



Come for a visit. Stay for a lifestyle.

The Municipality of Trent Hills

# **ANNUAL REPORT**

## **Hastings Wastewater System 2024**

Prepared by

Wastewater Operations Department

**Table of Contents**

Section Number	Contents	Page Number
1	ECA Condition 11 (4) (a) Summary and interpretation of all Influent, Imported Sewage monitoring data, and a review of the historical trend of the sewage characteristics and flow rates.	5
2	EC A Condition 11 (4)(b) – 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 Approval #7754-B3GQNP, including an overview of the success and adequacy of the Works.	6-8
3	ECA Condition 11 (4) (c) –Summary of any deviation from the monitoring schedule and reasons for the current reporting year and a schedule for the next reporting year.	8
4	ECA Condition 11 (4) (d) – Summary of all operating issues encountered and corrective actions taken.	8
5	ECA Condition 11 (4)(e) – 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.	9
6	ECA Condition 11 (4) (f) – Summary of any effluent quality assurance or control measures undertaken.	9-10
7	ECA Condition 11 (4)(g) – Summary of the calibration and maintenance carried out on all Influent, Imported Sewage and Final Effluent monitoring equipment to ensure that the accuracy is within the tolerance of that equipment as required in Approval #7754-B3GQNP or recommended by the manufacturer.	10
8	ECA Condition 11 (4)(h) – Summary of efforts made to achieve the design objectives in Approval #7754-B3GQNP, including an assessment of the issues and recommendations for pro-active actions if any are required under the following situations: <ul style="list-style-type: none"> <li>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</li> <li>ii. When the Annual Average Daily Influent Flow reaches 80% of the Rated Capacity</li> </ul>	10-11
9	ECA Condition 11 (4) (i) – Tabulation of the volume of sludge generated, an outline of anticipated volumes to be generated in the next reporting period and a summary of the locations to where the sludge was disposed.	11
10	C of A Condition 11 (4)(j) - A summary of any complaints received and any steps taken to address the complaints	12
11	C of A Condition 11 (4)(k) - - A summary of all By-passes, Overflows, other situations outside Normal Operating Conditions and spills within the meaning of Part X of EPA and abnormal discharge events.	12
12	ECA Condition 11(4) (l) – A summary of all Notices of Modifications to Sewage Works completed under Paragraph 1.d. of Condition 10, including a report on status of implementation of all modification.	12
13	ECA Condition 11 (4) (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)	12
15	Wastewater System Effluent Regulations (WSER)	12-13

	<b>Appendices</b>	
Appendix I	Performance Report for 2024	14-16
Appendix II	Sampling Schedule for 2025	17-18
Appendix III	Calibration Record for 2024	19-20
Appendix IV	Biosolids Report 2024	21-22
Appendix V	Annual Leachate Sampling 2024	23-25

Section 11(4) of the Environmental Compliance Approval no.7754-B3GQNP, for the Hastings Wastewater Treatment Facility states, "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 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 taken;
- (g) A summary of the calibration and maintenance carried out on all Influent, Imported Sewage and Final Effluent monitoring equipment to ensure 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) A tabulation of the volume of sludge generated, an outline of anticipated volumes to be generated in the next reporting period and a summary of the locations to where the sludge was disposed;
- (j) A summary of any complaints received and any steps taken to address the complaints;
- (k) A summary of all By-passes, 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 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 following 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)

## Section 1 – ECA Condition 11 (4) (a)

A summary of all monitoring data collected at the Hastings Wastewater Treatment Facility (WWTF) during the reporting period can be found in Appendix I. The Performance Report provides Flow data, Raw sewage and Final effluent analytical results and an Effluent loadings summary. It is important to note that flow is measured at the Hastings Wastewater Treatment Facility in the final effluent with a Milltronics OCM III measuring device. Below is a summary of the Influent Data. During the spring and winter months in the reporting year flows are elevated due to infiltration and inflow, which historically is consistent. The flushing and CCTV program is being followed up immediately with repairs and problem areas of infiltration are being identified.

Hastings WWTF - Monthly Average Effluent Flows 2024												
	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
Total Monthly Flow m3	19281	19144	21145	28378	23983	19880	20193	15602	14284	13195	13418	19503
Average Daily Flow m3	622	660	682	946	774	663	651	503	476	426	447	629
Minimum Daily Flow m3	456	569	585	630	588	562	530	410	411	377	375	247
Maximum Daily Flow m3	622	826	884	1355	927	825	890	603	583	500	502	1196

The chart below summarizes the Monthly Influent Monitoring.

Hastings WWTF - Monthly Average Influent Monitoring 2024												
	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
pH	7.76	7.65	7.66	7.93	7.64	7.53	7.4	7.38	7.23	7.32	7.58	7.69
Temperature	9.7	9	9.42	11.3	13.53	16.1	18.4	18.7	18.7	17.1	15.2	11.8
Total Suspended Solids	150	152	202	250	175	254	208	240	173	144	171	282
Total Phosphorous	3.64	1.98	2.31	2.46	3.29	1.15	4.13	2.24	4.4	5.04	3.67	5.68
Total Kjeldahl Nitrogen	35.5	17.9	22.9	20	27.6	22.5	35.6	18.3	32.4	41.6	30.4	41.6

## Imported Sewage

Hastings WWTF - Monthly Imported Sewage Received 2024													
	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
Monthly Total m3				504	420	474	378						1776

Hastings WWTF - Monthly Imported Sewage Received 2024												
	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
BOD5				65	26	24	33					
Total Suspended Solids				22	13	60	16					
Total Phosphorous				2.38	2.97	3.6	2.54					
Total Kjeldahl Nitrogen				457	503	596	424					
Total Ammonia				420	309	416	413					

The Hastings WWTF is only required to sample during months when Imported Sewage is being received. Imported Sewage was only accepted during the above months due to issues being encountered with the aeration system.

