:

1. Emergency repairs on Grand Bend Line of sewage forcemain servicing private sewage pumping stations on B-Line.
2. Repairs to broken Lagoon Filter Bed lateral.
3. SCADA system software upgrades.
4. Engineering for future sewer replacement Gidley St E (Main St to Andrew)
5. Engineering for future sewer replacement Hardy St (Senior to east end)
6. Engineering for future sewer replacement Alexander St W (McConnell to Francis)
7. Engineering for future sewer replacement McConnell St (Alexander St to end)
8. Engineering for future sewer replacement on Baldwin St (Main St to Andrew)
9. Exeter Trunk Sewer Rehabilitation
10. Engineering for Huron Park Sewage Pumping Station Equalization Tank
11. Engineering for Huron Park Sewage Pumping Station Upgrades
12. Engineering for future Sewage Lagoon Sand Filters Rehabilitation
13. Sanitary sewer replacement Main Street North (Ausable River to Walper St)

The following is a summary of alterations, extensions or replacements in the process or operation of the works which are considered for implementation over the next reporting period (2025 to 2029), which require approval under the Ontario Water Resources Act:

2025

1. Sanitary sewer replacement on Victoria St E (Main to east end)
2. Exeter Trunk Sewer Rehabilitation
3. Rehabilitate Exeter Sewage Lagoon Sand Filters (Phase 1)
4. Huron Park Sewage Pumping Station Equalization Tank
5. I&I Reduction Program
6. Engineering for future sewer replacement Thames Road West (Main St N to West Town Limits) – Joint with Huron County
7. Engineering for Huron Park Sewage Pumping Station Upgrades

2026

1. Sanitary sewer replacement on Gidley St E (Main St to Andrew)
2. Sanitary sewer replacement on Hardy St (Senior to east end)
3. Sanitary sewer replacement on Alexander St W (McConnell St to Francis St)
4. Sanitary sewer replacement on McConnell St (Alexander St to south end)
5. Sanitary sewer replacement on Baldwin St (Main St to Andrew)
6. Engineering for future sewer replacement Hill St (Andrew to east end)
7. Engineering for future sewer replacement Thomas St (Marlborough to William St)
8. Exeter Trunk Sewer Rehabilitation
9. Rehabilitate Exeter Sewage Lagoon Sand Filters (Phase 2)

10. William Street SPS Forcemain Replacement (GEXR to Lagoons)
11. Engineering for Exeter Sewage Lagoon Blower Building Upgrades
12. I&I Reduction Program

2027

1. Sanitary sewer replacement Hill St (Andrew to east end)
2. Sanitary sewer replacement Thomas St (Marlborough to William St)
3. Engineering for future sewer replacement Carling St (Huron St W to end)
4. Engineering for future sewer replacement Mill St (William to Market St)
5. Exeter Trunk Sewer Rehabilitation
6. Huron Park Sewage Pumping Station Upgrades (Phase 1)
1. Sewage Lagoon Blower Building Upgrades
2. Sanitary sewer replacement Thames Road West (Main St N to West Town Limits) – Joint with Huron County
3. I&I Reduction Program

2028

1. Sanitary sewer replacement on Carling St (Huron St W to south end)
2. Sanitary sewer replacement on Mill St (William St to Market St)
3. Engineering for future sewer replacement Kingscourt Cres (Pryde Blvd to end)
4. Engineering for future sewer replacement Waterloo St (Acheson to Mary)
5. Engineering for future sewer replacement Willis Way (West end to end)
6. Exeter Trunk Sewer Rehabilitation
7. Huron Park Sewage Pumping Station Upgrades (Phase 2)
8. I&I Reduction Program

2029

1. Sanitary sewer replacement on Kingscourt Cres (Pryde Blvd to end)
2. Sanitary sewer replacement on Waterloo St (Acheson to Mary)
3. Sanitary sewer replacement on Willis Way (West end to end)
4. Engineering for future sewer replacement on Church St (Main St to William St)
5. Engineering for future sewer replacement on William St (Wellington to north end)
6. William Street SPS Forcemain Replacement (GEXR to Lagoons)
7. Oakwood SPS Gravity Connection
8. I&I Reduction Program
9. Exeter Trunk Sewer Rehabilitation

VIII. SUMMARY OF EFFLUENT QUALITY ASSURANCE OR CONTROL MEASURES

There were no additional effluent quality assurance or control measures undertaken in 2024 other than flow monitoring, influent and effluent sampling already noted.

IX. SUMMARY OF CALIBRATION AND MAINTENANCE OF MONITORING EQUIPMENT

All meters that measure influent and effluent flows at the Wastewater Treatment Facility are maintained as recommended by the manufacturer and calibrated by a third party on an annual basis. The date of last calibration of flow meters was **August 6, 2024.** Flows are measured at each pumping station and the lagoon discharge. Flows to the filter building are measured by a v-notch weir. The Snider Crescent SPS and Huron Park SPS magmeters are located in the blower building. Calibrations are no longer performed at the stream gauge building located at the Ausable River and Airport Line, as monitoring flows at this facility is no longer a requirement of the current ECA.

Handheld final effluent monitoring equipment is maintained as recommended by the manufacturer and calibrated annually by a third party.

X. SUMMARY OF EFFORTS MADE TO ACHIEVE THE DESIGN OBJECTIVES

The Exeter Wastewater Treatment Facility Effluent Quality Objectives are set out in the Environmental Compliance Approval (ECA) and are based on “Warm Weather” criteria between April 1st and November 30th and “Cold Weather” criteria between December 1st and March 31st of each year.

The following are the effluent quality objectives in the Environmental Compliance Approval for the Exeter Wastewater Treatment Facility:

FINAL EFFLUENT DESIGN OBJECTIVES

Concentration Objectives		
Final Effluent Parameter	**Averaging Calculator**	**Limits** (milligrams per litre unless otherwise indicated)
$CBOD_5$	Monthly Average Effluent Concentration	5.0 mg/L (Apr 01 - Nov 30) 15.0 mg/L (Dec 01 - Mar 31)
Total Suspended Solids	Monthly Average Effluent Concentration	5.0 mg/L (Apr 01 - Nov 30) 15.0 mg/L (Dec 01 - Mar 31)
Total Phosphorus	Monthly Average Effluent Concentration	0.5 mg/L (Apr 01 - Nov 30) 0.8 mg/L (Dec 01 - Mar 31)
pH	Single Sample Event	6.0 - 8.5 inclusive
Total Ammonia Nitrogen	Monthly Average Effluent Concentration	1.0 mg/L (Apr 01 - Nov 30) 3.0 mg/L (Dec 01 - Mar 31)
Dissolved Oxygen (*)	Single Sample Event	>5.0 mg/L
E. Coli	Monthly Geometric Mean Density	<150CFU/100mL (#) (Apr 01 - Nov 30)

Note:
(*) The dissolved oxygen value shown is a minimum; verses for the other variables the values are maximums.
(#) If the MPN method is utilized for E. coli analysis the limit shall be 200 MPH/100mL

In order to achieve the design objectives set out in the ECA, the following efforts were carried out:

- Blowers were operated continuously throughout the year to ensure that the effluent quality objectives for Dissolved Oxygen were achieved.
- The sand filter beds were tilled several times to ensure that final filtering of the effluent discharged achieved the effluent quality objectives. Future upgrades are planned to rehabilitate the sand filters to restore their original design capacity.

An assessment of the 2024 effluent quality analytical data confirmed that the Exeter Wastewater Treatment Facility met all effluent quality objectives for summer and winter discharge. All design objectives were achieved more than the minimum threshold of 50% of the time and there is no increasing trend in deterioration of final effluent quality. Historically good effluent quality results are an indication that the Exeter Wastewater Treatment Facility is providing adequate level of treatment. However, cold weather discharge continues to be a challenge and future upgrades to address this issue include the installation of a UV disinfection system.

An assessment of the influent flows confirmed that the annual average daily influent flow for 2024 was 47%. This is well below the threshold of 80% of the rated capacity, that would necessitate a future expansion/upgrade of the Treatment Facility.

XI. ESTIMATE OF THE SLUDGE VOLUMES IN THE LAGOON CELLS

Sludge was removed from the South Huron Wastewater Treatment Facility as part of the 1999 upgrade. The sludge removed in 1999 was stockpiled on site at the west end of the Lagoon property to compost. The sludge has been tested and found to have composted to the point where it can be used as future topsoil cover at the South Huron landfill site. The composted sludge will be used for this purpose until fully exhausted.

During the summer of 2012 lagoon Cell #3 was drained and allowed to dry, so that an assessment of the accumulated sludge could be carried out. The following is a summary of the BM Ross Engineers report (Dated September 7, 2012):

"Sludge Accumulation in Cell 3:
The depth of sludge varies considerably over the cell bottom. In some locations, particularly near the cell inlet at the southwest corner, the top of sludge was well above the water level in other areas of the cell, and some of the static diffusers were completely covered with sludge. Toward the north/northeast area of the cell, the sludge depth in places was almost negligible. The volume of accumulated sludge within Cell 3 is approximately 25,000 m3 or the equivalent of 4,500 tonnes of dry weight.

Sludge Removal Options:

- *Plastics observed in the sludge can complicate land application and may require the sludge to be partially dried and screened on site prior to land application.*

- *Sludge removal will require temporary removal of at least the fine pore aeration equipment. The static aerators and laterals could likely remain in place.*
- *Sludge around the cell perimeter could be removed by an excavator because of the relatively high solids content in the sludge. Following removal of this material, sludge within the cell could be pushed onto the cell berms and allowed to naturally dewater.*
- *If Cell 3 could be drained each year for 2 or 3 consecutive years, sludge removal work could be carried out incrementally. This would allow the costs to be spread of over a longer period.*

Land application of sludge is one of the more economical options for disposal. Area farmers are generally willing to accept sludge material for agricultural purposes. There are a number of variables; however, the probable cost for sludge removal from Cell 3 and off-site disposal in 2012 is in the order of $600,000 to $800,000.

The potential to stockpile/compost the removed sludge on site was reviewed and not recommended. The previous practice of stockpiling sludge at the WWTP site was somewhat reluctantly approved by the MOE as an emergency measure. The sludge is relatively inert, therefore stockpiling and allowing it to compost may provide little benefit. Double handling of the sludge would be more expensive than hauling directly from the lagoons to the final disposal site."

In a follow up memo B.M. Ross clarified that removal of sludge was not an immediate issue. In their opinion the work could be deferred for 3 to 4 years, with periodic inspections to confirm conditions are not getting worse. Aeration system upgrades were completed in 2018 and no sludge removal was required to install the diffuser system piping in the aeration cell.

The "L-shaped" cell was drained in the fall of 2023 as part of the Filter Building Pumping Station Upgrade project and a minimal amount of sludge was observed. Sludge accumulation will continue to be monitored and offsite removal is not anticipated until beyond 2032.

XII. SUMMARY OF COMPLAINTS AND ACTIONS TAKEN

The following is a summary of all wastewater related complaints received in 2024 and the steps taken to address the complaints:

2024 Customer Complaints and Action Taken			
Date	**Location**	**Description**	**Corrective action**
January 3	154 Andrew Street	Sanitary Service Backup	Municipal staff on site confirmed blockage on private property.
April 3	70782 London Road	Sanitary Service Backup	Municipal staff on site confirmed blockage on private property.
April 5	159 Carling Street	Sanitary Service Backup	Municipal staff on site confirmed blockage on private property.
April 17	98 Prince Leopold St	Sanitary Service Backup	Municipal staff on site confirmed blockage on private property.
June 17	105 William Street	Sanitary Service Backup	Municipal staff confirmed blockage on Municipal side. Excavated and repaired.
July 16	319 Eastern Ave	Sewage Incentive Program Inspection	Discovered large calcite build up in sanitary service on the Municipal side. Excavated and replaced sanitary service.
August 16	27 Gidley Street W	Concerns with Sanitary Service	Discovered sanitary service was connected to neighbors. Completed full road excavation to install new sanitary service to separate the property owners service.
August 19	29 Wellington Street W	Sanitary Service Backup	Municipal staff on site confirmed blockage on private property.
September 5	356 Main Street	Sanitary Service Backup	Municipal staff on site confirmed it is a storm drainage issue.
September 22	277 Andrew Street	Sanitary Service Backup	Municipal staff on site confirmed blockage on private property.
December 27	112 Devon Drive	Sanitary Service Backup	Municipal staff on site confirmed blockage on private property.

XIII. SUMMARY OF THE BY-PASSESS, OVERFLOWS AND SPILLS

There were two (2) raw sewage by-passes at sewage pumping stations in 2024. At the Huron Park Sewage Pumping Station there were two sewage bypasses, each due to heavy precipitation. There were no spills at the Exeter Wastewater Treatment Facility.

The were two (2) spills of raw sewage on the 100mm sewage forcemain on Grand Bend Line occurring June 17, 2024 and August 16, 2024, spilling into the Desjardine Drain. Both spills were reported to the MECP Spills Action Centre (SAC) and the Huron Perth

Public Health (HPPH). Both spills were contained once discovered and hydrovac trucks were used to mitigate and contain the spills. The MECP and HPPH were satisfied with our spills response.

All by-pass events and spills were reported to the Spills Action Centre and to the MECP Sarnia and Windsor District Office.

Wet weather by-passes may be an indication of inflow and infiltration issues within the wastewater collection system. In Exeter there are a number of roof water leaders and foundation drains connected to the sanitary sewage system. In the Huron Park Industrial Area there is a number of demolished buildings, old and abandoned sewers on private property and private roads. Inflow and infiltration impacts the wastewater collection system ability to convey sewage and WWTF to treat wastewater. This may also result in untreated wastewater discharges to the open environment.

