2025

Wastewater Facilities Annual Report

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Hamilton

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1.1 General Information

1.1.1 The Woodward Avenue Wastewater Treatment Plant

The Woodward Avenue Wastewater Treatment Plant (WWTP) is located at 700 Woodward Avenue in Hamilton, Ontario. It serves a population of approximately 547,678 and features an average day design capacity of 409 million litres per day (ML/d). In 2025, the Woodward Avenue WWTP treated an average of 298.39 ML/d.

1.1.2 The Woodward Avenue Wastewater Treatment Plant Process

The Woodward Avenue WWTP began operating in 1964. The original facility consisted of a main pumping station, bar screens, grit removal, primary clarifiers and a sludge digestion system. Over time, the Woodward Avenue WWTP underwent significant upgrades, including the addition of several new treatment processes and the expansion and enhancement of existing processes.

Today, the Woodward Avenue WWTP consists of a main pumping station that conveys flow to the headworks for preliminary treatment, including bar screens and grit removal with vortex separators. Ferric sulphate is added upstream of the preliminary treatment to aid in removing phosphorus. Next, wastewater flows into the primary clarifiers, where fine solids settle to the bottom of the tanks as “raw sludge,” while lighter materials, such as fats, oils and grease, float to the top as “scum.” Chain-and-flight systems continuously remove both sludge and scum.

Primary effluent flows into the aeration basins, where air is forced through diffusers at the bottom of the tanks to supply oxygen for microbial populations that process organic material and oxidize ammonia. Following aeration, wastewater flows into the secondary clarifiers, where solids settle out again, this time as “activated sludge” due to the high level of microbial activity. Most of this sludge is returned to aeration as “return activated sludge”, and the rest is removed as “waste activated sludge” for further processing. Secondary effluent then flows to the tertiary treatment process, receiving additional treatment via cloth-media disk filters, with chemical dosing points for ferric sulphate and polymer addition. The treated tertiary effluent is disinfected with chlorine and dechlorinated with sodium bisulphite from May 15 to October 15. The treated effluent is then released into Red Hill Creek.

The raw sludge from the primary clarifiers and waste activated sludge from the secondary clarifiers are thickened using a polymer and gravity belt thickeners before undergoing biological processing in the anaerobic digesters. The digestion process

produces methane biogas, which is utilized in one of two ways. The biogas can be used to generate electricity or refined to meet natural gas standards. The biogas utilized to generate electricity is stored in the “Hamilton Globe.” Any unused biogas is burned through a flare in accordance with the Environmental Compliance Approval (ECA). Digested solids are subsequently dewatered using a polymer and large centrifuges before being fed into the biosolids facility. This facility uses a thermal reduction process to create a fertilizer product. Operations and maintenance of the biosolids facility are contracted out to Synagro Technologies, which operates under a separate ECA from the Woodward Avenue WWTP listed under Subsection 1.2.1.

1.1.3 Improvements

1.1.3.1 Woodward Avenue Wastewater Treatment Plant Phase 2 Expansion Project

The City is currently in the early design phase of the Phase 2 Expansion Project following the completion of the Phase 1 Woodward Upgrades Project. Phase 2 will increase the average rated capacity from 409 ML/d to 500 ML/d and the peak capacity from 614 ML/d to 1,000 MLD. The same stringent effluent limits as in Phase 1 will be maintained. To support these capacity upgrades, the project includes the construction of a new third secondary treatment plant and expansion to the tertiary treatment facility. Furthermore, the work addresses the necessary asset renewal of the North Secondary Treatment Plant, North Digester Complex and South Digester Complex to further support the capacity upgrades.

1.1.3.2 Anaerobic Digester Improvements

In May 2024, the contract to upgrade Anaerobic Primary Digester #3 and Anaerobic Primary Digester #5 commenced. The sequence of work requires that upgrades to Anaerobic Primary Digester #5 be complete, with the digester returning to service before undertaking upgrades on Anaerobic Primary Digester #3. In 2025, the work performed on Anaerobic Primary Digester #5 and North Digester Complex included:

- concrete repairs
- process piping replacement
- cementitious waterproofing and interior roof coating replacement
- five mixers and associated draft tube replacement
- replacement of valves
- overflow piping upsizing to satisfy digester code requirements

In December 2025, the contractor began leak testing Anaerobic Primary Digester #5. Following testing, commissioning of the Digester #5 is targeted for Q1 2026, with a forecasted substantial performance date of February 2027.