## **Section 2 – ECA Condition 11 (4) (b)**

The facility operated both adequately and successfully with respect to operation of the wastewater treatment process. There were no difficulties with respect to maintaining compliance with the Environmental Compliance Approval (ECA) effluent quality requirements.

Effluent quantity and quality criteria stipulated in ECA Condition 7(1) Schedule C are summarized as follow:

Hastings WWTF - Monthly Average cBOD Effluent Monitoring 2024												
	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
Effluent Average cBOD5 mg/L	5.4	3.5	21.4	5.6	5.5	4.5	7.4	4	7	9	5.5	4.6
Monthly Average cBOD5 Concentration Objective mg/L	15	15	15	15	15	15	15	15	15	15	15	15
Monthly Average cBOD5 Concentration Limit mg/L	25	25	25	25	25	25	25	25	25	25	25	25
cBOD5 Average Daily Loading kg/D	4.665	2.2	15.68	6.3	4.642	3.534	8.142	2.01	5.47	3.72	3.13	2.89
cBOD5 Average Daily Loading Objective kg/D	15.9	15.9	15.9	15.9	15.9	15.9	15.9	15.9	15.9	15.9	15.9	15.9
cBOD5 Average Daily Loading Limit kg/D	26.5	26.5	26.5	26.5	26.5	26.5	26.5	26.5	26.5	26.5	26.5	26.5

Hastings WWTF - Monthly Average Total Suspended Solids (TSS) Effluent Monitoring 2024												
	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
Effluent Average TSS mg/L	4.4	2.75	39	9	7	5	5	4	5	8	15	8
Monthly Average TSS Concentration Objective mg/L	20	20	20	20	20	20	20	20	20	20	20	20
Monthly Average TSS Concentration Limit mg/L	25	25	25	25	25	25	25	25	25	25	25	25
TSS Average Daily Loading kg/D	3.11	2.31	31.03	8.51	5.41	3.31	3.51	2.01	2.57	3.51	6.48	5.96
TSS Average Daily Loading Objective kg/D	21.2	21.2	21.2	21.2	21.2	21.2	21.2	21.2	21.2	21.2	21.2	21.2
TSS Average Daily Loading Limit kg/D	26.5	26.5	26.5	26.5	26.5	26.5	26.5	26.5	26.5	26.5	26.5	26.5

The Results tabulated above show the sole Non-Compliance in 2024 occurred in March with an exceedance of Total Suspended Solids at 39 mg/L and Total Suspended Solids Loading at 31.03 kg/D. This was due to an initial malfunction of the SCADA program where the program did not allow for additional blowers to be brought in to service. This issue was resolved the following week and the mass in the oxidation ditch required time to rebuild. This was reported to MECP on April 4/24.

The following table provides a summary of the monthly average total phosphorous concentrations in the final effluent discharged to the Trent River. The compliance limit for monthly average total phosphorous concentration in the facility ECA is 1.0 mg/L. The table also summarizes the monthly loading of total phosphorous. The Monthly Average Daily Effluent Loading Limit of total phosphorous for the Hastings WWTF is 1.1 kg/d and this value was not exceeded during any month in 2024.

Hastings WWTF - Monthly Average Total Phosphorous Effluent Monitoring 2024												
	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
Effluent Average Total Phosphorous mg/L	0.07	0.05	0.63	0.11	0.1	0.06	0.09	0.06	0.06	0.06	0.07	0.1
Monthly Average Total Phosphorous Concentration Objective mg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Monthly Average Total Phosphorous Concentration Limit mg/L	1	1	1	1	1	1	1	1	1	1	1	1
Total Phosphorous Average Daily Loading kg/D	0.05	0.032	0.486	0.132	0.07	0.03	0.05	0.03	0.02	0.03	0.17	0.06
Total Phosphorous Average Daily Loading Objective kg/D	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1
Total Phosphorous Average Daily Loading Limit kg/D	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1

Hastings WWTF - Monthly Average Total Chlorine Residual Effluent Monitoring 2024												
	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
Effluent Average Total Chlorine Residual mg/L	0.02	0.01	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Monthly Average Total Chlorine Residual Objective mg/L	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02

The above table illustrates that the Hastings plant met the Objective of 0.02 mg/L in 12 out of 12 months in 2024

Hastings WWTF - Monthly e.Coli Geometric Mean Density (GMD) Effluent Monitoring 2024												
	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
Effluent e.Coli GMD CFU/100mL	40	7.02	1216	18	17	18	11	2.8	5.9	20	8	8.27
Monthly e.Coli GMD Objective mg/L	150	150	150	150	150	150	150	150	150	150	150	150

The Hastings plant met the E.coli Objective of 150 CFU/ 100 mL in 11 out of 12 months in 2024.

The following table provides a monthly summary of the pH of the effluent. Non – compliance is deemed to have occurred when any singular measurement is outside the required range of 6.0 to 9.5, as specified in Condition 7(1) Schedule C of the ECA.

Hastings WWTF - Monthly pH Effluent Monitoring 2024												
	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
Minimum pH	6.76	6.97	7.15	7.51	7.35	7.32	7.1	7.07	6.73	7.06	7.25	7.29
Maximum pH	8.83	8.85	8.71	8.53	8.42	7.87	8.11	7.86	7.86	7.98	8.72	8.73
Average pH	7.88	7.74	7.99	8.07	7.82	7.63	7.58	7.51	7.26	7.51	7.87	8.08

The above results show that the pH was maintained between 6.73 and 8.85 for the 2024 reporting period, which is within the compliance range of 6.0 to 9.5 specified in the ECA.