Records are kept of all bypasses at sanitary pumping stations. A “Sewage By-pass Reporting Record” includes the following information:

(a) the date of the Event
(b) the measured or estimated volume of the Event
(c) the duration of the Event
(d) the location of the Event
(e) the reason for the Event
(f) the level of treatment the Bypass received and disinfection status of same.
(g) the time of the bypass Event
(h) the name/time of the call to SAC, HCHU, MOE and name of person contacted
(i) the date/time of follow up call to HCHU, MOE, and name of person contacted
(j) the date when sample results were sent.

A “Monthly By-pass Report” includes the facility name, date of the by-pass event, type of pumping station, duration, volume, reason for the by-pass and the sample results. Bet efforts are used to take at least two grab sample of every by-pass event and sampled for BOD_5, suspended solids, total phosphorus and E-coli.

At the William Street, Snider Crescent and Crediton Sanitary Pumping Stations the volume of any by-pass event is measured by a sewage meter. By-passes are estimated at the Huron Park Sanitary Pumping Station. The following mitigative measures were taken in 2024 to reduce Inflow and Infiltration:

1. Investigative work continued in the wastewater collection system in Huron Park Industrial area to locate sources of inflow and infiltration.
2. Engineering work for a future upgrade of the Huron Park Sewage Pumping Station.
3. Engineering for future installation of emergency storage/flow equalization tank at Huron Park Sewage Pumping Station.
4. Developed a wastewater system model utilizing the GIS database and field verified invert elevations to analyze and monitor inflow and infiltration. In 2025

flow monitoring is proposed to be carried out as part of the I&I reduction program to calibrate the wastewater model.

When urban road reconstruction projects are planned, the wastewater collection system are evaluated by CCTV inspection. Sanitary sewers are replaced as necessary and cross-connections removed. Although there is sufficient capacity to treat excess flows during heavy rainfall or snow melt events, the sewage pumping stations are vulnerable to by-passes. Efforts will continue to investigate and undertake measures and initiatives to identify, quantify and reduce by-pass overflows at sanitary pumping stations. The following is a summary of 2024 wastewater by-pass events:

SUMMARY of 2024 BYPASSES, AND/OR OVERFLOWS

Sanitary Pumping Station Overflow	
Total number of events.	2
Total duration of events. (Hours)	27.95
Of the total number of events, how many are dry-weather events.	0
Total quantity with no treatment. (1000 m3)	3.53
Total quantity with only disinfection. (1000 m3)	0
Total quantity with other treatment. (1000 m3)	0
Are any overflow(s) at combined sewer locations (Yes/No)	No
What is the reason for event	Heavy Precipitation
What is the name of the receiving water	Wilson Drain
Name the most important type of sensitive receptor.	receiving water course
What is the approximate distance to the sensitive receptor (km)	0.10

								SAMPLE RESULTS			
Date	**Location**	**Type P/S**	**Start Time (24 hr)**	**Duration (hrs)**	**Volume 1,000m3**	**Disinfect Y/N/U**	**Reason Code**	**BOD mg/l**	**SS mg/l**	**TP mg/l**	**E Coli /100ml**
1/26/2024	Huron Park	P	05:37am	8.9	1.134	N	1 & 2	22	95	0.53	500,000
12/29/2024	Huron Park	P	16:57pm	19.05	2.4003	N	1 & 2	<12	28	0.27	105,000

P= PRIMARY
S= SECONDARY
REASON CODES
1 - HEAVY PRECIPITIATION
2 - SNOW MELT
3 - EQUIPMENT FAILURE
4 - EQUIPMENT MAINTENANCE
5 - SEWER PROBLEMS
6 - POWER FAILURE
7 - EXCEED DESIGN CAPACITY

XIV. SUMMARY OF NOTICES OF MODIFICATIONS TO WORKS

Under the current Environmental Compliance Approval, certain modifications/upgrades to the existing treatment facility, pumping stations and collection system piping are approved under “Limited Operational Flexibility”, as set out in Condition 10, paragraph 1.d. of the ECA. In 2024 there were no Notices of Modifications to Sewage Works submitted to MECP

XV. SUMMARY OF EFFORTS TO ELIMINATE BYPASS / OVERFLOWS

The following efforts were made in 2024 to achieve conformance with MECP Procedure F-5-1 and to reduce/eliminate bypass / overflows in the wastewater collection system:

1. To reduce basement backups calcite was removed from sanitary sewers at various locations in Exeter.
2. To improve reliability and reduce overflows at the Huron Park Sewage Pumping Station, engineering was carried out for the future upgrade of the facility, including new pumps, controls, electrical, mechanical and instrumentation.
3. To improve storage capacity, engineering was completed for an Equalization Tank at Huron Park Sewage Pumping Station.
4. Sanitary sewer replacement on Main Street (Ausable River to Walper Street).
5. When urban road reconstruction projects are planned, the wastewater collection system is evaluated by CCTV inspection. Sanitary sewers are replaced as necessary and illegal storm/sump pump connections are identified for removal.
6. To reduce Inflow and Infiltration in the Huron Park Industrial Area, there was an ongoing effort to locate sources of inflow and infiltration and plug abandoned sewers from demolished properties.

The following projects are planned for 2025 to reduce/eliminate bypass / overflows in the wastewater collection system:

1. Sanitary sewer replacement on Victoria St E (Main to east end)
2. Calcite removal at various locations in the Exeter sanitary sewage collection system.
3. Rehabilitate Exeter Sewage Lagoon Sand Filters (Phase 1)
4. Huron Park Sewage Pumping Station Equalization Tank
5. I&I Reduction Program
6. Engineering for future sewer replacement Thames Road West (Main St N to West Town Limits) – Joint with Huron County
7. Engineering for Huron Park Sewage Pumping Station Upgrades

The following efforts were made to achieve conformance with MECP Procedure F-5-5:

1. Monitor and evaluate influent and effluent flow and sampling results.
2. Monitor, maintain, and upgrade sewage pumping stations to prevent bypasses.
3. Reduce inflow and infiltration in the wastewater collection system through upgrades and replacements.
4. Disconnect cross connections and illegal connections from private property.

5. Eliminate combined sewer overflows when found.
6. Enforcement of Sewage Use By-law

XVI. ANY CHANGES TO THE SCHEDULE FOR PROPOSED WORKS APPROVED IN THE ECA

There are no changes or updates to the schedule for the completion of construction and commissioning operation of major process(es) / equipment groups in the Proposed Works.

XVII. FEDERAL WASTEWATER SYSTEMS EFFLUENT REGULATION

The following is information regarding the mandatory reporting under the Federal (Environment Canada) Wastewater Systems Effluent Regulations SOR/2012-139. This reporting is in addition to the effluent quality and reporting requirements of the ECA.

The Exeter Wastewater Treatment Facility is registered with Environment Canada, as a continuous discharge type sewage lagoon and the following are the applicable Effluent Quality Standards.

CBOD	SS	TRC	NH_3
Average	Average	Average	Maximum
≤ 25 mg/L	≤ 25 mg/L	≤ 0.02 mg/L	< 1.25 mg/L

Sampling Requirements for Continuous Systems with HRT ≥ 5 days

Annual Average Daily Volume (m3)	Type of Sample	Minimum Sampling Frequency	Averaging Period	Monitoring Report Frequency
> 2500 and ≤ 17500	Grab or composite	Every 2 weeks but at least 7 days after any other sample	Quarterly	Quarterly

Acute Lethality Testing

ADV for Previous Calendar Year	Minimum Sampling Frequency	Reduced Sampling Frequency
> 2500 to ≤ 50000 m^3	Quarterly	Yearly (if samples for 4 consecutive quarters are not acutely lethal)

As a result of good sampling results, quarterly Acute Lethality testing has been reduced to annual sampling. This was a result of four consecutive quarters where the effluent

samples tested were determined not to be acutely lethal. Accordingly, acute lethality testing has been reduced to yearly, but at least six months after any other sample. However, if a future sample is determined to be acutely lethal, sampling is required twice monthly to determine the cause. If three consecutive samples are determined not to be acutely lethal, sampling returns to quarterly.

All effluent reports were submitted prior to the regulatory deadline of within 45 days after the end of the quarter. In 2024 the Exeter Wastewater Treatment Facility was in full regulatory compliance with the Federal (Environment Canada) Wastewater Systems Effluent Regulations. The following are the results for the Exeter Wastewater Treatment Facility:

2024 Environment Canada Effluent Regulatory Reporting (ERRIS)

FIRST QUARTER REPORTING						
Reporting Period	**Number of days that effluent was discharged**	**Total volume of effluent discharged (m^3)**	**Date Sampled**	**Average CBOD (mg/L)**	**Average concentration of suspended solids (mg/l)**	**Acute Lethality Test Results**
Jan - March	**27**	**347,797**		**7.20**	**10.20**	**Not Required**
JANUARY	0	0				
FEBRUARY	27	347,797	2/2/2024	8.00	6.00	
			2/6/2024	9.00	7.00	
			2/13/2024	4.00	13.00	
			2/20/2024	7.00	10.00	
			2/27/2024	8.00	15.00	
MARCH	0	0				

SECOND QUARTER REPORTING						
Reporting Period	**Number of days that effluent was discharged**	**Total volume of effluent discharged (m^3)**	**Date Sampled**	**Average CBOD (mg/L)**	**Average concentration of suspended solids (mg/l)**	**Acute Lethality Test Results**
April - June	**53**	**365,973**		**4.00**	**2.00**	**Not Required**
APRIL	0	0				
MAY	27	187,786	5/3/2024	<4	<2	
			5/7/2024	<4	<2	
			5/14/2024	<4	<2	
			5/21/2024	<4	<2	
			5/28/2024	<4	<2	
JUNE	26	178,187	6/4/2024	<4	<2	
			6/11/2024	<4	<2	
			6/18/2024	<4	<2	
			6/25/2024	<4	2.00	

THIRD QUARTER REPORTING						
Reporting Period	**Number of days that effluent was discharged**	**Total volume of effluent discharged (m^3)**	**Date Sampled**	**Average CBOD (mg/L)**	**Average concentration of suspended solids (mg/l)**	**Acute Lethality Test Results**
July - Sept	**85**	**489,242**		**4.00**	**2.00**	**Not Lethal**
JULY	28	171,278	7/2/2024	<4	2	
			7/9/2024	<4	<2	
			7/16/2024	<4	<2	Not Lethal
			7/23/2024	<4	<2	
			7/30/2024	<4	2	
AUGUST	31	191,657	8/6/2024	<4	<2	
			8/13/2024	5.00	<2	
			8/20/2024	<2	<2	
			8/27/2024	<4	<2	
SEPTEMBER	26	126,307	9/3/2024	<4	<2	
			9/10/2024	<4	<2	
			9/17/2024	<4	<2	
			9/24/2024	<4	<2	

FOURTH QUARTER REPORTING						
Reporting Period	**Number of days that effluent was discharged**	**Total volume of effluent discharged (m^3)**	**Date Sampled**	**Average CBOD (mg/L)**	**Average concentration of suspended solids (mg/l)**	**Acute Lethality Test Results**
Oct - Dec	**0**	**0**				**Not Required**
OCTOBER	0	0				
NOVEMBER	0	0				
DECEMBER	0	0				
	TOTAL NUMBER OF DAYS DISCHARGING	**TOTAL AMOUNT OF DISCHARGE**				
	165	**1,203,012**				

APPENDIX “A”

APPENDIX “A”

Reporting requirements set out in the Exeter Wastewater Treatment Facility Environmental Compliance Approval (ECA – No. 3402-BBPLMV)

The Owner shall prepare performance reports on a calendar year basis and submit to the District Manager by March 31 of the calendar year following the period being reported upon. The reports shall contain, but shall not be limited to, the following information pertaining to the reporting period:

(a) a summary and interpretation of all Influent, Imported Sewage (if any) and Processed Organic Waste (if any) monitoring data, and a review of the historical trend of the sewage characteristics and flow rates;

(b) 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 this Approval, including an overview of the success and adequacy of the Works;

(c) a summary of any deviation from the monitoring schedule and reasons for the current reporting year and a schedule for the next reporting year;

(d) a summary of all operating issues encountered and corrective actions taken;

(e) 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;

(f) a summary of any effluent quality assurance or control measures undertaken;

(g) a summary of the calibration and maintenance carried out on all Influent, Imported Sewage (if any) and Final Effluent monitoring equipment to ensure that the accuracy is within the tolerance of that equipment as required in this Approval or recommended by the manufacturer:

(h) a summary of efforts made to achieve the design objectives in this Approval, 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;

(i) an estimate of the sludge volumes in the lagoon cells. 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;

(j) a summary of any complaints received and any steps taken to address the complaints;

(k) 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;

(l) 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.

(m) 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 and a summary of efforts made to achieve conformance with Procedure F-5-5 and establish /maintain a Pollution Prevention and Control Plan (PPCP).

(n) 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.