1.1.3.3 Primary Clarifiers 1-8 and Scum Building Upgrades

By the end of 2025, the design for the upgrades to the primary clarifiers 1-8 and the Scum Building was completed. The scope of this project includes:

- structural rehabilitation of primary clarifiers 1-8 tanks, two associated process equipment galleries, and a cross gallery
- process mechanical upgrades (e.g., piping rehabilitation, chain-and-flight replacement)
- replacement of motor control centres servicing primary clarifiers 1-8 and Scum Building
- replacement of HVAC for primary clarifiers 1-8 and Scum Building

By the end of Q1 2026, the City is targeting issuance of a request for tenders to prequalified general contractors to perform upgrades of primary clarifiers 1-8 and the Scum Building. It is anticipated that construction will achieve substantial performance in 2028, two years from the start of construction.

1.1.3.4 Return Activated Sludge (RAS) Piping Upgrades

The north secondary clarifier RAS piping galleries require upgrades and replacements of RAS piping flanges, spools, drain valves and flow meters, an isolation gate between the clarifier tanks and miscellaneous improvements to the galleries and tank walkways. The contract will be tendered in Q2 of 2026, with construction commencing in Q3 and expected completion in Q2 of 2027.

1.1.3.5 Biosolids Facility Backflow Preventer Installation

The Biosolids Management Building is serviced by a 300 mm water main, which requires the installation of a backflow prevention device as per the City of Hamilton's Backflow Prevention By-law 10-103. This project will include installing twinned 300 mm backflow prevention devices in an above-grade heated enclosure adjacent to the Main Pumping Station. The contract will be tendered and awarded in Q2 of 2026, with completion expected in Q1 of 2027.

1.1.3.6 Machine Guarding Improvements

Deficiencies in machine guarding and guardrails have been identified across Hamilton wastewater facilities. Plant Maintenance and Technical Services in coordination with Plant Operations and Corporate Health and Safety has developed an action plan to address these deficiencies.

1.1.3.7 Thickened Sludge Building Biofilter Upgrades

The odour control system for the Thickened Sludge Building is a proprietary fibreglass reinforced plaster manufactured by Enduro Composites/Bay Products, which no longer produces or services these units. In 2023, the system was inspected to assess its

performance and operation. The inspection produced several recommendations that were completed. Upgrades completed in Q3 of 2025 include the biotrickling recirculation pump and additional input/output to improve system monitoring.

1.1.3.8 Headworks Upgrades

The City is undertaking building envelope and mechanical upgrades at the Headworks Building to address end-of-life infrastructure and improve long-term reliability. The scope of work includes replacing all existing rooftop HVAC units that have reached the end of their service life, as well as all exterior doors and frames. These upgrades will improve building performance, safety and maintainability. Work is anticipated to be completed by Q3 2026.

1.2 Regulatory Instruments

1.2.1 Environmental Compliance Approvals

1.2.1.1 Sewage

No. 9410-B65QRT: May 14, 2019 – Amended Environmental Compliance Approval

No. 4876-AWNRYL: June 21, 2018 – Biosolids Management Facility Environmental Compliance Approval

1.2.1.2 Air

No. 3677-6LBLSY: February 9, 2006 – Amended Certificate of Approval – Cogeneration Unit No. 5265-B77RLX: December 17, 2018 – Amended Environmental Compliance Approval

No. 9463-B2YLGW: July 26, 2018 – Biosolids Management Facility Environmental Compliance Approval

1.2.2 Effluent Requirements

The following effluent limits became effective on October 30, 2024, upon completion of construction of Contract 3 - Tertiary Treatment Facility and Secondary Treatment Expansion.