Hastings WWTF - Monthly Temperature (*C) Effluent Monitoring 2024												
	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
Minimum Temperature *C	5.1	5.5	6.2	8.6	12.8	16.6	19	19.1	17.7	14.2	10.8	5.5
Maximum Temperature *C	9.2	10	10.6	12.4	17.5	20.6	22.3	22.7	20.9	18.9	16.6	9.9
Average Temperature *C	7.4	7.4	8.6	10.6	15.1	18.2	20.8	21.1	19.4	15.7	13	8.4

There is no compliance range for the final effluent temperature, however the ECA requires that samples are collected and tested on-site for final effluent temperature, so the results have been included in this report.

### **Section 3 - ECA Condition 11(4) (c)**

There were no deviations from the monitoring schedule in ECA # 7754-B3GQNP. A sample calendar is located in Appendix II located at the end of this report.

### **Section 4 – ECA Condition 11(4) (d)**

Although the Hastings WWTF operated efficiently and within compliant limits as set out in ECA #7754- B3GQNP Condition 7(1) Schedule C, with the exception of a Non-Compliance in March, there were a few notable operational challenges of note.

1. During the spring when the temperatures are their lowest and flows have increased, we see a slight elevation in Suspended solids and continue to have issues with the ORP analyzers during this time of year. Operations staff are aware of these changes and are able to make process changes accordingly. The Municipality is presently in the planning stages to upgrade the disinfection system.
2. In March there was an issue with the SCADA and the aeration system that caused blowers not to turn on when required. This resulted in a lack of oxygen in the oxidation ditch and losing the majority of the mass in the ditch. Due to the cold temperatures this took almost one month to recover resulting in a Non-Compliance for TSS and TSS Loading that was reported to MECP on April 4/24.
3. There has been an increase in biosolids over the past few years and with current storage, an approved hauler has been required to haul to an approved storage lagoon during times when haulers are unable to remove the waste. Trent Hills is currently examining options to increase storage of biosolids.



**Section 5 – C of A Condition 11 (4) (e)**

Municipality of Trent Hills maintenance activities are based on the Worktech program. Preventative maintenance schedules have been set up by automatically generating work orders on a Monthly, Quarterly, Bi-Annual or Annual basis for all pieces of equipment. This is based on the manufacturers recommended schedule and/or regulatory schedules.

Corrective or breakdown maintenance is completed as soon as problems are identified and are listed in the chart below. Each piece of equipment is visually inspected daily as part of general plant checks as well as the performance that is trended through SCADA.

Work orders are completed and entered into Worktech for historical purposes and this ensures that routine and preventative maintenance procedures are followed.

*Preventative Maintenance Work Orders Completed*

Summary of all Normal and Emergency Repairs 2024	
Month	Repair
January	CWD Repair Digester 1 Blower – grounding issue. Replace heat trace in chemical line – Alum Failed phone line in Hastings causing multiple alarm failures. Able to re-route to Campbellford SCADA temporarily and then add cellular backup line.
February	
March	Install isolation valves at North pumping station due to age and unable to travel fully. LMWS rebuild upper gear box on clarifier #1
April	Replace Pump #1 at North due to age.
May	MCC relocated from original to the updated MCC Room Blown capacitor on AC unit in MCC Room
June	
July	Rebuild Bisulphite pump Relocate aerator blowers to access from side of oxidation ditch
August	Replace Aerator Blower #4 – had two issues with the blower and sent to get rebuilt. Appears that the windings in the original were not sufficient.
September	Replace shaft in aerator #4 Replace Milltronics in Grinder Screen with new grinder install. Upon startup the new grinder contactors failed resulting in a delay to get this replaced and ordered under warranty.
October	New pump station panel installed at North Pumping Station. Upgrade completed to remove electrical from below ground.
November	Aerator Blower #2 failed – similar to #4 – rebuilt. LMWS repair clarifier #2 scum trough adjustment

***Section 6 – EC A Condition 11 (4) (f)***

Effluent control measures include daily plant checks and flow monitoring, in-house sampling and testing for operational parameters such as suspended solids, pH, soluble phosphorous and dissolved oxygen at least three times weekly. In house testing provides real time results, which enhance process and operational performance. All in house sampling and analysis is performed by certified operators utilizing methods and protocols for sampling, analysis and recording as specified in the Ministry’s Procedure F-10-1, “Procedures for Sampling and Analysis

Requirements for Municipal and Private Sewage Treatment Works”, the Ministry’s publication, “Standard Methods for the Examination of Water and Wastewater”.

All effluent samples collected during the reporting period to meet C of A sampling requirements were analyzed by SGS Lakefield, with the exception of pH and temperature. SGS Lakefield has been deemed by the Canadian Association for Laboratory Accreditation (CALA) to be an accredited laboratory, meeting strict provincial guidelines including an extensive quality assurance/quality control program.

**Section 7 – ECA Condition 11(4) (g)**

The Worktech system automatically generates work orders and schedules calibration and certification of Flowmeters and lab equipment.

These calibrations are carried out by a certified, third party qualified technician and performed on an annual basis. A copy of the 2024 Annual Calibration Record for the final effluent V-Notch weir flow meter is located in Appendix III.