APPENDIX “B”

APPENDIX "B"

REGULATIONS PERTAINING TO THE OPERATION OF A WASTEWATER SYSTEM

1. Federal (Environment Canada) Wastewater Systems Effluent Regulations SOR/2012-139

2. Ontario Water Resources Act, R.S.O. 1990, c. O.40

Related regulations made under the Ontario Water Resources Act:

- O. Reg. 223/07 - Environmental Penalties
- O. Reg. 525/98 - Approval Exemptions
- O. Reg. 155/98 – Transitional Provisions Related to the Repeal of Part VIII of the Environmental Protection Act.
- O. Reg. 129/04 - Licensing of Sewage Works Operators

3. Ontario Environmental Protection Act, R.S.O. 1990, c. E.19

4. Ontario Environmental Assessment Act, R.S.O. 1990, c. E.18

5. Ontario Planning Act R.S.O. 1990, c. P.13

6. Ontario Nutrient Management Act, 2002, S.O. 2002, c. 4

7. Ontario Environmental Bill of Rights Act, S.O. 1993, c. 28

8. Ontario Clean Water Act, 2006, S.O. 2006, c. 22

9. Ontario Regulation 453/07 - Financial Plans Regulation made under the Safe Drinking Water Act, 2002, S.O. 2002, c. 32

10. Ontario Building Code Act S.O. 1992, c. 23

www.ene.gov.on.ca
Last Modified: January 8, 2024

APPENDIX “C”

Ontario

Ministry of the Environment, Conservation and Parks
Ministère de l'Environnement, de la Protection de la nature et des Parcs

AMENDED ENVIRONMENTAL COMPLIANCE APPROVAL

NUMBER 3402-BBPLMV
Issue Date: December 23, 2019

The Corporation of the Municipality of South Huron
322 Main Street South (Exeter)
Post Office Box No. 759
South Huron, Ontario
N0M 1S6

Site Location: Exeter Wastewater Treatment Plant, William SPS, Snider SPS and Huron SPS
71042 Airport Line 28 William Street, Exeter
Municipality of South Huron, County of Huron

You have applied under section 20.2 of Part II.1 of the Environmental Protection Act, R.S.O. 1990, c. E. 19 (Environmental Protection Act) for approval of:

replacement of the existing William Street Sewage Pumping Station, and usage and operation of existing Snider Sewage Pumping Station, Huron Sewage Pumping Station and municipal sewage treatment works, for the treatment of sanitary sewage and disposal of effluent to Ausable River via a Sewage Treatment Plant/continuous discharge lagoon (Exeter Wastewater Treatment Plant) and Final Effluent disposal facilities as follows:

Classification of Collection System: Nominally Separate Sewer System

Classification of Sewage Treatment Plant: Secondary

Classification of Sewage Treatment Plant (Prior to Completion of Construction of All Proposed Works): Secondary

Classification of Sewage Treatment Plant (Upon Completion of Construction of All Proposed Works): Secondary

Design Capacity of Sewage Treatment Plant

Design Capacity with All Treatment Trains in Operation	Existing Works
Rated Capacity	7,051 m^3/d
Total Annual Sewage Volume	2,573,718 m^3/year
Post-Secondary Treatment Capacity (Sand Filters)	1,710 m^3/h

Proposed Works:

Sanitary Sewage Pumping Stations

William Street Pumping Station

- Installation of a new wet well with three (3) new submersible pumps each with a rated capacity of 80 L/s at 14.7m TDH (jockey pump), 168 L/s at 25.6m total dynamic head (TDH) (duty pump), and 286 L/s at 53.4m TDH (standby/peak flow pump);

- Installation of 380 m of 350 mm PVC forcemain, from William Street Sewage Pumping Station, southerly along the west side of William Street to Church Street, then westerly along north side of Church Street to Carling Street;

Existing Works:

Sanitary Sewage Pumping Stations

Snider Sewage Pumping Station

- one (1) 3.65 m diameter concrete wet well;

- one (1) submersible sewage pump rated at 22.3 L/s and 6.0 m TDH;

- two (2) submersible sewage pumps (one for duty and one standby) each rated at 149.1 L/s at 29.8m TDH;

- Forcemain, From approximately 100 m east of Town Limit (and approx. 410 m of Huron street) to Approx. 116m north of Sewage Lagoon access road northerly;

William Street Sewage Pumping Station (now being upgraded)

- Three (3) sewage pumps, each with a rated capacity of 145 L/s @ 25.0 m TDH for single pump operation, complete with variable speed drives, pump controls, piping, discharge forcemain, etc.;

Huron Sewage Pumping Station
Huron Park Sewage Pump Station, located at Lot 7, Concession, in the Municipality of South Huron (former Township of Stephen) equipped as follows:

- a 4.6 m x 4.0 m x 5.25 m precast wet well equipped with two (2) variable frequency driven submersible centrifugal sewage pumps, one for duty and one for standby, each pump has a rated capacity of 65.45 L/s against a TDH of 61.2 m, complete with a duty ultrasonic level control system with back-up float switches connected to a remote alarm system via SCADA system, interconnecting piping and valves, ventilation system, by-pass piping, and a 300 mm diameter emergency overflow pipe that with a flowmeter;

- a 6.4 m x 5.0 m sub-grade valve chamber housing all associated valves and piping to operate the sewage pumping station, equipped with a sump pump. Within the valve chamber the two discharge header pipes connected to a 300 mm diameter forcemain, which ultimately discharges to the Town of Exeter Wastewater Treatment Plant;

- a 6.4 m x 5.0 m control building housing a standby diesel generator and one (1) diesel fuel tank with spill containment, MCC panels, electrical, instrumentation control and alarm system, complete with lighting, heating and ventilation system, and all other item necessary to have a complete operable pumping station;

- existing 300 mm diameter sanitary forcemain runs along Huron Park Easement, County Road No.21; County Road No.10, Goderich-Exeter Railway R.O.W., Wellington Street West and up the Nabisco Easement to the discharge point in the Town of Exeter Sewage Works (Lot 758, R.P. 376 (Exeter), and Lot 24, Concession 2 (Municipality of South Huron));

Exeter Wastewater Treatment Plant

Influent Sewers

- 350 mm diameter forcemain from William Street sewage pumping station to the influent inlet chamber;

- 300 mm diameter forcemain to the influent inlet chamber from Snider Crescent Sewage Pumping Station;

- 300 mm diameter forcemain to the influent inlet chamber from Huron Park and Crediton Sewage Pumping Station;

Influent Flow Measurement and Sampling Point

- flow measurement device at the William Street and Crediton Sewage Pumping Stations influent channels;

Inlet and Transfer Structures

  - Inlet structure to sewage lagoon Cells No. 3 and 4;
  - Interconnecting structure between sewage lagoon Cells No. 3 and 4;
  - Interconnecting structure between sewage lagoon Cells No. 1 and 3; and,
  - Outlet structure from sewage lagoon Cells No. 1 and 4;

- Biological Treatment
  - Cell No. 1, approximate dimensions 340 m x 260 m x 3.7 m water depth, and effective storage volume of approximately 313,000 m^3;
  - Aerated Cell No. 3, approximate dimensions 330 m x 260 m x 4.15 m water depth, and effective storage volume of approximately 343,500 m^3;
  - Cell No. 4, constructed in an "L" shape, with one section of approximate dimensions 270 m x 550 m, and the other section of approximate dimensions 250 m x 160 m, both sections with 4.3 m water depth, and effective storage volume of approximately 751,000 m^3;
  - (2) displacement blowers, each sized to provide 100% of the air flow required to operate the lagoon system, thus capable of delivering a minimum of 435 L/s;
  - One (1) back up positive displacement blower, rated at 800 L/s, housed within a blower building;
  - Submerged air diffuser system within lagoon Cell No. 3;

- Filter Pumping Station
  - Inground filter pumping station, consisting of two (2) submersible sewage pumps, each with a rated capacity of 237 L/s @ 13.5 m TDH, complete with valves and piping, alarms, etc., capable of pumping effluent from sewage lagoon Cell No. 3 or 4 to either the intermittent sand filter system or to sewage lagoon Cell No. 1;

Post-Secondary Treatment System

- Sand Filters

    - Intermittent sand filtration system comprising four (4) filter beds to typically operate on a cycle of two operating and two resting, each with a top surface area of approximately 102 m x 63 m, having a minimum usable surface area of 23,400 m^2, together with distribution and underdrain collection piping, designed for an average hydraulic loading rate of 475 L/s;

Supplementary Treatment Systems

- Phosphorus Removal

    - Enclosed alum storage tank and alum feed system, including application points to the sewage lagoon Cell No. 3 and 4 inlet structure and the sewage lagoon Cell No. 3 and 4 interconnecting structure, complete with two (2) chemical making pumps (1 duty and 1 standby) rated at 37 L/hr and located in the Blower Building;

Final Effluent Flow Measurement and Sampling Point

- flow measurement device at outlet channel;

- effluent sampler located at outlet of Filter Building Pumping Station;

Final Effluent Disposal Facilities

- Effluent flow control structure, complete with flow metering equipment; and;

- Effluent sewer from the filter building to the outfall chamber discharging to Ausable River;

including all other mechanical system, electrical system, instrumentation and control system, piping, pumps, valves and appurtenances essential for the proper, safe and reliable operation of the Works in accordance with this Approval, in the context of process performance and general principles of wastewater engineering only;

all in accordance with the submitted supporting documents listed in Schedule A.

For the purpose of this environmental compliance approval, the following definitions apply:

1. "Annual Average Daily Influent Flow" means the cumulative total sewage flow of Influent to the Sewage Treatment Plant during a calendar year divided by the number of days during which sewage was flowing to the Sewage Treatment Plant that year;

2. "Approval" means this environmental compliance approval and any schedules attached to it, and the application;

3. "BOD_5" (also known as $TBOD_5$) means five day biochemical oxygen demand measured in an unfiltered sample and includes carbonaceous and nitrogenous oxygen demands;

4. "Bypass" means diversion of sewage around one or more treatment processes, excluding Preliminary Treatment System, within the Sewage Treatment Plant with the diverted sewage flows being returned to the Sewage Treatment Plant treatment train upstream of the Final Effluent sampling point(s) and discharged via the approved effluent disposal facilities;

5. "$CBOD_5$" means five day carbonaceous (nitrification inhibited) biochemical oxygen demand measured in an unfiltered sample;

6. "Director" means a person appointed by the Minister pursuant to section 5 of the EPA for the purposes of Part II.1 of the EPA;

7. "District Manager" means the District Manager of the appropriate local district office of the Ministry where the Works is geographically located;

8. "*E. coli* " refers to coliform bacteria that possess the enzyme beta-glucuronidase and are capable of cleaving a fluorogenic or chromogenic substrate with the corresponding release of a fluorogen or chromogen, that produces fluorescence under long wavelength (366 nm) UV light, or color development, respectively. Enumeration methods include tube, membrane filter, or multi-well procedures. Depending on the method selected, incubation temperatures include 35.5 $\pm$ 0.5 °C or 44.5 $\pm$ 0.2 °C (to enumerate thermotolerant species). Regardless of incubation temperature, the length of incubation is 24 $\pm$ 2 hours. Depending on the procedure used, data are reported as either colony forming units (CFU) per 100 mL (for membrane filtration methods) or as most probable number (MPN) per 100 mL (for tube methods);

9. "EPA" means the *Environmental Protection Act* , R.S.O. 1990, c.E.19, as amended;

10. "Equivalent Equipment" means alternate piece(s) of equipment that meets the design requirements and performance specifications of the piece(s) of equipment to be substituted;

11. "Event" means an action or occurrence, at a given location within the Works that causes a Bypass or Overflow. An Event ends when there is no recurrence of Bypass or Overflow in the 12-hour period following the last Bypass or Overflow. Overflows and Bypasses are separate Events even when they occur concurrently;

12. "Existing Works" means those portions of the Works included in the Approval that have been constructed previously;

13. "Final Effluent" means effluent that is discharged to the environment through the approved effluent disposal facilities, including all Bypasses, that are required to meet the compliance limits stipulated in the Approval for the Sewage Treatment Plant at the Final Effluent sampling point(s);

14. "Imported Sewage" means sewage hauled to the Sewage Treatment Plant by licensed waste management system operators of the types and quantities approved for co-treatment in the Sewage Treatment Plant, including hauled sewage and leachate within the meaning of R.R.O. 1990, Regulation 347: General – Waste Management, as amended;

15. "Influent" means flows to the Sewage Treatment Plant from the collection system and Imported Sewage but excluding process return flows;

16. "Limited Operational Flexibility" (LOF) means the conditions that the Owner shall follow in order to undertake any modification that is pre-authorized as part of this Approval;

17. "Ministry" means the ministry of the government of Ontario responsible for the EPA and OWRA and includes all officials, employees or other persons acting on its behalf;

18. "Monthly Average Effluent Concentration" is the mean of all Single Sample Results of the concentration of a contaminant in the Final Effluent sampled or measured during a calendar month, calculated and reported as per the methodology specified in Schedule F;

19. "Monthly Average Daily Effluent Flow" means the cumulative total Final Effluent discharged during a calendar month divided by the number of days during which Final Effluent was discharged that month;

20. "Monthly Geometric Mean Density" is the mean of all Single Sample Results of *E. coli* measurement in the samples taken during a calendar month, calculated and reported as per the methodology specified in Schedule F;

21. "Normal Operating Condition" means the condition when all unit process(es), excluding Preliminary Treatment System, in a treatment train is operating within its design capacity;

22. "Operating Agency" means the Owner or the entity that is authorized by the Owner for the management, operation, maintenance, or alteration of the Works in accordance with this Approval;

23. "Overflow" means a discharge to the environment from the Works at designed location(s) other than the approved effluent disposal facilities or via the effluent disposal facilities downstream of the Final Effluent sampling point;

24. "Owner" means The Corporation of the Municipality of South Huron, and its successors and assignees;

25. "OWRA" means the *Ontario Water Resources Act* , R.S.O. 1990, c. O.40, as amended;

26. "Peak Daily Flow Rate" (also referred to as maximum daily flow or maximum day flow) means the largest volume of flow to be received during a one-day period for which the sewage treatment process unit or equipment is designed to handle;

27. "Peak Hourly Flow Rate" (also referred to as maximum hourly flow or maximum hour flow) means the largest volume of flow to be received during a one-hour period for which the sewage treatment process unit or equipment is designed to handle;