Table 1-1: Monthly Average Concentration Limits and Daily Loadings

*Total Residual Chlorine shall be non-detectable as measured by a method with a sensitivity of at least 0.02 mg/L

Parameter	Concentration Limit	Monthly Average Daily Loading Limit
cBOD	8.0 mg/L (Monthly Average)	3,272 kg/d
TSS	10.0 mg/L (Monthly Average)	4,090 kg/d
TSS	6.0 mg/L (Annual Average)	-
TP	0.30 mg/L (Monthly Average)	123 kg/d
Total Ammonia Nitrogen	3.0 mg/L (May 01 - Nov 30) 7.0 mg/L (Dec 01 - Apr 30) (Monthly Average)	-
E. coli	200 MPN/100 mL (May 15 - Oct 15) (Monthly Geometric Mean Density)	-
pH	Between 6.0 - 9.5 inclusive (Single Sample Result)	-
*Total Chlorine Residual	0.02 mg/L (Single Sample Result)	-

1.2.3 Sampling Procedures

Raw influent wastewater is sampled seven days per week. It is tested for alkalinity, ammonia (NH_3), carbonaceous biochemical oxygen demand (cBOD), potential of hydrogen (pH), soluble phosphorus (SP), total phosphorus (TP), total biochemical oxygen demand (tBOD), Total Kjeldahl Nitrogen (TKN) and total suspended solids (TSS). Twenty-four-hour composite samples are refrigerated before analysis at the on-site City of Hamilton Environmental Laboratory (CHEL).

Final effluent is sampled five days per week. It is tested for alkalinity, ammonia, cBOD, nitrates (NO_3), nitrites (NO_2), pH, SP, TP, TKN, TSS, and un-ionized ammonia. Twenty-four-hour composite samples are collected by samplers on both sides of the twin effluent channel and refrigerated before analysis at the CHEL. The average concentrations for the two samples are reported to the Ministry of the Environment, Conservation and Parks (MECP) for compliance purposes. Total chlorine residual is measured daily in the final effluent on a seasonal basis from May 15 to October 15. E. coli is sampled every week in the final effluent. The Compliance and Regulations section staff ensure that the sampling, testing and monitoring mandates are followed.

1.3 Environmental Compliance Approval Reporting Requirements

Regarding Condition 11 ‘Reporting’ in ECA #9410-B65QRT, the following information addresses the items listed under Subsection 4.

1.3.1 Condition 11 (4A) Influent Monitoring

In Appendix A, titled ‘Woodward Avenue WWTP Operating Data Summary’, the tables titled ‘Woodward Avenue WWTP Plant Flows’ and ‘Raw Influent Quality (Concentrations)’ outline influent plant flow quantities, including imported sewage and influent parameter concentrations in 2025, respectively.

Influent flow values in 2025 were very close to the five-year average, only marginally higher with lower total precipitation. This was a result of the rain distribution patterns in which 2025 saw a smaller number of high-intensity storm events, as opposed to a broader distribution in which a greater proportion of the rainfall is absorbed into the soil. Influent analytical data shows higher concentrations, particularly for TSS and TP. In 2023, the recycling process streams within the facility from the newly implemented tertiary treatment system, where backwash flows are returned to the Main Pumping Station, resulted in higher solids capture. The concentration results are greater than the prior two years following the implementation of the tertiary treatment system, but are affected by lower flows and lower total precipitation in 2025.

Table 1-2: Influent Quantity (Daily Average)

Year	Daily Average Plant Flow (ML/d)	Total Precipitation (mm)
2020	299.98	797
2021	284.99	938
2022	263.28	680
2023	321.56	991
2024	306.18	868
2025	298.39	701

Table 1-3: Influent Quality (Concentrations)

Year	TSS (mg/L)	cBOD (mg/L)	TP (mg/L)	SP (mg/L)	NH_3 (mg/L)	TKN (mg/L)
2020	281.20	178.22	5.49	1.53	21.40	35.30
2021	244.04	157.70	4.87	1.54	21.72	33.93
2022	261.93	157.51	5.22	1.65	25.55	36.66
2023	568.61	222.91	8.21	1.30	22.23	41.12
2024	499.02	197.85	7.39	1.32	22.28	38.99
2025	648.26	216.43	9.32	1.42	23.30	44.38

Table 1-4: Influent Quality (Loadings)

Year	TSS (kg/d)	cBOD (kg/d)	TP (kg/d)	SP (kg/d)	NH_3 (kg/d)	TKN (kg/d)
2020	82,605	52,239	1,611	447	6,258	10,329
2021	66,952	43,215	1,344	426	6,066	9,415
2022	66,165	39,862	1,331	414	6,489	9,309
2023	186,121	71,189	2,664	404	6,906	13,033
2024	150,062	57,738	2,246	365	6,303	11,238
2025	190,571	62,048	2,672	385	6,466	12,522

1.3.1.1 Imported Sewage

The Woodward Avenue WWTP receives imported sewage from approved septic haulers. These wastewater volumes are included in the overall plant flow data as they are discharged upstream of the influent flow meters. However, this represents a very small proportion (approximately 0.04% in 2025) of the overall flows into the Woodward Avenue WWTP.