**Section 8 – ECA Condition 11(4) (h)**

The following table provides continuous efforts made to meet Effluent Objectives:

Efforts Made to Meet the Effluent Objectives of Condition 6
1. Sampling effluent as per the C of A
2. Visual inspection of the plant and processes while performing rounds at minimum 3 times weekly.
3. Ensuring that Alum is being dosed
4. Monitor chemical system, verify ORP sensors are in calibration to ensure proper disinfection
5. Calibrating laboratory equipment according to manufacturer’s recommendations
6. Monitoring treatment processes through regular in house lab routines
7. Monitoring and further integrating SCADA
8. Performing preventative maintenance and completing work orders
9. Closely monitoring solids inventory in the plant as well as detention times
10. By conducting flow monitoring, flushing and CCTV in collection system we are working to reduce flows to the wastewater plant and ease the stress on the process during times of increased flow.

The tables in Section 2 illustrate that all effluent **objectives** were met during the reporting period for CBOD, Total Suspended Solids and Total Phosphorous with the exception of a Non-Compliance for Total Suspended Solids Average and Total Suspended Solids Loadings as explained above and reported to the MECP on April 4/24. The objective for E.Coli met the objective 11 out of 12 months and Total Chlorine Residual met the objective in 12 out of 12 months.

Condition 6 – Effluent Objectives, subsection (1) (b) states: *The Owner shall use best efforts to: ensure that the effluent from the works 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 discoloration on the receiving waters.*”

There were no incidences throughout the reporting period of Condition 6 (1) (b)

Condition 6 – Effluent Objectives, subsection (1) (c) states, “The Owner shall design and undertake everything practicable to operate the Sewage Treatment Plant in accordance to the following objectives: c. Annual Average Daily Influent Flow is within the Rated Capacity of the Sewage Treatment Plant.”

The following table provides a comparison of the rated capacity of the works to the actual flow data obtained during the 2024 reporting period.

Hastings WWTF - Average Daily Flow m3/D 2024												
	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
Average Daily Flow m3/D	622	660	682	946	774	663	651	503	476	426	447	629
Rated Capacity m3/D	1060	1060	1060	1060	1060	1060	1060	1060	1060	1060	1060	1060

The above table shows that the Hastings WWTF operated within the rated capacity for 12 out of 12 months in 2024. The Annual Average Daily Influent Flow of 623 m3/day is 59% of the Rated Capacity of the Sewage Treatment Plant of 1060 m3/d. As stated below in Section 13, the Municipality continues to monitor flows, identifies problem areas, and follows up with repairs.

**Section 9 – ECA Condition 11 (4) (i)**

During the 2024 reporting period, 1480 m3 of biosolids were hauled and disposed from the Hastings Wastewater Treatment Facility. This amount is higher than 905 m3 in 2023 and 1488 m3 in 2022. We expect the amount of biosolids generated for the next reporting period to remain consistent with present rates.

The final disposal method for the biosolids produced is land application on NASM certified land. Tabulated below is a summary of the volumes of biosolids, the dates and the location of where biosolids were disposed of during the 2024 reporting period.



Hastings - Sites Applied with Biosolids 2024

Date 2024	Farmer/ Landowner	NASM Plan	Lot	Con	Municipality	Ward	Field #	Application Method	Total Volume (m3)	Area Spread (ha)
Feb 13-14	GFL Storage Facility (Smith's)	ECA# S-3708-42	19	6	Township of Loyalist	Ernestown			168	
May 3 - 7	Goodhand - Kass	24979	19	11	Township of Asphodel-Norwood	Asphodel	3	Surface	512	5.2
July 23 - 24	McGrisken, John	60435	17	7	Township of Asphodel-Norwood	Asphodel	2	Surface	280	2.33
Oct 23	Stockdale - Terpstra	61409	17-18	6	Township of Asphodel-Norwood	Asphodel	1	Surface	320	2.6
Nov 28	McFaul - Atkins Rd.	60901	18-19	2	City of Belleville	Thurlow	18	Surface	200	2.8
<b>Totals</b>									<b>1480</b>	<b>12.93</b>

**Section 10 – ECA Condition 11 (4) (j)**

There are no community complaints to report for this period.

**Section 11 – ECA Condition 11 (4) (k)**

There were no by-pass, spills or abnormal discharge events during the 2024 reporting period.

**Section 12 – ECA Condition 11 (4) (l)**

There were no Notice of Modification to Sewage Works forms completed during the 2024 reporting period.

**Section 13 – ECA Condition 11 (4) (m)**

The Hastings sewer system has not experienced Bypass/Overflow situations in recent years and the Sewer system is 100% separated. In efforts to eliminate the possibility of Overflow/Bypass events as well as Inflow and Infiltration in the system, the Municipality has a multi-year plan in place to flush and CCTV a portion of the system each year. This means that all areas of the wastewater collection systems in Trent Hills are flushed, and CCTV inspected over a seven (7) year maintenance cycle. Areas identified for repair, are completed immediately or in some situations are identified for future rehabilitation.

During periods of elevated flow, municipal staff complete flow monitoring to identify areas of concern.

The Municipal budget for CCTV and flushing will remain at \$57,000 for the three (3) systems within the Municipality of Trent Hills and \$23,000 for repairs.

**Wastewater System Effluent Regulations**

The Wastewater Systems Effluent Regulations (WSER) is a federal regulation under the Fisheries Act that came into effect on January 1, 2013.

These regulations apply to a wastewater system that:

- Is designed to collect an average daily volume (ADV) of 100m<sup>3</sup> or more of influent, or
- Collects an average daily volume (ADV) of 100m<sup>3</sup> or more of influent during any calendar year.

An owner or operator must calculate, for each calendar year, the Average Daily Volume of effluent deposited via the system's final discharge point according to the following formula:

***Sum of daily effluent volumes deposited (m<sup>3</sup>) / number of days in calendar year (365 days)***

**Note:** The formula uses the number of days in the calendar year **Not** the number of days discharging.

Sampling and reporting requirements are dependent on the system type and its annual average daily volume of effluent. In 2024, the Hastings Wastewater Treatment Plant deposited 623 m3 average daily effluent volumes.