28. "Peak Instantaneous Flow Rate" means the instantaneous maximum flow rate as measured by a metering device for which the sewage treatment process unit or equipment is designed to handle;

29. "Primary Effluent" means the effluent from the Primary Treatment System;

30. "Primary Treatment System" means all facilities in the Sewage Treatment Plant associated with the primary sedimentation unit process and includes chemically enhanced primary treatment;

31. "Professional Engineer" means a person entitled to practice as a Professional Engineer in the Province of Ontario under a license issued under the Professional Engineers Act;

32. "Proposed Works" means those portions of the Works included in the Approval that are under construction or to be constructed;

33. "Rated Capacity" means the Annual Average Daily Influent Flow for which the Sewage Treatment Plant is designed to handle;

34. "Sanitary Sewers" means pipes that collect and convey wastewater from residential, commercial, institutional and industrial buildings, and some infiltration and inflow from extraneous sources such as groundwater and surface runoff through means other than stormwater catch basins;

35. "Seasonal Average Daily Effluent Loading" means the value obtained by multiplying the Seasonal Average Effluent Concentration of a contaminant by the total flow, divided by the number of discharge days during the discharge period;

36. "Seasonal Average Effluent Concentration" means the arithmetic mean of all Single Sample Results of the concentration of a contaminant in the Final Effluent sampled or measured during the discharge period;

37. "Secondary Effluent" means the effluent from the Secondary Treatment System that are required to meet the compliance limits stipulated in the Approval for the Sewage Treatment Plant at the Secondary Treatment Effluent sampling point;

38. "Secondary Treatment System" means all facilities in the Sewage Treatment Plant associated with biological treatment, secondary sedimentation and phosphorus removal unit processes;

39. "Separate Sewer Systems" means wastewater collection systems that comprised of Sanitary Sewers while runoff from precipitation and snowmelt are separately collected in Storm Sewers;

40. "Sewage Treatment Plant" means all the facilities related to sewage treatment within the sewage treatment plant site excluding the Final Effluent disposal facilities;

41. "Single Sample Result" means the test result of a parameter in the effluent discharged on any day, as measured by a probe, analyzer or in a composite or grab sample, as required;

42. "Storm Sewers" means pipes that collect and convey runoff resulting from precipitation and snowmelt (including infiltration and inflow);

43. "Works" means the approved sewage works, and includes Proposed Works, Existing Works and modifications made under Limited Operational Flexibility.

You are hereby notified that this environmental compliance approval is issued to you subject to the terms and conditions outlined below:

TERMS AND CONDITIONS

1. GENERAL PROVISIONS

1. The Owner shall ensure that any person authorized to carry out work on or operate any aspect of the Works is notified of this Approval and the terms and conditions herein and shall take all reasonable measures to ensure any such person complies with the same.

2. The Owner shall design, construct, operate and maintain the Works in accordance with the conditions of this Approval.

3. Where there is a conflict between a provision of any document referred to in this Approval and the conditions of this Approval, the conditions in this Approval shall take precedence.

2. CHANGE OF OWNER AND OPERATING AGENCY

1. The Owner shall, within thirty (30) calendar days of issuance of this Approval, prepare/update and submit to the District Manager the Municipal and Local Services Board Wastewater System Profile Information Form, as amended (Schedule G) under any of the following situations:

   a. the form has not been previously submitted for the Works;

   b. this Approval is issued for extension, re-rating or process treatment upgrade of the Works;

   c. when a notification is provided to the District Manager in compliance with requirements of change of Owner or Operating Agency under this condition.

2. The Owner shall notify the District Manager and the Director, in writing, of any of the following changes within thirty (30) days of the change occurring:

   a. change of address of Owner;

   b. change of Owner, including address of new owner;

   c. change of partners where the Owner is or at any time becomes a partnership, and a copy of the most recent declaration filed under the *Business Names Act, R.S.O. 1990, c. B.17* , as amended, shall be included in the notification;

   d. change of name of the corporation where the Owner is or at any time becomes a corporation, and a copy of the most current information filed under the *Corporations Information Act, R.S.O. 1990, c. C.39* , as amended, shall be included in the notification.

3. The Owner shall notify the District Manager, in writing, of any of the following changes within thirty (30) days of the change occurring:

   a. change of address of Operating Agency;

   b. change of Operating Agency, including address of new Operating Agency.

4. In the event of any change in ownership of the Works, the Owner shall notify the succeeding owner in writing, of the existence of this Approval, and forward a copy of the notice to the District Manager.

5. The Owner shall ensure that all communications made pursuant to this condition refer to the environmental compliance approval number.

3. CONSTRUCTION OF PROPOSED WORKS / RECORD DRAWINGS

1. All Proposed Works in this Approval shall be constructed and installed and must commence operation within five (5) years of issuance of this Approval, after which time the Approval ceases to apply in respect of any portions of the Works not in operation. In the event that the construction, installation and/or operation of any portion of the Proposed Works is anticipated to be delayed beyond the time period stipulated, the Owner shall submit to the Director an application to amend the Approval to extend this time period, at least six (6) months prior to the end of the period. The amendment application shall include the reason(s) for the delay and whether there is any design change(s).

2. Within thirty (30) days of commencement of construction, the Owner shall prepare and submit to the District Manager a schedule for the completion of construction and commissioning operation of the Proposed Works. The Owner shall notify the District Manager within thirty (30) days of the commissioning operation of any Proposed Works. Upon completion of construction of the Proposed Works, the Owner shall prepare and submit a statement to the District Manager, certified by a Professional Engineer, that the Proposed Works is constructed in accordance with this Approval.

3. Within one (1) year of completion of construction of the Proposed Works, a set of record drawings of the Works shall be prepared or updated. These drawings shall be kept up to date through revisions undertaken from time to time and a copy shall be readily accessible for reference at the Works.

4. A set of record drawings of the Works shall be kept up to date through revisions undertaken from time to time and a copy shall be readily accessible for reference at the Works.

4. BYPASSES

1. Any Bypass is prohibited, except:

   a. an emergency Bypass when a structural, mechanical or electrical failure causes a temporary reduction in the capacity of a treatment process or when an unforeseen flow condition exceeds the design capacity of a treatment process that is likely to result in personal injury, loss of life, health hazard, basement flooding, severe property damage, equipment damage or treatment process upset, if a portion of the flow is not bypassed;

   b. a planned Bypass that is a direct and unavoidable result of a planned repair and maintenance procedure or other circumstance(s), the Owner having notified the District Manager in writing at least fifteen (15) days prior to the occurrence of Bypass, including an estimated quantity and duration of the Bypass, an assessment of the impact on the quality of the Final Effluent and the mitigation measures if necessary, and the District Manager has given written consent of the Bypass;

2. Notwithstanding the exceptions given in Paragraph 1, the Operating Agency shall undertake everything practicable to maximize the flow through the downstream treatment process(es) prior to bypassing.

3. At the beginning of a Bypass Event, the Owner shall immediately notify the Spills Action Centre (SAC) and the local Medical Officer of Health. This notice shall include, at a minimum, the following information:

   a. the type of the Bypass as indicated in Paragraph 1 and the reason(s) for the Bypass;

   b. the date and time of the beginning of the Bypass;

   c. the treatment process(es) gone through prior to the Bypass and the treatment process(es) bypassed;

   d. the effort(s) done to maximize the flow through the downstream treatment process(es) and the reason(s) why the Bypass was not avoided.

4. Upon confirmation of the end of a Bypass Event, the Owner shall immediately notify the Spills Action Centre (SAC) and the local Medical Officer of Health. This notice shall include, at a minimum, the following information:

   a. the date and time of the end of the Bypass;

   b. the estimated or measured volume of Bypass.

5. For any Bypass Event, the Owner shall collect daily sample(s) of the Final Effluent, inclusive of the Event and analyze for all effluent parameters outlined in Compliance Limits condition that require manual composite samples, following the same protocol specified in the Monitoring and Recording condition for the regular samples. The sample(s) shall be in addition to the regular Final Effluent samples required under the monitoring and recording condition. If the Event occurs on a scheduled monitoring day, the regular sampling requirements prevail. If representative sample for the effluent parameter(s) that require grab sample cannot be obtained, they shall be collected after the Event at the earliest time when situation returns to normal.

6. The Owner shall submit a summary report of the Bypass Event(s) to the District Manager on a quarterly basis, no later than each of the following dates for each calendar year: February 15, May 15, August 15, and November 15. The summary reports shall contain, at a minimum, the types of information set out in Paragraphs (3), (4) and (5) and either a statement of compliance or a summary of the non-compliance notifications submitted as required under Paragraph 1 of Condition 11. If there is no Bypass Event during a quarter, a statement of no occurrence of Bypass is deemed sufficient.

7. The Owner shall develop a notification procedure in consultation with the District Manager and SAC and notify the public and downstream water users that may be adversely impacted by any Bypass Event.

5. OVERFLOWS

1. Any Overflow is prohibited, except:

   a. an emergency Overflow in an emergency situation when a structural, mechanical or electrical failure causes a temporary reduction in the capacity of the Works or when an unforeseen flow condition exceeds the design capacity of the Works that is likely to result in personal injury, loss of life, health hazard, basement flooding, severe property damage, equipment damage or treatment process upset, if a portion of the flow is not overflowed;

   b. a planned Overflow that is a direct and unavoidable result of a planned repair and maintenance procedure or other circumstance(s), the Owner having notified the District Manager in writing at least fifteen (15) days prior to the occurrence of Overflow, including an estimated quantity and duration of the Overflow, an assessment of the impact on the environment and the mitigation measures if necessary, and the District Manager has given written consent of the Overflow;

2. Notwithstanding the exceptions given in Paragraph 1, the Operating Agency shall undertake everything practicable to maximize the flow through the downstream treatment process(es) and Bypass(es) prior to overflowing.

3. At the beginning of an Overflow Event, the Owner shall immediately notify the Spills Action Centre (SAC) and the local Medical Officer of Health. This notice shall include, at a minimum, the following information:

   a. the type of the Overflow as indicated in Paragraph 1 and the reason(s) for the Overflow;

   b. the date and time of the beginning of the Overflow;

   c. the point of the Overflow from the Works, the treatment process(es) gone through prior to the Overflow, the disinfection status of the Overflow and whether the Overflow is discharged through the effluent disposal facilities or an alternate location;

   d. the effort(s) done to maximize the flow through the downstream treatment process(es) and Bypass(es) and the reason(s) why the Overflow was not avoided.

4. Upon confirmation of the end of an Overflow Event, the Owner shall immediately notify the Spills Action Centre (SAC) and the local Medical Officer of Health. This notice shall include, at a minimum, the following information:

   a. the date and time of the end of the Overflow;

   b. the estimated or measured volume of the Overflow.

5. For any Overflow Event

   a. in the Sewage Treatment Plant, the Owner shall collect grab sample(s) of the Overflow, one near the beginning of the Event and one every eight (8) hours for the duration of the Event, and have them analyzed at least for $CBOD_5$, total suspended solids, total phosphorus, *E. coli*, except that raw sewage and primary treated effluent Overflow shall be analyzed for BOD_5, total suspended solids, total phosphorus and total Kjeldahl nitrogen only.

   b. at a sewage pumping station in the collection system, the Owner shall collect at least one (1) grab sample representative of the Overflow Event and have it analyzed for BOD_5, total suspended solids, total phosphorus and total Kjeldahl nitrogen.

6. The Owner shall submit a summary report of the Overflow Event(s) to the District Manager on a quarterly basis, no later than each of the following dates for each calendar year: February 15, May 15, August 15, and November 15. The summary report shall contain, at a minimum, the types of information set out in Paragraphs (3), (4) and (5). If there is no Overflow Event during a quarter, a statement of no occurrence of Overflow is deemed sufficient.

7. The Owner shall develop a notification procedure in consultation with the District Manager and SAC and notify the public and downstream water users that may be adversely impacted by any Overflow Event.

6. DESIGN OBJECTIVES

1. The Owner shall design and undertake everything practicable to operate the Sewage Treatment Plant in accordance with the following objectives:

   a. Final Effluent parameters design objectives listed in the table(s) included in Schedule B.

   b. Final Effluent is essentially free of floating and settleable solids and does not contain oil or any other substance in amounts sufficient to create a visible film or sheen or foam or discolouration on the receiving waters.

   c. Annual Average Daily Influent Flow is within the Rated Capacity of the Sewage Treatment Plant.

7. COMPLIANCE LIMITS

1. The Owner shall operate and maintain the Sewage Treatment Plant such that compliance limits for the Final Effluent parameters listed in the table(s) included in Schedule C are met.

8. OPERATION AND MAINTENANCE

1. The Owner shall ensure that, at all times, the Works and the related equipment and appurtenances used to achieve compliance with this Approval are properly operated and maintained. Proper operation and maintenance shall include effective performance, adequate funding, adequate staffing and training, including training in all procedures and other requirements of this Approval and the OWRA and regulations, adequate laboratory facilities, process controls and alarms and the use of process chemicals and other substances used in the Works.

2. The Owner shall update/maintain the operations manual for the Works within six (6) months of completion of construction of the Proposed Works, that includes, but not necessarily limited to, the following information:

   a. operating procedures for the Works under Normal Operating Conditions;

b. inspection programs, including frequency of inspection, for the Works and the methods or tests employed to detect when maintenance is necessary;

c. repair and maintenance programs, including the frequency of repair and maintenance for the Works;

d. procedures for the inspection and calibration of monitoring equipment;

e. operating procedures for the Works to handle situations outside Normal Operating Conditions and emergency situations such as a structural, mechanical or electrical failure, or an unforeseen flow condition, including procedures to minimize Bypasses and Overflows;

f. a spill prevention and contingency plan, consisting of procedures and contingency plans, including notification to the District Manager, to reduce the risk of spills of pollutants and prevent, eliminate or ameliorate any adverse effects that result or may result from spills of pollutants;

g. procedures for receiving, responding and recording public complaints, including recording any followup actions taken.