The Woodward Avenue WWTP also receives untreated sludge from the Dundas WWTP, which is hauled by truck. This sludge is processed with the sludge generated in the primary treatment process at the Woodward Avenue WWTP. The Dundas WWTP sludge contributed approximately 9.3% of the total raw sludge volume in 2025.

Table 1-5: Imported Sewage (Quantity)

* Due to the labour disruption, the Septic Hauler volume was less than usual in June

Month	Septic Haulers m^3/mth	Sludge from Dundas m^3/mth
Jan.	5,212	3,216
Feb.	1,687	2,921
Mar.	4,306	2,761
Apr.	6,057	3,076
May	2,638	3,255
Jun.	*4.5	3,546
Jul.	3,203	3,667
Aug.	5,162	3,259
Sept.	5,566	3,225
Oct.	5,215	3,442
Nov.	4,549	3,098
Dec.	4,724	3,508
Total	**48,325**	**38,973**

1.3.2 Condition 11 (4B) Effluent Monitoring

In Appendix A, titled ‘Woodward Avenue WWTP Operating Data Summary’, the charts titled ‘Woodward Avenue WWTP Plant Flows’, ‘Final Effluent Quality (Concentrations)’, and ‘Final Effluent Quality (Loadings)’ outline effluent plant flow rates, concentrations and loadings achieved in 2025.

The Woodward Avenue WWTP reported four instances of non-compliance in 2025. On June 18 and August 1, 2025, operations recorded total residual chlorine results exceeding the effluent limit of 0.02 mg/L, based on a single sample. In both cases, necessary adjustments and repairs were completed and resampling took place to confirm compliance.

In February and December 2025, operations reported monthly average effluent TSS concentrations exceeding the effluent limit of 10.0 mg/L due to a combination of factors, including cold temperatures, higher flows, a large solids loading from water treatment plant maintenance, as well as mechanical issues in the filter basins. These high monthly TSS concentrations resulted in an annual average TSS concentration of 7.04mg/L which exceeded the annual average effluent concentration limits of 6.0 mg/L.

This non-compliance was reported verbally to the MECP on March 4, 2026, and a written notification was made on March 6,2026.

Compliance with all other effluent parameter concentrations and loading limits was met throughout the year. Effluent concentrations for TSS and cBOD are slightly higher than in 2024; however, other parameters are consistent with previous years.

Contract 3 - Tertiary Treatment Facility and Secondary Treatment Expansion of the Woodward Upgrades Project was completed on October 30, 2024. With this completion, the facility is required to meet more stringent effluent compliance limits for TSS, cBOD and TP. Additionally, the facility is now required to meet new limits for ammonia and E. coli concentrations.

Table 1-6: Final Effluent Quality (Concentrations)

Year	TSS (mg/L)	cBOD (mg/L)	TP (mg/L)	SP (mg/L)	NH_3 (mg/L)	TKN (mg/L)
2020	8.38	5.26	0.572	0.362	1.87	3.12
2021	6.91	4.04	0.573	0.401	1.29	2.42
2022	6.10	4.31	0.433	0.302	2.82	3.80
2023	4.34	2.93	0.200	0.064	1.03	1.91
2024	5.18	2.79	0.210	0.058	0.57	1.48
2025	7.04	3.52	0.225	0.043	0.84	1.93

Table 1-7: Final Effluent Quantity (Loadings)

Year	TSS (kg/d)	cBOD (kg/d)	TP (kg/d)	SP (kg/d)	NH_3 (kg/d)	TKN (kg/d)
2020	2,644	1,637	171	106	582	959
2021	2,045	1,151	162	112	354	676
2022	1,701	1,159	115	79	744	1,003
2023	1,378	949	63	20	321	606
2024	1,654	867	63	16	158	436
2025	2,237	1,085	68	12	241	566

1.3.3 Condition 11 (4C) Deviation from the Monitoring Schedule

The City successfully achieved compliance with the Woodward Avenue WWTP's ECA monitoring requirements. This can be attributed to the built-in redundancy of the sampling frequencies, which ensured that sampling exceeded the ECA requirements. The table below outlines deviations from the 2025 monitoring schedule.