The quarterly reports monitoring reports were submitted to Environment Canada as required and required sampling was completed and the plant met all quality standards in 2024.

Any questions regarding the information contained in this report should be directed to the undersigned at 705-653-7113

A handwritten signature in cursive script that reads "Troy Stephens".

Troy Stephens,  
Manager of Water and Wastewater Services  
Municipality of Trent Hills

# **APPENDIX I**

2024 Hastings WWTF Performance Report

	January	February	March	April	May	June	July	August	September	October	November	December	Total	Average	Mn	Max
<b>Flows</b>																
Effluent Flow Total (m3)	19281	19144	21145	28378	23983	19880	20193	15602	14284	13195	13418	19503	228006			
Effluent Flow Avg. (m3/d)	622	660	682	946	774	663	651	503	476	426	447	629		623.25		
Effluent Flow Min. (m3/d)	456	569	585	630	588	562	530	410	411	377	375	247			247	
Effluent Flow Max. (m3/d)	622	826	884	1355	927	825	890	603	583	500	502	1196				1355
<b>Raw Temperature</b>																
Min	7.7	7.2	7.6	8.8	7.55	15	16.9	18.1	17.8	15.1	13.6	9.9			7.2	
Max.	11.3	12.3	11.2	14.7	15	17.6	21	19.7	19.3	18.4	17.2	13.2				21
Avg.	9.7	9	9.42	11.3	13.53	16.1	18.4	18.7	18.7	17.1	15.2	11.8		14.1		
<b>Raw pH</b>																
Min.	7.41	7.27	7.33	7.27	7.41	7.3	6.97	7.08	6.8	6.9	7.05	7.43			6.8	
Max.	8.39	8.05	8.28	8.53	8.12	8.04	7.81	7.79	7.53	8.07	8.3	8.49				8.53
Avg.	7.76	7.65	7.66	7.93	7.64	7.53	7.4	7.38	7.23	7.32	7.58	7.69		7.56		
# of Samples	14	12	15	14	14	12	14	13	13	13	13	12				
<b>BOD</b>																
Raw BOD mg/L	132	161	194	175	160	127	176	113	343	283	290	176		194		
Raw BOD Loading	212.23	243.88	284.41	185	206.8	191.65	270.19	224.52	720.38	664.87	648.38	279.75		344.34		
<b>Effluent CBOD</b>																
Effluent Average cBOD5 mg/L	5.4	3.5	21.4	5.6	5.5	4.5	7.4	4	7	9	5.5	4.6		6.95		
Loading cBOD5 kg/d	4.665	2.2	15.68	6.3	4.642	3.534	8.142	2.01	5.47	3.72	3.13	2.89		5.20		
<b>TSS</b>																
Raw Avg. TSS	150	152	202	250	175	254	208	240	173	144	171	282		200		
Raw # Samples	1	1	1	1	1	1	1	1	1	1	1	1	12			
Effluent Avg. TSS	4.4	2.75	39	9	7	5	5	4	5	8	15	8		9.3		
Effluent # Samples	5	4	5	5	4	4	5	4	5	4	4	5	54			
Loading TSS kg/d	3.11	2.31	31.03	8.51	5.41	3.31	3.51	2.01	2.57	3.51	6.48	5.96		6.48		
Percent Removal TSS	97.1	98.2	80.7	96.4	96	99	97.6	98.4	97.2	94.5	91.3	97.2		95.3		
<b>Total Phosphorous</b>																
Raw Avg. TP	3.64	1.98	2.31	2.46	3.29	1.15	4.13	2.24	4.4	5.04	3.67	5.68		3.33		
Raw # Samples	1	1	1	1	1	1	1	1	1	1	1	1	12			
Effluent Avg. TP	0.07	0.05	0.63	0.11	0.1	0.06	0.09	0.06	0.06	0.06	0.07	0.1		0.12		
Effluent # Samples	5	4	5	5	4	4	5	4	5	4	4	5	54			
Loading TP	0.05	0.032	0.486	0.132	0.07	0.03	0.05	0.03	0.02	0.03	0.17	0.06		0.10		
Percent Removal TP	97.8	97.5	69.17	94.3	96.9	95.21	97.86	97.23	98.68	98.61	95.31	98.2		94.7		
<b>Nitrogen</b>																
Raw Avg. TKN mg/l	35.5	17.9	22.9	20	27.6	22.5	35.6	18.3	32.4	41.6	30.4	41.6		28.9		
Raw # Samples TKN	1	1	1	1	1	1	1	1	1	1	1	1	12			
Effluent Avg. TKN mg/l	0.9	1.17	2.58	1.38	0.8	0.52	1.02	1.9	0.62	0.75	0.82	1.28		1.15		
Effluent Avg. TAN mg/l	0.1	0.1	0.88	0.1	0.1	0.1	0.1	0.4	0.1	0.1	0.3	0.22		0.22		
Loading TAN kg/d	0.06	0.06	2.59	0.094	0.077	0.066	0.065	0.65	0.29	0.85	0.403	0.251		0.45		
Unionized Ammonia	0.001	0.002	0.021	0.002	0.002	0.001	0.001	0.003	0.001	0.001	0.003	0.003		0.003		
Effluent # Samples TAN	5	4	5	5	4	4	5	4	5	4	4	5	54			
<b>Nitrite + Nitrate NO3-N</b>																
Min.	12.1	12	0.1	9.16	13.5	22.5	7.87	16.8	10.4	12.5	11	13.7			0.1	
Max.	15.8	12.9	8.38	13.3	19	26.1	24.2	26.3	21.2	16.4	19.8	19.2				26.3
Average	13.9	12.3	4.93	11.19	16.7	24.4	18.33	22.3	15.3	14.2	15.3	15.5		15.36		
NO3-N # Samples	5	4	5	5	4	4	5	4	5	4	4	5	54			
<b>Nitrite NO2-N</b>																
Min.	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03			<0.03	
Max.	<0.03	<0.03	7.18	1.37	<0.03	0.03	0.03	0.03	<0.03	0.12	0.58	0.52				7.18
Average	<0.03	<0.03	2.28	0.29	<0.03	0.03	0.03	0.03	<0.03	0.05	0.16	0.13		0.26		
NO2-N # Samples	5	4	5	5	4	4	5	4	5	4	4	5	54			
<b>Effluent pH</b>																
Min	6.76	6.97	7.15	7.51	7.35	7.32	7.1	7.07	6.73	7.06	7.25	7.29			6.73	
Max	8.83	8.85	8.71	8.53	8.42	7.87	8.11	7.86	7.86	7.98	8.72	8.73				8.85
Average	7.88	7.74	7.99	8.07	7.82	7.63	7.58	7.51	7.26	7.51	7.87	8.08		7.75		
# of Samples	14	12	16	14	14	13	14	13	13	13	13	14	163			
<b>Effluent Temperature</b>																
Min.	5.1	5.5	6.2	8.6	12.8	16.6	19	19.1	17.7	14.2	10.8	5.5			5.1	
Max.	9.2	10	10.6	12.4	17.5	20.6	22.3	22.7	20.9	18.9	16.6	9.9				22.7
Avg.	7.4	7.4	8.6	10.6	15.1	18.2	20.8	21.1	19.4	15.7	13	8.4		13.81		