3. The Owner shall maintain the operations manual up-to-date and make the manual readily accessible for reference at the Works.

4. The Owner shall ensure that the Operating Agency fulfills the requirements under O. Reg. 129/04, as amended for the Works, including the classification of facilities, licensing of operators and operating standards.

9. MONITORING AND RECORDING

1. The Owner shall, upon commencement of operation of the Works, carry out a scheduled monitoring program of collecting samples at the required sampling points, at the frequency specified or higher, by means of the specified sample type and analyzed for each parameter listed in the tables under the monitoring program included in Schedule D and record all results, as follows:

   a. all samples and measurements are to be taken at a time and in a location characteristic of the quality and quantity of the sewage stream over the time period being monitored.

   b. a schedule of the day of the week/month for the scheduled sampling shall be created. The sampling schedule shall be revised and updated every year through rotation of the day of the week/month for the scheduled sampling program, except when the actual scheduled monitoring frequency is three (3) or more times per week.

   c. definitions and preparation requirements for each sample type are included in document referenced in Paragraph 3.b.

d. definitions for frequency:

   i. Daily means once every day;

   ii. Weekly means once every week;

   iii. Monthly means once every month;

   iv. Quarterly means once every three months;

   v. Annually means once every year;

2. In addition to the scheduled monitoring program required in Paragraph 1, the Owner shall collect daily sample(s) of the Final Effluent, on any day when there is any situation outside Normal Operating Conditions, and analyze for all effluent parameters outlined in Compliance Limits condition that require manual composite samples, following the same protocol specified in this condition for the regular samples. If the Event occurs on a scheduled monitoring day, the regular sampling requirements prevail. If representative sample for the effluent parameter(s) that require grab sample cannot be obtained, they shall be collected after the Event at the earliest time when situation returns to normal.

3. The methods and protocols for sampling, analysis and recording shall conform, in order of precedence, to the methods and protocols specified in the following documents and all analysis shall be conducted by a laboratory accredited to the ISO/IEC:17025 standard or as directed by the District Manager:

   a. the Ministry's Procedure F-10-1, "Procedures for Sampling and Analysis Requirements for Municipal and Private Sewage Treatment Works (Liquid Waste Streams Only), as amended;

   b. the Ministry's publication "Protocol for the Sampling and Analysis of Industrial/Municipal Wastewater Version 2.0" (January 2016), PIBS 2724e02, as amended;

   c. the publication "Standard Methods for the Examination of Water and Wastewater", as amended.

4. The Owner shall monitor and record the flow rate and daily quantity using flow measuring devices or other methods of measurement as approved below calibrated to an accuracy within plus or minus 15 per cent (+/- 15%) of the actual flowrate of the following:

   a. Influent flow to the Sewage Treatment Plant by continuous flow measuring devices and instrumentations/pumping rates/details of other methods (e.g. top water elevation of lagoons), or in lieu of an actual installation of equipment, adopt the flow measurements of the Final Effluent for the purpose of estimating Influent flows if the Influent and Final Effluent streams are considered not significantly different in flow rates and quantities;

b. Final Effluent discharged from the Sewage Treatment Plant by continuous flow measuring devices and instrumentations/pumping rates/details of other methods (e.g. level of lagoons), or in lieu of an actual installation of equipment, adopt the flow measurements of the Influent for the purpose of estimating Final Effluent flows if the Influent and Final Effluent streams are considered not significantly different in flow rates and quantities;

c. each type of Imported Sewage, if any, received for co-treatment at the Sewage Treatment Plant by flow measuring devices/pumping rates/haul truck manifests;

d. Processed Organic Waste, if any, received for co-processing at the Sewage Treatment Plant by flow measuring devices/pumping rates/haul truck manifests.

5. The Owner shall retain for a minimum of five (5) years from the date of their creation, all records and information related to or resulting from the monitoring activities required by this Approval.

10. LIMITED OPERATIONAL FLEXIBILITY

1. The Owner may make pre-authorized modifications to the sewage pumping stations and Sewage Treatment Plant in Works in accordance with the document "Limited Operational Flexibility - Protocol for Pre-Authorized Modifications to Municipal Sewage Works" (Schedule E), as amended, subject to the following:

   a. the modifications will not involve the addition of any new treatment process or the removal of an existing treatment process, including chemical systems, from the liquid or solids treatment trains as originally designed and approved.

   b. the scope and technical aspects of the modifications are in line with those delineated in Schedule E and conform with the Ministry's publication "Design Guidelines for Sewage Works 2008", as amended, Ministry's regulations, policies, guidelines, and industry engineering standards;

   c. the modifications shall not negatively impact on the performance of any process or equipment in the Works or result in deterioration in the Final Effluent quality;

   d. where the pre-authorized modification requires notification, a "Notice of Modifications to Sewage Works" (Schedule E), as amended shall be completed with declarations from a Professional Engineer and the Owner and retained on-site prior to the scheduled implementation date. All supporting information including technical memorandum, engineering plans and specifications, as applicable and appropriate to support the declarations that the modifications conform with LOF shall remain on-site for future inspection.

2. The following modifications are not pre-authorized under Limited Operational Flexibility:

   a. Modifications that involve addition or extension of process structures, tankages or channels;

   b. Modifications that involve relocation of the Final Effluent outfall or any other discharge location or that may require reassessment of the impact to the receiver or environment;

   c. Modifications that involve addition of or change in technology of a treatment process or that may involve reassessment of the treatment train process design;

   d. Modifications that require changes to be made to the emergency response, spill prevention and contingency plan; or

   e. Modifications that are required pursuant to an order issued by the Ministry.

11. REPORTING

1. The Owner shall report to the District Manager orally as soon as possible any non-compliance with the compliance limits, and in writing within seven (7) days of non-compliance.

2. The Owner shall, within fifteen (15) days of occurrence of a spill within the meaning of Part X of the EPA, submit a full written report of the occurrence to the District Manager describing the cause and discovery of the spill, clean-up and recovery measures taken, preventative measures to be taken and schedule of implementation, in addition to fulfilling the requirements under the EPA and O. Reg. 675/98 "Classification and Exemption of Spills and Reporting of Discharges".

3. The Owner shall, upon request, make all manuals, plans, records, data, procedures and supporting documentation available to Ministry staff.

4. The Owner shall prepare performance reports on a calendar year basis and submit to the District Manager by March 31 of the calendar year following the period being reported upon. The reports shall contain, but shall not be limited to, the following information pertaining to the reporting period:

   a. a summary and interpretation of all Influent, Imported Sewage (if any) and Processed Organic Waste (if any) monitoring data, and a review of the historical trend of the sewage characteristics and flow rates;

   b. 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 this Approval, including an overview of the success and adequacy of the Works;

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

d. a summary of all operating issues encountered and corrective actions taken;

e. 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;

f. a summary of any effluent quality assurance or control measures undertaken;

g. a summary of the calibration and maintenance carried out on all Influent, Imported Sewage (if any) and Final Effluent monitoring equipment to ensure that the accuracy is within the tolerance of that equipment as required in this Approval or recommended by the manufacturer;

h. a summary of efforts made to achieve the design objectives in this Approval, 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;

i. an estimate of the sludge volumes in the lagoon cells. 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;

j. a summary of any complaints received and any steps taken to address the complaints;

k. 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;

l. 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.

m. 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. and a summary of efforts made to achieve conformance with Procedure F-5-5 and establish /maintain a Pollution Prevention and Control Plan (PPCP).

n. 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.

The reasons for the imposition of these terms and conditions are as follows:

1. Condition 1 regarding general provisions is imposed to ensure that the Works are constructed and operated in the manner in which they were described and upon which approval was granted.

2. Condition 2 regarding change of Owner and Operating Agency is included to ensure that the Ministry records are kept accurate and current with respect to ownership and Operating Agency of the Works and to ensure that subsequent owners of the Works are made aware of the Approval and continue to operate the Works in compliance with it.

3. Condition 3 regarding construction of Proposed Works/record drawings is included to ensure that the Works are constructed in a timely manner so that standards applicable at the time of Approval of the Works are still applicable at the time of construction to ensure the ongoing protection of the environment, and that prior to the commencement of construction of the portion of the Works that are approved in principle only, the Director will have the opportunity to review detailed design drawings, specifications and an engineer's report containing detailed design calculations for that portion of the Works, to determine capability to comply with the Ministry's requirements stipulated in the terms and conditions of the Approval, and also ensure that the Works are constructed in accordance with the Approval and that record drawings of the Works "as constructed" are updated and maintained for future references.

4. Condition 4 regarding Bypasses is included to indicate that Bypass is prohibited, except in circumstances where the failure to Bypass could result in greater damage to the environment than the Bypass itself. The notification and documentation requirements allow the Ministry to take action in an informed manner and will ensure the Owner is aware of the extent and frequency of Bypass Events.

5. Condition 5 regarding Overflows is included to indicate that Overflow of untreated or partially treated sewage to the receiver is prohibited, except in circumstances where the failure to Overflow could result in greater damage to the environment than the Overflow itself. The notification and documentation requirements allow the Ministry to take action in an informed manner and will ensure the Owner is aware of the extent and frequency of Overflow Events.

6. Condition 6 regarding design objectives is imposed to establish non-enforceable design objectives to be used as a mechanism to trigger corrective action proactively and voluntarily before environmental impairment occurs.

7. Condition 7 regarding compliance limits is imposed to ensure that the Final Effluent discharged from the Works to the environment meets the Ministry's effluent quality requirements.

8. Condition 8 regarding operation and maintenance is included to require that the Works be properly operated, maintained, funded, staffed and equipped such that the environment is protected and deterioration, loss, injury or damage to any person or property is prevented. As well, the inclusion of a comprehensive operations manual governing all significant areas of operation, maintenance and repair is prepared, implemented and kept up-to-date by the Owner. Such a manual is an integral part of the operation of the Works. Its compilation and use should assist the Owner in staff training, in proper plant operation and in identifying and planning for contingencies during possible abnormal conditions. The manual will also act as a benchmark for Ministry staff when reviewing the Owner's operation of the Works.

9. Condition 9 regarding monitoring and recording is included to enable the Owner to evaluate and demonstrate the performance of the Works, on a continual basis, so that the Works are properly operated and maintained at a level which is consistent with the design objectives and compliance limits.

10. Condition 10 regarding Limited Operational Flexibility is included to ensure that the Works are constructed, maintained and operated in accordance with the Approval, and that any pre-approved modification will not negatively impact on the performance of the Works.

11. Condition 11 regarding reporting is included to provide a performance record for future references, to ensure that the Ministry is made aware of problems as they arise, and to provide a compliance record for this Approval.

Schedule A

1. Application for Environmental Compliance Approval submitted by April 1, 2019, received on April 15, 2019, including Environmental Study Report, design report, final plans and specifications.

Schedule B

Final Effluent Design Objectives

Concentration Objectives prior to, and upon completion of construction of all Proposed Works

Final Effluent Parameter	**Averaging Calculator**	**Objective** (milligrams per litre unless otherwise indicated)
$CBOD_5$	Monthly Average Effluent Concentration	5.0 mg/L (Apr 01 - Nov 30) 15.0 mg/L (Dec 01 - Mar 31)
Total Suspended Solids	Monthly Average Effluent Concentration	5.0 mg/L (Apr 01 - Nov 30) 15.0 mg/L (Dec 01 - Mar 31)
Total Phosphorus	Monthly Average Effluent Concentration	0.5 mg/L (Apr 01 - Nov 30) 0.8 mg/L (Dec 01 - Mar 31)
pH	Single Sample Result	6.5 - 8.5 inclusive
Total Ammonia Nitrogen	Monthly Average Effluent Concentration	1.0 mg/L (Apr 01 - Nov 30) 3.0 mg/L (Dec 01 - Mar 31)
Dissolved Oxygen (*)	Single Sample Result	5.0 mg/L
E. coli	Monthly Geometric Mean Density	<150 CFU/100 mL(#) (Apr 01 - Nov 30)

Note:

(*) The dissolved oxygen value shown is a minimum versus for the other variables the values are maximums.

(#) If the MPN method is utilized for *E.* coli analysis the objective shall be 150 MPN/100 mL

Schedule C

Final Effluent Compliance Limits

Concentration Limits prior to and after completion of construction of all Proposed Works

Final Effluent Parameter	**Averaging Calculator**	**Limits** (milligrams per litre unless otherwise indicated)
$CBOD_5$	Monthly Average Effluent Concentration	10.0 mg/L (Apr 01 - Nov 30) 25.0 mg/L (Dec 01 - Mar 31)
Total Suspended Solids	Monthly Average Effluent Concentration	10.0 mg/L (Apr 01 - Nov 30) 25.0 mg/L (Dec 01 - Mar 31)
Total Phosphorus	Monthly Average Effluent Concentration	0.6 mg/L (Apr 01 - Nov 30) 1.0 mg/L (Dec 01 - Mar 31)
pH	Single Sample Result	6.0 - 9.5 inclusive
Total Ammonia Nitrogen *	Monthly Average Effluent Concentration	4.0 mg/L (Apr 01 - Nov 30)
Un-ionized Ammonia	Monthly Average Effluent Concentration	0.1 mg/L
Dissolved Oxygen (**)	Single Sample Result	5.0 mg/L
E. coli	Monthly Geometric Mean Density	<200 CFU/100 mL (Apr 01 - Nov 30)

Note:

(*) During the operation of the intermittent sand filters, the Total Ammonia Nitrogen concentrations are based on assumed temperature and pH conditions which will result in 0.1 mg/L or less unionized ammonia concentration in the discharge.