Table 1-8: 2025 Missed Scheduled Samples

Date	Sample Location	Reason for Deviation
2025-01-29	Final Effluent 2	No sample due to autosampler malfunction
2025-06-28	Final Effluent 1	The sample was discarded due to low volume
2025-09-13	Influent West	No sample due to autosampler malfunction
2025-09-14	Influent West	No sample due to autosampler malfunction
2025-09-18	Final Effluent 2	No sample due to autosampler malfunction
2025-09-24	Influent East	No sample due to autosampler malfunction
2025-09-27	Influent East	No sample due to autosampler malfunction
2025-10-02	Influent West	No sample due to autosampler malfunction
2025-10-09	Influent West	No sample due to autosampler malfunction
2025-10-17	Influent West	No sample due to autosampler malfunction
2025-12-15	Influent West	No sample due to autosampler malfunction

Malfunction of an autosampler triggers staff to promptly generate a work order, resulting in repairs by Plant Maintenance staff.

1.3.3.1 Condition 11 (4C) 2026 Sampling Schedule

In 2026, the City will be using the following schedule to fulfill the sampling requirements of the Woodward Avenue WWTP's ECA Monitoring Program (Schedule D).

Table 1-9: Influent Sampling Frequency

Parameter	Sample Type	Frequency
pH	Grab Sample	Weekly
tBOD	24-hour composite	Daily
TSS	24-hour composite	Daily
TP	24-hour composite	Daily
TKN	24-hour composite	Daily

Table 1-10: Primary Effluent Sampling Frequency

Parameter	Sample Type	Frequency
tBOD	24-hour composite	Daily
TSS	24-hour composite	Daily

Table 1-11: Final Effluent Sampling Frequency

Parameter	Sample Type	Frequency
E. coli	Grab sample	Weekly (May 15 to Oct 15)
Total Residual Chlorine	Grab sample field analysis	Daily (May 15 - Oct 15)
pH	Grab sample field analysis	Weekly
Temperature	Grab sample field analysis	Weekly
Un-ionized Ammonia as NH_3	Calculated	Weekly
cBOD	24-hour composite	Five times per week
TSS	24-hour composite	Five times per week
TP	24-hour composite	Five times per week
Ammonia as Nitrogen	24-hour composite	Five times per week
TKN	24-hour composite	Five times per week
Nitrate as Nitrogen	24-hour composite	Five times per week
Nitrite as Nitrogen	24-hour composite	Five times per week
Metals (B, Co, Mg, Mn, K, Sr)	Grab sample	Monthly
Bis (2-ethylhexyl) Phthalate	Grab sample	Monthly

Table 1-12: Biosolids (Cake) Sampling Frequency

Parameter	Sample Type	Frequency
Total Solids	Grab sample	Two times per month
TP	Grab sample	Two times per month
Ammonia as Nitrogen	Grab sample	Two times per month
Nitrate as Nitrogen	Grab sample	Two times per month
Metals (As, Cd, Co, Cr, Cu, Pb, Hg, Mo, Ni, K, Se, Zn)	Grab sample	Two times per month

1.3.4 Condition 11 (4D) Operating Problems and Corrective Action

1.3.4.1 Secondary Effluent Turbidity

Plant Operations staff continued to observe turbid secondary effluent throughout 2025. Investigations at the Woodward Avenue WWTP continue, including process optimization studies.

1.3.4.2 Tertiary Filter Equipment Degradation

In Q1 2025, filter inspections revealed that the filter rotating assemblies were shifting in the filter basin. This compromised the lip seal and accelerated wear on the filter cloth. Staff realigned the rotating assemblies, added additional locking collars and replaced disk segments.

1.3.4.3 Tertiary Polymer Start-Up

A trial to dose polymer upstream of the tertiary treatment process began in Q2 2025. Full-scale testing and implementation were carried out throughout the year. The commissioning process presented challenges due to the lack of a historical baseline, and efforts are being made to determine appropriate dosages and an operational strategy.