<b>Disinfection</b>														
Chlorine Used kg/d	2.28	2.26	3.81	4.99	2.52	2.61	3.42	2.48	1.95	2.31	1.9	2.69		2.77
Chlorine Used Total L	558.8	517.2	930.7	1180.3	615.8	618.3	836.1	606.3	462.9	564.8	449.2	657.9	7998.3	
Dosage	3.68	3.43	5.55	5.46	3.25	3.95	5.19	4.96	4.17	5.4	4.24	4.61		4.49
Effluent # Samples	5	4	5	5	4	4	5	4	5	4	4	5	54	
GMD Ecoli	40	7.02	1216	18	17	18	11	2.8	5.9	20	8	8.27		16.5
UVT	78.5	78.4	44.6	72.6	78.6	71	73.3	74.2	75.5	76.8	70.6	72.7		72.23
<b>Dechlorination</b>														
Sodium Bisulphite Total L	522.4	529.4	574.1	842.6	658	977.1	924.2	496.1	453.8	584.2	262	370	7193.9	
Total Chlorine Residual	0.02	0.01	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01		0.01
# of Samples	14	12	16	14	14	13	14	13	13	13	13	14	163	
<b>Sludge Hauled m3</b>														
	0	168	0	0	512	0	280	0	0	320	200	0	1480	
<b>Alum</b>														
Alum Used Total kg	576.6	539.4	1191.7	1398	1444.6	1398	1444	1338.4	867	895.9	867	1099.9	13060.5	
Average Dosage	30.76	28.42	56.45	50.71	61.03	71.01	72.81	85.86	61.2	68.19	65.05	59.83		59.28
<b>Imported Sewage</b>														
Northumberland County Just In Time					504	420	474	378						1776
Total Imported Sewage					504	420	474	378						1776
<b>BOD5</b>														
					65	26	24	33						37
Total Suspended Solids					22	13	60	16						27.75
Total Phosphorous					2.38	2.97	3.6	2.54						2.87
TKN					457	503	596	424						495
Ammonia + Ammonium					420	309	416	413						390
<b>Leachate Related Effluent Sampling</b>														
Boron	0.12			0.085			0.157			0.089				0.113
Cobalt	0.000155			0.000131			0.000207			0.000108				0.00015
Magnesium	7.01			6.92			8.35			7.44				7.43
Manganese	0.00388			0.0307			0.00205			0.00399				0.01016
Potassium	8.14			7.32			12.2			9.94				9.40
Strontium	0.254			0.236			0.481			0.325				0.324
Bis(2-ethylhexyl) Phthalate	<2			<2			<2			<2				<2



# **APPENDIX II**

2025 Hastings WWTF Sample Schedule

### 2025 – Waste Water Calendar - Hastings

January							February							March							April						
Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat
			1	2	3	4						1							1	30	31	1	2	3	4	5	
5	6	7	8	9	10	11	2	3	4	5	6	7	8	2	3	4	5	6	7	8	6	7	8	9	10	11	12
12	13	14	15	16	17	18	9	10	11	12	13	14	15	9	10	11	12	13	14	15	13	14	15	16	17	18	19
19	20	21	22	23	24	25	16	17	18	19	20	21	22	16	17	18	19	20	21	22	20	21	22	23	24	25	26
26	27	28	29	30	31		23	24	25	26	27	28		23	24	25	26	27	28	29	27	28	29	30			

May							June							July							August						
Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat
				1	2	3	1	2	3	4	5	6	7			1	2	3	4	5						1	2
4	5	6	7	8	9	10	8	9	10	11	12	13	14	6	7	8	9	10	11	12	3	4	5	6	7	8	9
11	12	13	14	15	16	17	15	16	17	18	19	20	21	13	14	15	16	17	18	19	10	11	12	13	14	15	16
18	19	20	21	22	23	24	22	23	24	25	26	27	28	20	21	22	23	24	25	26	17	18	19	20	21	22	23
25	26	27	28	29	30	31	29	30						27	28	29	30	31			24	25	26	27	28	29	30