(**) The dissolved oxygen value shown is a minimum versus for the other variables the values are maximums.

(#) If the MPN method is utilized for *E.* coli analysis the limit shall be 200 MPN/100 mL

Loading Limits prior to, and upon completion of construction of all Proposed Works

Final Effluent Parameter	**Averaging Calculator**	**Limit** (maximum unless otherwise indicated)
$CBOD_5$ (a)	Seasonal Average Daily Effluent Loading	70.51 kg/day
$CBOD_5$ (b)	Seasonal Average Daily Effluent Loading	176.28 kg/day
Total Suspended Solids (a)	Seasonal Average Daily Effluent Loading	70.51 kg/day
Total Suspended Solids (b)	Seasonal Average Daily Effluent Loading	176.28 kg/day
Total Phosphorus (a)	Seasonal Average Daily Effluent Loading	4.23 kg/day
Total Phosphorus (b)	Seasonal Average Daily Effluent Loading	7.05 kg/day
Total Ammonia Nitrogen (a)	Seasonal Average Daily Effluent Loading	28.20 kg/day

(a) From April 1 to November 30 (warm weather season)
(b) From December 1 to March 31 (cold weather season)

Schedule D

Monitoring Program

Influent

Influent sampling point: **influent splitter box** located between Cell No. 3 and Cell No. 4, north of Blower Building

Parameters	Sample Type	Minimum Frequency
BOD_5	24 hour manual composite*	Monthly
Total Suspended Solids	24 hour manual composite*	Monthly
Total Phosphorus	24 hour manual composite*	Monthly
Total Kjeldahl Nitrogen	24 hour manual composite*	Monthly

*24 hour manual composite means composited sample of three grab samples, a minimum of 8 hours apart, during a 24 hour period

Final Effluent

Sampling Point - Samples to be collected at the outlet of the storage lagoons and at the outlet of the sand filter unless otherwise indicated

Parameters	Sample Type	Minimum Frequency
$CBOD_5$	24 hour composite*	Weekly
Total Suspended Solids	24 hour composite*	Weekly
Total Phosphorus	24 hour composite*	Weekly
Ammonia + Ammonium Nitrogen	24 hour composite*	Weekly
Nitrates	24 hour composite*	Weekly
E. coli	Grab	Weekly
Dissolved Oxygen	Grab/Probe	Weekly
pH**	Grab/Probe	
Temperature***	Grab/Probe	Weekly
Un-ionized Ammonia***	As calculated	Weekly

*24 hour composite means automatic 24 hour composite sample, or composited sample of three grab samples, a minimum of 8 hours apart, during a 24 hour period

**pH and temperature of the Final Effluent shall be determined in the field at the time of sampling for Total Ammonia Nitrogen.

***The concentration of un-ionized ammonia shall be calculated using the total ammonia concentration, pH and temperature using the methodology stipulated in "Ontario's Provincial Water Quality Objectives" dated July 1994, as amended.

Schedule E

Limited Operational Flexibility

Protocol for Pre-Authorized Modifications to Municipal Sewage Works

1. General

1. Pre-authorized modifications are permitted only where Limited Operational Flexibility has already been granted in the Approval and only permitted to be made at the pumping stations and sewage treatment plant in the Works, subject to the conditions of the Approval.

2. Where there is a conflict between the types and scope of pre-authorized modifications listed in this document, and the Approval where Limited Operational Flexibility has been granted, the Approval shall take precedence.

3. The Owner shall consult the District Manager on any proposed modifications that may fall within the scope and intention of the Limited Operational Flexibility but is not listed explicitly or included as an example in this document.

4. The Owner shall ensure that any pre-authorized modifications will not:

   a. adversely affect the hydraulic profile of the Sewage Treatment Plant or the performance of any upstream or downstream processes, both in terms of hydraulics and treatment performance;

   b. result in new Overflow or Bypass locations, or any potential increase in frequency or quantity of Overflow(s) or Bypass(es).

   c. result in a reduction in the required Peak Flow Rate of the treatment process or equipment as originally designed.

2. Modifications that do not require pre-authorization:

1. Sewage works that are exempt from Ministry approval requirements;

2. Modifications to the electrical system, instrumentation and control system.

3. Pre-authorized modifications that do not require preparation of "Notice of Modification to Sewage Works"

1. Normal or emergency maintenance activities, such as repairs, renovations, refurbishments and replacements with Equivalent Equipment, or other improvements to an existing approved piece of equipment of a treatment process do not require pre-authorization. Examples of these activities are:

a. Repairing a piece of equipment and putting it back into operation, including replacement of minor components such as belts, gear boxes, seals, bearings;

b. Repairing a piece of equipment by replacing a major component of the equipment such as motor, with the same make and model or another with the same or very close power rating but the capacity of the pump or blower will still be essentially the same as originally designed and approved;

c. Replacing the entire piece of equipment with Equivalent Equipment.

2. Improvements to equipment efficiency or treatment process control do not require pre-authorization. Examples of these activities are:

a. Adding variable frequency drive to pumps;

b. Adding on-line analyzer, dissolved oxygen probe, ORP probe, flow measurement or other process control device.

4. Pre-Authorized Modifications that require preparation of "Notice of Modification to Sewage Works"

1. Pumping Stations

a. Replacement, realignment of existing sewers including manholes, valves, gates, weirs and associated appurtenances provided that the modifications will not add new influent source(s) or result in an increase in flow from existing sources as originally approved.

b. Extension or partition of wetwell to increase retention time for emergency response and improve station maintenance and pump operation;

c. Replacement or installation of inlet screens to the wetwell;

d. Replacement or installation of flowmeters, construction of station bypass;

e. Replacement, reconfiguration or addition of pumps and modifications to pump suction and discharge piping including valve, gates, motors, variable frequency drives and associated appurtenances to maintain firm pumping capacity or modulate the pump rate provided that the modifications will not result in a reduction in the firm pumping capacity or discharge head or an increase in the peak pumping rate of the pumping station as originally designed;

f. Replacement, realignment of existing forcemain(s) including valves, gates, and associated appurtenances provided that the modifications will not reduce the flow capacity or increase the total dynamic head and transient in the forcemain.

2. Sewage Treatment Plant

    1. Sewers and appurtenances

        a. Replacement, realignment of existing sewers (including pipes and channels) or construction of new sewers, including manholes, valves, gates, weirs and associated appurtenances within the a sewage treatment plant, provided that the modifications will not add new influent source(s) or result in an increase in flow from existing sources as originally approved and that the modifications will remove hydraulic bottlenecks or improve the conveyance of sewage into and through the Works.

    2. Flow Distribution Chambers/Splitters

        a. Replacement or modification of existing flow distribution chamber/splitters or construction of new flow distribution chamber/splitters, including replacements or installation of sluice gates, weirs, valves for distribution of flows to the downstream process trains, provided that the modifications will not result in a change in flow distribution ratio to the downstream process trains as originally designed.

    3. Imported Sewage Receiving Facility

        a. Replacement, relocation or installation of loading bays, connect/disconnect hook-up systems and unloading/transferring systems;

        b. Replacement, relocation or installation of screens, grit removal units and compactors;

        c. Replacement, relocation or installation of pumps, such as dosing pumps and transfer pumps, valves, piping and appurtenances;

        d. Replacement, relocation or installation of storage tanks/chambers and spill containment systems;

        e. Replacement, relocation or installation of flow measurement and sampling equipment;

        f. Changes to the source(s) or quantity from each source, provided that changes will not result in an increase in the total quantity and waste loading of each type of Imported Sewage already approved for co-treatment.

    4. Preliminary Treatment System

        a. Replacement of existing screens and grit removal units with equipment of the same or higher process performance technology, including where necessary replacement or upgrading of existing screenings dewatering washing compactors, hydrocyclones, grit classifiers, grit pumps, air blowers conveyor system, disposal bins and other ancillary equipment to the screening and grit removal processes.

b. Replacement or installation of channel aeration systems, including air blowers, air supply main, air headers, air laterals, air distribution grids and diffusers.

c. Primary Treatment System

d. Replacement of existing sludge removal mechanism, including sludge chamber;

e. Replacement or installation of scum removal mechanism, including scum chamber;

f. Replacement or installation of primary sludge pumps, scum pumps, provided that:the modifications will not result in a reduction in the firm pumping capacity or discharge head that the primary sludge pump(s) and scum pump(s) are originally designed to handle.

5. Secondary Treatment System

1. Biological Treatment

a. Conversion of complete mix aeration tank to plug-flow multi-pass aeration tank, including modifications to internal structural configuration;

b. Addition of inlet gates in multi-pass aeration tank for step-feed operation mode;

c. Partitioning of an anoxic/flip zone in the inlet of the aeration tank, including installation of submersible mixer(s);

d. Replacement of aeration system including air blowers, air supply main, air headers, air laterals, air distribution grids and diffusers, provided that the modifications will not result in a reduction in the firm capacity or discharge pressure that the blowers are originally designed to supply or in the net oxygen transferred to the wastewater required for biological treatment as originally required.

2. Secondary Sedimentation

a. Replacement of sludge removal mechanism, including sludge chamber;

b. Replacement or installation of scum removal mechanism, including scum chamber;

c. Replacement or installation of return activated sludge pump(s), waste activated sludge pump(s), scum pump(s), provided that the modifications will not result in a reduction in the firm pumping capacity or discharge head that the activated sludge pump(s) and scum pump(s) are originally designed to handle.

6. Post-Secondary Treatment System

    a. Replacement of filtration system with equipment of the same filtration technology, including feed pumps, backwash pumps, filter reject pumps, filtrate extract pumps, holding tanks associated with the pumping system, provided that the modifications will not result in a reduction in the capacity of the filtration system as originally designed.

7. Disinfection System

    1. UV Irradiation

        a. Replacement of UV irradiation system, provided that the modifications will not result in a reduction in the design capacity of the disinfection system or the radiation level as originally designed.

    2. Chlorination/Dechlorination and Ozonation Systems

        a. Extension and reconfiguration of contact tank to increase retention time for effective disinfection and reduce dead zones and minimize short-circuiting;

        b. Replacement or installation of chemical storage tanks, provided that the tanks are provided with effective spill containment.

8. Supplementary Treatment Systems

    1. Chemical systems

        a. Replacement, relocation or installation of chemical storage tanks for existing chemical systems only, provided that the tanks are sited with effective spill containment;

        b. Replacement or installation of chemical dosing pumps provided that the modifications will not result in a reduction in the firm capacity that the dosing pumps are originally designed to handle.

        c. Relocation and addition of chemical dosing point(s) including chemical feed pipes and valves and controls, to improve phosphorus removal efficiency;

        d. Use of an alternate chemical provided that it is a non-proprietary product and is a commonly used alternative to the chemical approved in the Works, provided that the chemical storage tanks, chemical dosing pumps, feed pipes and controls are also upgraded, as necessary.

9. Sludge Management System

    1. Sludge Holding and Thickening

        a. Replacement or installation of sludge holding tanks, sludge handling pumps, such as transfer pumps, feed pumps, recirculation pumps, provided that modifications will not result in reduction in the solids storage or handling capacities;

    2. Sludge Digestion

        a. Replacement or installation of digesters, sludge handling pumps, such as transfer pumps, feed pumps, recirculation pumps, provided that modifications will not result in reduction in the solids storage or handling capacities;

        b. replacement of sludge digester covers.

    3. Sludge Dewatering and Disposal

        a. Replacement of sludge dewatering equipment, sludge handling pumps, such as transfer pumps, feed pumps, cake pumps, loading pumps, provided that modifications will not result in reduction in solids storage or handling capacities.

    4. Processed Organic Waste

        a. Changes to the source(s) or quantity from each source, provided that changes will not result in an increase in the total quantity already approved for co-processing.

10. Standby Power System

    1. Replacement or installation of standby power system, including feed from alternate power grid, emergency power generator, fuel supply and storage systems, provided that the existing standby power generation capacity is not reduced.

11. Pilot Study

    1. Small side-stream pilot study for existing or new technologies, alternative treatment process or chemical, provided:

        a. all effluent from the pilot system is hauled off-site for proper disposal or returned back to the sewage treatment plant for at a point no further than immediately downstream of the location from where the side-stream is drawn;

        b. no proprietary treatment process or propriety chemical is involved in the pilot study;

c. the effluent from the pilot system returned to the sewage treatment plant does not significantly alter the composition/concentration of or add any new contaminant/inhibiting substances to the sewage to be treated in the downstream process;

d. the pilot study will not have any negative impacts on the operation of the sewage treatment plant or cause a deterioration of effluent quality;

e. the pilot study does not exceed a maximum of two years and a notification of completion shall be submitted to the District Manager within one month of completion of the pilot project.

12. Lagoons

a. installing baffles in lagoon provided that the operating capacity of the lagoon system is not reduced;

b. raise top elevation of lagoon berms to increase free-board;

c. replace or install interconnecting pipes and chambers between cells, provided that the process design operating sequence is not changed;

d. replace or install mechanical aerators, or replace mechanical aerators with diffused aeration system provided that the mixing and aeration capacity are not reduced;

e. removal of accumulated sludge and disposal to an approved location offsite.

3. Final Effluent Disposal Facilities

a. Replacement or realignment of the Final Effluent channel, sewer or forcemain, including manholes, valves and appurtenances from the end of the treatment train to the discharge outfall section, provided that the sewer conveys only effluent discharged from the Sewage Treatment Plant and that the replacement or re-aligned sewer has similar dimensions and performance criteria and is in the same or approximately the same location and that the hydraulic capacity will not be reduced.