1.3.4.4 Limited Digester Capacity

In 2025, the Woodward Avenue WWTP operated with only two primary digesters, as Digester #5 remained out of service due to an ongoing capital refurbishment project. Operating with reduced digester capacity made solids retention more difficult, resulting in more frequent digester overflows that returned solids to the main pumping station.

This reduced capacity also reduced hydraulic retention time, which, in turn, negatively affected digester temperatures.

1.3.4.5 Labour Disruption

A labour disruption occurred from May 14, 2025, to July 16, 2025, due to strike action taken by the City's, Hamilton Ontario Water Employees Association (HOWEA) union. HOWEA represents 55 members who work at Hamilton Water in positions including Water/Wastewater Operators, Millwrights, Electricians, and Instruments & Control Technicians. During this time, the City implemented comprehensive contingency plans to maintain critical facilities operations and ensure the continued delivery of water and wastewater services. Contingency plans were submitted to the MECP in accordance with Ontario Regulation 129/04: Licensing of Sewage Works Operators. The MECP accepted this plan and there were no compliance issues related to the labour disruption during this time.

1.3.5 Condition 11 (4E) Maintenance Activities

City Plant Maintenance staff based at the Woodward Avenue WWTP carry out regular plant maintenance. Typically, a computerized maintenance management system schedules and tracks routine and preventative maintenance. Larger or specialized maintenance activities are completed by third-party external contractors.

Significant maintenance activities completed at the facility in 2025 are provided in Appendix B, titled 'Maintenance Activities'. In February 2024, a cybersecurity incident caused an information technology (IT) outage that affected multiple systems across the City of Hamilton's network. Although some systems have been restored since then, the work order system and the databases containing information on wastewater system expenses have not yet been recovered.

1.3.6 Condition 11 (4F) Effluent Quality Assurance and Control Measures

The City of Hamilton Environmental Laboratory, which is accredited by the Canadian Association for Laboratory Accreditation Incorporated, performs analytical tests to monitor required parameters. The WWTP's operation and performance are monitored by licensed operators and the management team. Standard operating procedures, emergency plans, equipment, preventative maintenance and a team of support staff help ensure a rapid and effective response to issues and maintain high-quality effluent and biosolids.

The City's Wastewater Quality Management System (WWQMS) was fully implemented in 2021. The City's WWQMS was endorsed by Council on March 29, 2023. The City updates the Council annually on the performance of the WWQMS. The WWQMS was implemented to ensure the effective and efficient collection and treatment of wastewater that protects the environment, meets legal and regulatory requirements, and meets the City's commitment to operating and maintaining a high-quality wastewater system.

1.3.7 Condition 11 (4G) Monitoring Equipment Calibration and Maintenance

Appendix C, titled ‘Calibration and Maintenance of Monitoring Equipment’, table titled ‘Woodward Avenue WWTP Calibration and Maintenance of Monitoring Equipment,’ contains records of the calibrations performed on monitoring equipment in 2025.

1.3.8 Condition 11 (4H) Design Objectives – Efforts Made and Results Achieved

Efforts made to achieve design objectives include:

- continual monitoring and periodic adjustment of processes by licensed and highly skilled operators
- continuous sampling and monitoring to ensure compliance with the City of Hamilton’s Sewer-Use By-law #14-090 and follow up with contraventions to take appropriate enforcement actions
- preventive maintenance routines of vital components

Schedule B of the Woodward WWTP ECA establishes the following design objectives:

Table 1-13: Primary Effluent Overflow Design Objectives

Effluent Parameter	Averaging Calculator	Objective
tBOD	Annual Average Removal Percentage	30%
TSS	Annual Average Removal Percentage	50%
E. coli	Monthly Geometric Mean Density	<1,000 MPN/100 mL (May 15 - Oct 15)
Total Residual Chlorine	Single Sample Result	Non-detect (when chlorine is in use)

Removal percentages for tBOD and TSS during primary effluent overflow events can be found in Appendix A, titled ‘Woodward Avenue WWTP Operating Data Summary’ in the table titled ‘Primary Effluent Overflow Removal Quality.’ In 2025, the Woodward Avenue WWTP achieved an annual average removal of 61% of tBOD and 68% of TSS. These values meet the ECA design objectives of 30% and 50%, respectively.