September							October							November							December						
Su	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat
31	1	2	3	4	5	6				1	2	3	4							1	30	1	2	3	4	5	6
7	8	9	10	11	12	13	5	6	7	8	9	10	11	2	3	4	5	6	7	8	7	8	9	10	11	12	13
14	15	16	17	18	19	20	12	13	14	15	16	17	18	9	10	11	12	13	14	15	14	15	16	17	18	19	20
21	22	23	24	25	26	27	19	20	21	22	23	24	25	16	17	18	19	20	21	22	21	22	23	24	25	26	27
28	29	30					26	27	28	29	30	31		23	24	25	26	27	28	29	28	29	30	31			

Weekly – Final Effluent – Composite for cBOD5, TSS, Total P, TKN, Total Ammonia Nitrogen, Nitrite, and Nitrate, Unionized Ammonia, E. Coli, pH, Temp., Total Residual Chlorine
Bi-weekly WSER Requirements – Final Effluent Composite for CBODs, TSS
Monthly – Raw Sewage – Composite for BOD's, TSS, Total P, TKN – Sewage Sludge – Grab for TS, Volatile Solids, Total P, TKN, NH3 + NH4, as N, NO2 & NO3 as N, Metal Scan (AS, Cd, Co, Cr, Cu, Hg, Mo, Ni, Pb, Se, Sn) and potassium and E.Coli – Imported Sewage (if receiving in calendar month) – BOD5, TSS, TP, TKN
Quarterly Effluent – Boron, Cobalt, Magnesium, Manganese, Potassium, Strontium, Bis Phthalate
Statutory Holiday
Annual Leachate Monitoring (if receiving in year) – see ECA and contact lab to prepare bottles

# **APPENDIX III**

2024 Hastings WWTF Calibration Report

**Tower Electronics Canada Inc. Calibration Certificate**

---

**Customer:**

Troy Stephens  
 Wastewater Collection/Treatment Plant Head Operator  
 Municipality of Trent Hills  
 705-653-1870

**Calibration by:**

Dan Matchett

**Standards:**

Fluke 289 S/N 96220182 NIST Cal Due April 2025

**Instrument Type**

Open Channel

**Method of verification**

Head/Level Simulation

**Units:** CMD  
**Zero:** 0.00  
**Span:** 3916.80  
**Totalizer:** M3

**Meter Information**

Date of Test: 2024-05-13  
 Location: Hastings WWTP  
 Meter Under Test: Effluent Flow  
 Client Tag: n/a  
 Manufacturer: Miltronics  
 Model: OCMIII  
 Serial Number: 05020C022466  
 Totalizer As Found: 884571m3  
 Totalizer As Left: 884587m3  
 Acceptable Error: 15%

**Programming Parameters:**

Max Flow: 3916.8CMD  
 Max Head: 0.254M  
 Primary Device: V-Notch 90 Degrees  
 Allowable Error: 15%  
**Calibration Due:** May-25

Flow Test						
Head Applied	Sim Flow	Meter Display	Current Output	Disp Error%	mA Error %	
0.000	0.000	0.000	4.007	0.000	0.175	
0.050	66.700	70.000	4.289	0.084	0.387	
0.125	658.700	701.000	6.812	1.080	1.812	
0.200	2132.900	2339.000	13.622	5.262	7.152	
0.250	3726.000	3859.200	19.774	3.401	2.879	
Average Error%				1.97	2.48	
Result:				PASS	PASS	

Totalizer Test		
Sim Flow Rate	3726.000	CMD
Start Totalizer	884580.000	M3
End Totalizer	884585.000	M3
Volume Simulated	5.000	M3
Time(Seconds)	113.330	
Calculated Totalizer(MUT)	4.887	
Error%	2.305	
Result:	PASS	

**Comments:**

Unit passes verification.  
 Primary device installation conditions conforms to ISCO Open Channel Flow Measurement Handbook Chapter 3 guidelines.  
 Exponent 2.5. Range at zero 109.99CM, Blanking 61.0169CM, Max Head 0.254M

# **APPENDIX IV**

2024 Hastings WWTF Biosolids Reports



## Hastings - Sites Applied with Biosolids 2024

Date 2024	Farmer/ Landowner	NASM Plan	Lot	Con	Municipality	Ward	Field #	Application Method	Total Volume (m3)	Area Spread (ha)
Feb 13-14	GFL Storage Facility (Smith's)	ECA# S-3708-42	19	6	Township of Loyalist	Ernestown			168	
May 3 - 7	Goodhand - Kass	24979	19	11	Township of Asphodel-Norwood	Asphodel	3	Surface	512	5.2
July 23 - 24	McGrisken, John	60435	17	7	Township of Asphodel-Norwood	Asphodel	2	Surface	280	2.33
Oct 23	Stockdale - Terpstra	61409	17-18	6	Township of Asphodel-Norwood	Asphodel	1	Surface	320	2.6
Nov 28	McFaul - Atkins Rd.	60901	18-19	2	City of Belleville	Thurlow	18	Surface	200	2.8
<b>Totals</b>									<b>1480</b>	<b>12.93</b>

# **APPENDIX V**

2024 Hastings WWTF Annual Leachate  
Sampling



SGS Canada Inc.  
P.O. Box 4300 - 185 Concession St.  
Lakefield - Ontario - K0L 2H0  
Phone: 705-652-2000 FAX: 705-652-6365