This page contains an image of the form entitled "Notice of Modification to Sewage Works". A digital copy can be obtained from the District Manager.

Ontario Ministry of the Environment, Conservation and Parks

Notice of Modification to Sewage Works

RETAIN COPY OF COMPLETED FORM AS PART OF THE ECA ON-SITE PRIOR TO THE SCHEDULED IMPLEMENTATION DATE

Part 1 – Environmental Compliance Approval (ECA) with Limited Operational Flexibility

(Insert the ECA's owner, number and issuance date and notice number, which should start with "01" and consecutive numbers thereafter)

ECA Number	Issuance Date (mm/dd/yy)	Notice number (if applicable)

ECA Owner	Municipality

Part 2: Description of the modifications as part of the Limited Operational Flexibility

(Attach a detailed description of the sewage works)

Description shall include:

1. A detail description of the modifications and/or operations to the sewage works (e.g. sewage work component location, size, equipment type/model, material, process name, etc.)
2. Confirmation that the anticipated environmental effects are negligible
3. List of updated versions of, or amendments to, all relevant technical documents that are affected by the modifications as applicable. I.e. submission of documentation is not required, but the listing of updated documents is (design brief, drawings, emergency plan, etc.)

Part 3 – Declaration by Professional Engineer

I hereby declare that I have verified the scope and technical aspects of this modification and confirm that the design

1. Has been prepared or reviewed by a Professional Engineer who is licensed to practice in the Province of Ontario;
2. Has been designed in accordance with the Limited Operational Flexibility as described in the ECA;
3. Has been designed consistent with Ministry's Design Guidelines, adhering to engineering standards, industry's best management practices, and demonstrating ongoing compliance with s.53 of the Ontario Water Resources Act, and other appropriate regulations.

I hereby declare that to the best of my knowledge, information and belief the information contained in this form is complete and accurate

Name (Print)	PEO License Number

Signature	Date (mm/dd/yy)

Name of Employer

Part 4 – Declaration by Owner

I hereby declare that

1. I am authorized by the Owner to complete this Declaration;
2. The Owner consents to the modification; and
3. The modifications to the sewage works are proposed in accordance with the Limited Operational Flexibility as described in the ECA
4. The Owner has fulfilled all applicable requirements of the *Environmental Assessment Act*

I hereby declare that to the best of my knowledge, information and belief the information contained in this form is complete and accurate

Name of Owner Representative (Print)	Owner representative's title (Print)

Owner Representative's Signature	Date (mm/dd/yy)

Schedule F

Methodology for Calculating and Reporting Monthly Average Effluent Concentration, Annual Average Effluent Concentration and Monthly Geometric Mean Density

1. Monthly Average Effluent Concentration

Step 1: Calculate the arithmetic mean of all Single Sample Results of the concentration of a contaminant in the Final Effluent sampled or measured during a calendar month and proceed as follows depending on the result of the calculation:

a. If the arithmetic mean does not exceed the compliance limit for the contaminant, then report and use this arithmetic mean as the Monthly Average Effluent Concentration for this parameter where applicable in this Approval;

b. If the arithmetic mean exceeds the compliance limit for the contaminant and there was no Bypass Event during the calendar month, then report and use this arithmetic mean as the Monthly Average Effluent Concentration for this parameter where applicable in this Approval;

c. If the arithmetic mean exceeds the compliance limit for the contaminant and there was Bypass Event(s) during the calendar month, then proceed to Step 2;

d. If the arithmetic mean does not exceed the compliance limit for the contaminant and there was Bypass Event(s) during the calendar month, the Owner may still elect to proceed to Step 2 calculation of the flow-weighted arithmetic mean.

Step 2: Calculate the flow-weighted arithmetic mean of all Single Sample Results of the concentration of a contaminant in the Final Effluent sampled or measured during a calendar month and proceed depending on the result of the calculation:

a. Group No Bypass Days (**NBPD**) data and Bypass Days (**BPD**) data during a calendar month separately;

b. Calculate the arithmetic mean of all Single Sample Results of the concentration of a contaminant in the Final Effluent sampled or measured on all NBPD during a calendar month and record it as **Monthly Average NBPD Effluent Concentration**;

c. Obtain the "**Total Monthly NBPD Flow**" which is the total amount of Final Effluent discharged on all NBPD during the calendar month;

d. Calculate the arithmetic mean of all Single Sample Results of the concentration of a contaminant in the Final Effluent sampled or measured on all BPD during a calendar month and record it as **Monthly Average BPD Effluent Concentration**;

e. Obtain the "**Total Monthly BPD Flow**" which is the total amount of Final Effluent discharged on all BPD during the calendar month;

f. Calculate the flow-weighted arithmetic mean using the following formula:

[(Monthly Average NBPD Effluent Concentration × Total Monthly NBPD Flow) + (Monthly Average BPD Effluent Concentration × Total Monthly BPD Flow)] ÷ (Total Monthly NBPD Flow + Total Monthly BPD Flow)

It should be noted that in this method, if there are no Bypass Event for the month, the calculated result would be the same as the non-flow-weighted arithmetic mean method;

g. Report and use the lesser of the flow-weighted arithmetic mean obtained in Step 2 and the arithmetic mean obtained in Step 1 as the Monthly Average Effluent Concentration for this parameter where applicable in this Approval.

2. Annual Average Effluent Concentration

Step 1: Calculate the arithmetic mean of all Single Sample Results of the concentration of a contaminant in the Final Effluent sampled or measured during a calendar year and proceed as follows depending on the result of the calculation:

a. If the arithmetic mean does not exceed the compliance limit for the contaminant, then report and use this arithmetic mean as the Annual Average Effluent Concentration for this parameter where applicable in this Approval;

b. If the arithmetic mean exceeds the compliance limit for the contaminant and there was no Bypass Event during the calendar year, then report and use this arithmetic mean as the Annual Average Effluent Concentration for this parameter where applicable in this Approval;

c. If the arithmetic mean exceeds the compliance limit for the contaminant and there was Bypass Event(s) during the calendar year, then proceed to Step 2;

d. If the arithmetic mean does not exceed the compliance limit for the contaminant and there was Bypass Event(s) during the calendar year, the Owner may still elect to proceed to Step 2 calculation of the flow-weighted arithmetic mean.

Step 2: Calculate the flow-weighted arithmetic mean of all Single Sample Results of the concentration of a contaminant in the Final Effluent sampled or measured during a calendar year and proceed depending on the result of the calculation:

a. Group No Bypass Days (**NBPD**) data and Bypass Days (**BPD**) data during a calendar year separately;

b. Calculate the arithmetic mean of all Single Sample Results of the concentration of a contaminant in the Final Effluent sampled or measured on all NBPD during a calendar year and record it as **Annual Average NBPD Effluent Concentration**;

c. Obtain the "**Total Annual NBPD Flow**" which is the total amount of Final Effluent discharged on all NBPD during the calendar year;

d. Calculate the arithmetic mean of all Single Sample Results of the concentration of a contaminant in the Final Effluent sampled or measured on all BPD during a calendar year and record it as **Annual Average BPD Effluent Concentration**;

e. Obtain the "**Total Annual BPD Flow**" which is the total amount of Final Effluent discharged on all BPD during the calendar year;

f. Calculate the flow-weighted arithmetic mean using the following formula:

[(Annual Average NBPD Effluent Concentration × Total Annual NBPD Flow) + (Annual Average BPD Effluent Concentration × Total Annual BPD Flow)] ÷ (Total Annual NBPD Flow + Total Annual BPD Flow)

It should be noted that in this method, if there are no Bypass Event for the calendar year, the calculated result would be the same as the non-flow-weighted arithmetic mean method;

g. Report and use the lesser of the flow-weighted arithmetic mean obtained in Step 2 and the arithmetic mean obtained in Step 1 as the Annual Average Effluent Concentration for this parameter where applicable in this Approval.

3. Monthly Geometric Mean Density

Geometric mean is defined as the n^{th} root of the product of n numbers. In the context of calculating Monthly Geometric Mean Density for *E. coli* , the following formula shall be used:

$$\sqrt[n]{x_1 x_2 x_3 \cdots x_n}$$

in which,

"*n* " is the number of samples collected during the calendar month; and "*x* " is the value of each Single Sample Result. For example, four weekly grab samples were collected and tested for *E. coli* during the calendar month. The *E. coli* densities in the Final Effluent were found below:

Sample Number	*E. coli* Densities* (CFU/100 mL)
1	10
2	100
3	300
4	50

The Geometric Mean Density for these data:

$$\sqrt[4]{10 \times 100 \times 300 \times 50} = 62$$

*If a particular result is zero (0), then a value of one (1) will be substituted into the calculation of the Monthly Geometric Mean Density. If the MPN method is utilized for E. coli analysis, values in the table shall be MPN/100 mL.

Schedule G

Municipal and Local Services Board Wastewater System
Profile Information Form

(For reference only, images of the form are attached on the next four pages. A digital copy can be obtained from the District Manger.)

Ontario

Ministry of the Environment, Conservation and Parks

Municipal and Local Services Board Wastewater System Profile Information Form

The information in this form is necessary to administer the Ministry's approvals, compliance and enforcement programs with respect to wastewater treatment and collection systems owned by municipalities and local services boards. These programs are authorized under the *Ontario Water Resources Act*, the *Environmental Protection Act*, the *Nutrient Management Act* and their respective regulations.

Email the completed form to waterforms@ontario.ca
For any questions call 1-866-793-2588

[A] SYSTEM PROFILE INFORMATION

Wastewater System Number *(if assigned)*

☐ New Profile
☐ Update Existing Profile

Name of System

Name of Municipality or Local Services Board

Level of Treatment (select one*)
☐ Primary
☐ Secondary
☐ Tertiary
☐ Secondary Equivalent
☐ Other (specify)
**See Terms and Concepts on page 4*

Population Served | Population (Design)

Type of System
☐ Treatment & Collection System ☐ Collection System Only

Design Rated Capacity (m^3/day)	Peak Flow Rate (m^3/day)	Current Environmental Compliance Approval (ECA) Number	Current ECA Issue Date (yyyy/mm/dd)

The treatment plant receives sewage from: (Check all that applies.* If you have checked more than one option below, indicate the approximate %)
☐ Sanitary Sewer ☐ Combined Sewer
☐ Nominally Separated Sewer ☐ Partially Separated Sewer **See Terms and Concepts on page 4*

[B] OWNER INFORMATION

Legal Name of Municipality or Local Services Board

Unit No	Street No.	Street Name.	Street Type (St, Rd, etc)	Street Direction (N,S,E,W)

PO Box	City/Town	Postal Code

☐ Dr ☐ Miss ☐ Mr ☐ Mrs ☐ Ms	Owner Contact First Name	Owner Contact Last Name	Owner Contact Job Title

Tel. No. ( ) - ext.	Fax Number ( ) -	Email address

[C] OPERATING AUTHORITY ☐ Check if same as owner

Legal Name of Operator

Unit No	Street No.	Street Name.	Street Type (St, Rd, etc)	Street Direction (N,S,E,W)

PO Box	City/Town	Postal Code

☐ Dr ☐ Miss ☐ Mr ☐ Mrs ☐ Ms	Operator Contact First Name	Operator Contact Last Name	Operator Contact Job Title

Tel. No. ( ) - ext.	Fax Number ( ) -	Email address

[D] 24/7 CONTACT

☐ Dr ☐ Miss ☒ Mr ☐ Mrs ☐ Ms	First Name	Last Name	Job Title

Tel. No.	Fax Number	Email address
( ) - ext.	( ) -	

[E] SYSTEM CIVIC LOCATION ADDRESS (I.E. ADDRESS OF TREATMENT PLANT)

Unit No	Street No.	Street Name.	Street Type (St, Rd, etc)	Street Direction (N,S,E,W)

PO Box	City/Town	Postal Code

If the Wastewater System has no street address

Geographical Township	Lot	Concession

Geographical Referencing (if known, enter the Geographical Reference Information for this Wastewater System)

Map Datum	Geo-Referencing Method	Accuracy Estimate	Location Reference	

Latitude	Longitude	Zone	Easting	Northing

[F] TREATMENT PROCESS

Preliminary	Primary	Secondary	Secondary Equivalent	Post-Secondary	Additional Treatment
☐ Screening ☐ Shredding/ grinding ☐ Grit Removal ☐ Other(specify):	☐ Settling/sedimentation/ clarification ☐ Scum Removal ☐ Polymer Addition ☐ Other(specify):	☐ Conventional Activated Sludge (CAS) ☐ Extended Aeration ☐ Membrane Bioreactor (MBR) ☐ Sequencing Batch Reactor (SBR) ☐ Rotating Biological Contactor (RBC) ☐ Trickling Filter (TF) ☐ Biological Aerated Filter (BAF) ☐ Other(specify):	☐ Aerated Lagoon ☐ Facultative Lagoon ☐ Anaerobic Lagoon ☐ Aerobic Lagoon ☐ Other(specify)	☐ Filtration ☐ Clarification ☐ Intermittent Sand Filter (after lagoons) ☐ Polishing Wetlands ☐ Polishing Lagoons ☐ Other(specify)	☐ Phosphorous Removal ☐ Biological ☐ Chemical If chemical is used, specify: ☐ Nitrification ☐ Denitrification ☐ Other(specify)

[G] DISINFECTION

Method of Disinfection	Disinfection Period
☐ Chlorination If you chlorinate, do you practice de-chlorination? ☐ Yes ☐ No	☐ Continuous ☐ Seasonal
☐ Ultraviolet Irradiation	☐ Continuous ☐ Seasonal
☐ Other (specify):	☐ Continuous ☐ Seasonal

[H] SLUDGE	
Sludge Stabilization Process	Method of Sludge Disposal/Utilization
☐ Aerobic Digestion	☐ Agricultural
☐ Anaerobic Digestion	☐ Landfill
☐ Drying & Pelletization	☐ Incineration
☐ Lime Treatment	☐ Other (specify)
☐ Composting	
☐ Other (specify)	
Available Sludge Storage Capacity (m^3):	

[I] EFFLUENT	
Effluent Disposal Method	Effluent Discharge Frequency
☐ Surface Water Receiving Water Body Name:	☐ Continuous ☐ Seasonal
☐ Subsurface	☐ Continuous ☐ Seasonal
☐ Other (specify):	☐ Continuous ☐ Seasonal

Is the effluent discharged in a vulnerable area identified in the local source protection assessment report approved under the Clean Water Act, 2006?
☐ Yes ☐ No

[J] INFLUENT

Does the plant receive sewage from another municipality or local services board either through an interconnected collection system or hauled sewage?
☐ Yes ☐ No
(if yes, name(s) of other municipality or local services board):

Plant receives:
☐ Leachate (approximate annual volume in m^3):
☐ Septage (approximate annual volume in m^3):
☐ Industrial input (approximate annual volume in m^3):
or (approximate volume in %):

Terms and Concepts

The following Terms and Concepts are provided to assist you when completing Wastewater System Profile Information Form.

In order to determine the level of treatment that applies to the wastewater system, the effluent quality objectives that the wastewater treatment plant was designed to meet must be considered. The process based approach often used in the past has led to confusion and is open to interpretation due to recent developments and practices in the wastewater treatment industry. For example, a plant with a high rate filter (often referred to as a tertiary filter) after its secondary treatment was considered a tertiary treatment in the past since the filter was designed and operated to produce a tertiary quality effluent. However, secondary plants are now being constructed with these filters as a safeguard against any potential secondary clarifier performance degradation and not for the purpose of ensuring tertiary treatment performance. Also, new technologies have evolved that can produce tertiary quality effluent without having these high rate filters (e.g., membrane bioreactors). Lagoons were considered in the past as being capable of providing only secondary equivalent treatment. However, with add-on treatment after the lagoons (e.g. intermittent sand filters), many lagoon treatment systems are capable of producing secondary or tertiary quality effluent.

During the establishment of sewage works, site-specific effluent limits (including averaging periods) are provided by the Ministry's Regional Technical Support Section, considering the assimilative capacity of the receivers and the minimum treatment requirements provided in Procedure F-5-1. The designer of the sewage works then selects objective values that are acceptable to the Ministry and are less (i.e. more stringent) than the effluent limits, in order to provide an adequate safety factor based on the designer's confidence/experience with the technology chosen and other site-specific conditions. The sewage works are then designed (and operated) to meet these design objectives in a reliable and consistent manner. Therefore, the values that are to be used in the determination of the level of treatment that applies to the sewage works must be based on the design objectives, and not the effluent limits.

Two common parameters used in almost all sewage works designs and performance evaluations are $CBOD_5$ (carbonaceous biochemical oxygen demand) (BOD_5 – biochemical oxygen demand - for primary sewage works) and total suspended solids (TSS). Therefore, it is logical that the **objective values** of these two parameters are used to determine the level of treatment at the sewage works.

Level of Treatment:

Primary:
Wastewater treatment plants that have only settling/sedimentation (with or without chemical addition) and providing 30% and 50% or better reduction of BOD_5 and TSS respectively are considered primary plants (MOE Procedures F-5-1 and F-5-5).

Secondary:
Wastewater treatment plants that have biological processes (e.g. activated sludge process and its variations, fixed film processes) or physical-chemical processes producing an effluent quality of $CBOD_5$ and TSS of 15 mg/L or better are considered secondary plants (MOE Design Guidelines for Sewage Works, 2008).

Secondary Equivalent:
Wastewater treatment plants producing an effluent quality of $CBOD_5$ of 25 mg/L and TSS of 30 mg/L or better are considered as secondary equivalent plants.

Note: Wastewater treatment plants that provide only primary settling of solids and the addition of chemicals to improve the removal of TSS (and phosphorus) are not considered as secondary treatment plants or secondary equivalent plants (MOE Design Guidelines for Sewage Works, 2008).

Tertiary:
Wastewater treatment plants that have biological processes (e.g. activated sludge process and its variations, fixed film processes) and/or physical-chemical processes producing an effluent quality of $CBOD_5$ and TSS of 5 mg/L or better are considered tertiary plants.

Note: Biological processes such as nitrification, denitrification and enhanced biological phosphorus removal can be part of either a secondary or tertiary treatment plant. They may be described as secondary treatment plant with nitrification, secondary treatment plant with enhanced biological phosphorus removal, tertiary treatment plant with nitrification etc.

Sewer System Type:

Sanitary Sewers:
Pipes that convey sanitary sewage flows made up of wastewater discharges from residential, commercial, institutional and industrial establishments plus extraneous flow components from such sources as groundwater and surface run off.

Combined Sewers:
Pipes that convey both sanitary sewage and stormwater runoff through a single-pipe system.

Partially Separated Sewers:
Exist when either a portion of the combined sewer area was retrofitted to separate (sanitary and storm) sewers and/or a service area with combined sewers has had a new development area with separate sewers added to the service area, whatever the case may be, the final flows will be combined sewage.

Nominally Separated Sewers:
These sewers are constructed as separate sewers, but the sanitary sewers accept stormwater from roof and foundation drains (i.e., these are separated sewers in name only).

Upon issuance of the environmental compliance approval, I hereby revoke Approval No(s). 2395-9QDPQW issued on November 25, 2014.

In accordance with Section 139 of the Environmental Protection Act, you may by written Notice served upon me and the Environmental Review Tribunal within 15 days after receipt of this Notice, require a hearing by the Tribunal. Section 142 of the Environmental Protection Act provides that the Notice requiring the hearing shall state:

a. The portions of the environmental compliance approval or each term or condition in the environmental compliance approval in respect of which the hearing is required, and;
b. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

Pursuant to subsection 139(3) of the Environmental Protection Act, a hearing may not be required with respect to any terms and conditions in this environmental compliance approval, if the terms and conditions are substantially the same as those contained in an approval that is amended or revoked by this environmental compliance approval.

The Notice should also include:

1. The name of the appellant;
2. The address of the appellant;
3. The environmental compliance approval number;
4. The date of the environmental compliance approval;
5. The name of the Director, and;
6. The municipality or municipalities within which the project is to be engaged in.

And the Notice should be signed and dated by the appellant.

This Notice must be served upon:

The Secretary*
Environmental Review Tribunal
655 Bay Street, Suite 1500
Toronto, Ontario
M5G 1E5

AND

The Director appointed for the purposes of Part II.1 of the Environmental Protection Act
Ministry of the Environment, Conservation and Parks
135 St. Clair Avenue West, 1st Floor
Toronto, Ontario
M4V 1P5

*** Further information on the Environmental Review Tribunal's requirements for an appeal can be obtained directly from the Tribunal at: Tel: (416) 212-6349, Fax: (416) 326-5370 or www.ert.gov.on.ca**

The above noted activity is approved under s.20.3 of Part II.1 of the Environmental Protection Act.

DATED AT TORONTO this 23rd day of December, 2019

Youssouf Kalogo, P.Eng.
Director
appointed for the purposes of Part II.1 of the
Environmental Protection Act

KH/

c: District Manager, DWECD, MECP Sarina Widnsor District.
Gary Deonarine, Stantec Consulting Ltd.

APPENDIX “D”

MUNICIPALITY OF SOUTH HURON

Performance Assessment Report - Wastewater Treatment Plant

Project: Exeter Sewage Lagoons
Project Number:
Works Number: 110000221
Description:

Year: 2024
Receiver: Ausable River
Design Avg Day Flow(m3): 7051
Raw Flow Group Selected:
Effluent Group Selected:

Month	<<<--- Flows ---<<< Total Flow m3	Avg Day m3	Max Day m3	--->>> Final Effluent m3	Final Effluent Days Discharging	<<<-- BioChemical 0xygen Demand --<<< Avg Raw BOD mg/L	Avg Eff CBOD mg/L	BOD Loading kg/d	Percent Removal	<<<--- Suspended Solids ---<<< Avg Raw SS mg/L	Avg Eff SS mg/L	SS Loading kg/d	Percent Removal	<<<--- Phosphorus ---<<< Avg Raw Phos. mg/L	Avg Eff Phos. mg/L	Phos. Loading kg/d	Percent Removal	<<<--- Nitrogen Series ---<<< Avg Eff NH3+NH4 mg/L	NH3+NH4 Loading kg/d	Avg Eff Un-ion NH3 mg/L	Avg Eff Nitrate mg/L	Avg Eff Nitrite mg/L	<- Disolved Oxygen -< Avg Eff DO mg/L	<-E.Coli -< Ave Eff Geo. Mean per 100ml
JAN	199,682	6,441	26,669			477.0				158.0				2.2										
FEB	91,533	3,156	5,534	347,797	27	152.0	7.2	92.75	95%	112.0	10.2	131.39	91%	1.7	0.11	1.42	94%	3.32	42.77	0.027	1.09	0.03	11.65	574.00
MAR	129,179	4,167	7,470			43.0				27.0				0.9										
APR	135,776	4,526	13,435			187.0				153.0				2.3										
MAY	94,134	3,037	6,649	187,786	27	125.0	4.0	27.82	97%	133.0	2.0	13.91	98%	2.4	0.12	0.83	95%	0.10	0.70	0.002	4.66	0.03	8.34	12.34
JUN	71,239	2,375	3,572	178,187	26	265.0	4.0	27.41	98%	122.0	2.0	13.71	98%	2.9	0.13	0.89	96%	0.10	0.69	0.002	5.40	0.03	7.68	2.14
JUL	96,370	3,109	8,285	171,278	28	368.0	4.0	24.47	99%	195.0	2.0	12.23	99%	4.7	0.15	0.92	97%	0.10	0.61	0.003	1.89	0.03	7.64	4.91
AUG	63,511	2,049	2,685	191,657	31	300.0	3.8	23.49	99%	207.0	2.0	12.36	99%	3.4	0.20	1.24	94%	0.10	0.62	0.003	1.52	0.03	7.22	5.80
SEP	56,374	1,879	2,256	126,307	26	258.0	4.0	19.43	98%	178.0	2.0	9.72	99%	4.7	0.20	0.97	96%	0.10	0.49	0.003	1.50	0.03	7.97	1.19
OCT	58,797	1,897	4,158			236.0				188.0				0.9										
NOV	72,287	2,410	4,493			275.0				151.0				2.9										
DEC	221,189	7,135	27,663			77.0				84.0				1.2										
Total Annual:				1,203,012																				
Summer Average	81,061	2,660		171,043		251.8	4.0	24.53	98%	165.9	2.0	12.39	99%	3.0	0.16	0.97	95%	0.10	0.62	0.003	2.99	0.03	7.77	5.275
ECA Criteria							**10.0**	**70.51**			**10.0**	**70.51**			**0.60**	**4.23**		**4.00**	**28.20**	**0.100**			**≥5.00**	**<200**
Winter Average	160,396	53,535		347,797		187.3	7.2	92.75	95%	95.3	10.2	131.39	91%	1.5	0.11	1.42	94%	3.32	42.77	0.027	1.09	0.03	11.65	574.00
ECA Criteria							**25.0**	**176.28**			**25.0**	**176.28**			**1.00**	**7.05**		**N/A**	**N/A**	**0.100**			**≥5.00**	**N/A**
MAX:	221,189	7,135	27,663	347,797			7.2	91.95	99%	207.0	10.2	130.26	99%	4.7	0.20	1.40	97%	3.32	42.40		5.40	0.03	11.65	574.00

NOTE:

Winter Discharge from WWTP : Dec 1 - Mar 31
Summer Discharge From WWTP : Apr 1 - Nov 30
No Effluent discharge from WWTP

LEGEND:

Raw = Untreated raw sewage entering the lagoon
Total Flow = Total sewage flow in any given month
Avg Day = Total monthly sewage flow divided by the number of days in the month.
Max. Day = Maximum sewage flow on any given day during the month.
Effluent = Treated sewage discharged from the lagoon
CBOD = Carbonaceous Biochemical 0xygen Demand is the amount of dissolved oxygen needed by aerobic biological organisms in wastewater, necessary to break down organic material.
Loading = Loading is the contribution of each wastewater constituent measured in units of mass per time (kg/day) and may be calculated as the product of flow times concentration.
SS = Suspended Solids is the total small particulate matter which remains in suspension in sewage.
Phos. = Phosphorus is an allotropic nonmetallic element occurring in phosphates and living matter. It is an essential constituent of protoplasm and is commonly used in fertilizers.
NH3 = Ammonia (NH3) is a compound of nitrogen and hydrogen.
NH4 = Ammonium (NH4) is derived from ammonia and found in a wide variety of organic and inorganic compounds.
Nitrate = Nitrate (NO3) is a nitrogen-oxygen chemical unit which combine with various organic and inorganic compounds. The most common use is for plant fertilizer.
Nitrite = Nitrite (NO2) is a nitrogen-oxygen chemical unit which combine with various organic and inorganic compounds. Once taken into the body, nitrates are converted to nitrites.
E.Coli = Escherichia coli. A bacterium that is commonly found in the lower intestine of warm-blooded organisms. Most are harmless but some strains can cause serious illness.
Geo. Mean = Geometric mean is a type of mean or average, which indicates the central tendency or typical value of a set of numbers by using the product of their values (as opposed to the Arithmetic mean which uses their sum).
mg/L = milligrams per litre
kg/d = kilograms per day