Project : PO#410-H

09-July-2024

**Mun of Trent Hills (Hastings WWTF)**

Attn : Erin Kelsey

Date Rec. : 02 July 2024  
LR Report: CA13034-JUL24

66 Front Street, P.O. Box 1030  
Campbellford, ON  
K0L-1L0, Canada

Copy: #1

Phone: 705-653-1900 Ext 243  
Fax: 705-653-5203

## CERTIFICATE OF ANALYSIS

### Final Report

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: 3BF49 Northumberland County Leachate
Sample Date & Time					02-Jul-24 12:00
Temperature Upon Receipt [°C]	---	---	---	---	18.0
Biochemical Oxygen Demand (BOD5) [mg/L]	03-Jul-24	15:12	08-Jul-24	11:46	4
Total Suspended Solids [mg/L]	05-Jul-24	09:36	05-Jul-24	15:39	5
pH [No unit]	03-Jul-24	08:34	03-Jul-24	16:15	7.73
Temperature @ pH [°C]	03-Jul-24	08:34	03-Jul-24	16:15	17.3
Alkalinity [mg/L as CaCO3]	03-Jul-24	08:34	03-Jul-24	16:15	153
Conductivity [uS/cm]	03-Jul-24	08:34	03-Jul-24	16:15	906
Total Dissolved Solids [mg/L]	02-Jul-24	18:38	03-Jul-24	16:04	606
Chemical Oxygen Demand [mg/L]	04-Jul-24	11:26	08-Jul-24	11:46	33
Total Kjeldahl Nitrogen [as N mg/L]	08-Jul-24	15:46	09-Jul-24	11:18	0.7
Ammonia+Ammonium (N) [as N mg/L]	02-Jul-24	18:47	03-Jul-24	10:33	< 0.1
4AAP-Phenolics [mg/L]	03-Jul-24	09:03	04-Jul-24	10:22	0.002
Dissolved Organic Carbon [mg/L]	03-Jul-24	14:41	04-Jul-24	10:05	5
Hydrogen Sulphide [mg/L]	05-Jul-24	08:11	05-Jul-24	14:56	< 0.02
Sulphide [mg/L]	05-Jul-24	08:11	05-Jul-24	14:56	< 0.02
Chloride [mg/L]	03-Jul-24	15:59	04-Jul-24	16:06	130
Sulphate [mg/L]	03-Jul-24	15:57	04-Jul-24	16:06	89
Nitrite (as N) [mg/L]	03-Jul-24	14:39	08-Jul-24	17:24	< 0.03
Nitrate (as N) [mg/L]	03-Jul-24	14:39	08-Jul-24	17:24	18.2
Nitrate + Nitrite (as N) [mg/L]	03-Jul-24	14:39	08-Jul-24	17:24	18.2
Aluminum (total) [mg/L]	04-Jul-24	20:06	08-Jul-24	12:52	0.290
Arsenic (total) [mg/L]	04-Jul-24	20:06	08-Jul-24	12:52	0.0002
Beryllium (total) [mg/L]	04-Jul-24	20:06	08-Jul-24	12:52	< 0.000007
Boron (total) [mg/L]	04-Jul-24	20:06	08-Jul-24	12:52	0.111
Cadmium (total) [mg/L]	04-Jul-24	20:06	08-Jul-24	12:52	0.000006
Calcium (total) [mg/L]	04-Jul-24	20:06	08-Jul-24	12:52	88.8
Chromium (total) [mg/L]	04-Jul-24	20:06	08-Jul-24	12:52	0.00031
Copper (total) [mg/L]	04-Jul-24	20:06	08-Jul-24	12:52	0.004
Lead (total) [mg/L]	04-Jul-24	20:06	08-Jul-24	12:52	< 0.00009
Iron (total) [mg/L]	04-Jul-24	20:06	08-Jul-24	12:52	0.014
Magnesium (total) [mg/L]	04-Jul-24	20:06	08-Jul-24	12:52	7.85
Potassium (total) [mg/L]	04-Jul-24	20:06	08-Jul-24	12:52	9.16

Page 1 of 2

Results relate only to the sample tested. Data reported represents the sample submitted to SGS. Reproduction of this analytical report in full or in part is prohibited without prior written approval. Please refer to SGS General Conditions of Services located at <https://www.sgs.ca/en/terms-and-conditions> (Printed copies are available upon request.) Test method information available upon request. "Temperature Upon Receipt" is representative of the whole shipment and may not reflect the temperature of individual samples. SGS Canada Inc. Environment-Health & Safety statement of conformity decision rule does not consider uncertainty when analytical results are compared to a specified standard or regulation.

0003775226



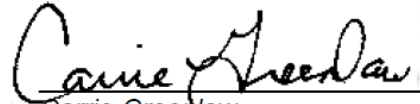


SGS Canada Inc.  
 P.O. Box 4300 - 185 Concession St.  
 Lakefield - Ontario - K0L 2H0  
 Phone: 705-652-2000 FAX: 705-652-6365

Project : PO#410-H  
 LR Report : CA13034-JUL24

Analysis	1:	2:	3:	4:	5:
	Analysis Start Date	Analysis Start Time	Analysis Completed Date	Analysis Completed Time	3BF49 Northumberland County Leachate
Selenium (total) [mg/L]	04-Jul-24	20:06	08-Jul-24	12:52	0.00013
Silver (total) [mg/L]	04-Jul-24	20:06	08-Jul-24	12:52	< 0.00005
Zinc (total) [mg/L]	04-Jul-24	20:06	08-Jul-24	12:52	0.016
Oil & Grease (total) [mg/L]	04-Jul-24	09:55	08-Jul-24	10:12	< 2

Note: Hydrogen sulphide (H<sub>2</sub>S) calculated using lab results for pH, temperature and conductivity.

  
 Carrie Greenlaw  
 Project Specialist,  
 Environment, Health & Safety