Primary effluent overflow results for E. coli and total residual chlorine can be found in Appendix A, titled ‘Woodward Avenue WWTP Operating Data Summary’ in the table titled ‘Primary Effluent Overflow Disinfection.’ E. coli results met the objective of <1000

MPN/100 mL in one out of the two events that occurred during the disinfection season. Total chlorine residual results for primary effluent overflow following dechlorination met the non-detect objective in four of the eight samples collected during the two events that happened during the disinfection season. These objectives were applicable for the first time in 2025, with the completion of construction of Contract 3 - Tertiary Treatment Facility and Secondary Treatment Expansion, occurring on October 30, 2024 and operations staff continue to optimize the chlorination and dechlorination process to ensure chlorine dosage is adequate to control E. coli levels and sodium bisulphite dosage is adequate to counter any residual chlorine. The disinfection of primary effluent overflow is a new process for the Woodward Avenue WWTP, and operations continue to work on identifying appropriate dosages of chlorine and sodium bisulphite.

Table 1-14: Final Effluent Design Objectives

* Total Residual Chlorine shall be non-detectable as measured by a method with a sensitivity of at least 0.02 mg/L

Effluent Parameter	Averaging Calculator	Design Objectives
cBOD	Monthly Average Effluent Concentration	5.0 mg/L
TSS	Monthly Average Effluent Concentration	5.0 mg/L
TP	Monthly Average Effluent Concentration	0.18 mg/L
Total Ammonia Nitrogen	Monthly Average Effluent Concentration	2.0 mg/L (May 01 - Nov 30) 5.0 mg/L (Dec 01 - Apr 30)
E. coli	Monthly Geometric Mean Density	<100 MPN/100 mL (May 15 to October 15)
pH	Single Sample Result	6.5 - 8.5 inclusive
Total Residual Chlorine *	Single Sample Result	Non-detect (when chlorine is in use)
TSS	Annual Average Daily Effluent Loading	1,227 kg/d

The Woodward Avenue WWTP did not meet final effluent design objectives for TSS and TP in 2025, except for TP concentration in October. Concentrations of final effluent cBOD and ammonia met the objectives throughout 2025, except for cBOD in December. Optimization of the new tertiary treatment process was on-going throughout 2025.

Final effluent chlorine residual readings for the 2025 disinfection season (May 15 to October 15) averaged 0.006 mg/L. Since the hand-held chlorine analyzers used are rated to a precision of +/- 0.01 mg/L, non-detect readings and readings of 0.01 mg/L are deemed to meet the objective. Individual sample results at times reached 0.02 mg/L, which does not meet the design objective.

During the disinfection season, final effluent E. coli results consistently satisfied the objective of 100 MPN/100 mL, with the monthly geometric mean density being 1 MPN/100 mL each month. The pH objective range of 6.50 to 8.50 was met consistently throughout 2025, with results ranging from 6.60 to 7.40.

1.3.9 Condition 11 (4I) Sludge Generation

The biosolids sludge volume generated in 2025 totalled 56,564 tonnes. Based on recent history, the volume anticipated in 2026 is approximately 56,000 tonnes, as production is expected to continue at current rates. A monthly breakdown can be found in Appendix A, titled ‘Woodward Avenue WWTP Operating Data Summary’ in the table titled ‘Biosolids to Synagro.’ Starting in May 2020, dewatered biosolids are further processed at the on-site Biosolids Management Facility, operated by Synagro Technologies. Synagro Technologies reports on this facility under ECA #4876-AWNRYL.

1.3.10 Condition 11 (4J) Summary of Complaints

Appendix D, titled ‘Summary of Complaints,’ in the table titled ‘2025 Complaints at Woodward Avenue WWTP’, contains a summary of the complaints received in 2025.

In 2025, four complaints were associated with the Woodward Avenue WWTP, all of which related to odour. Plant Operations staff responded to each complaint by conducting thorough investigations and taking appropriate corrective action.

Following a site-wide odour assessment completed in 2022, odour mitigation efforts continued in 2025.

1.3.11 Condition 11 (4K) Summary of Bypass Events, Spills and Abnormal Discharge Events

The Woodward Avenue WWTP experienced 20 bypass and overflow events in 2025, totalling 2,852 ML. This compares to a five-year average of 17 events totalling 2,083 ML. Despite receiving a lower total precipitation than average, rainfall in 2025 was more concentrated in the spring, resulting in some extreme events with large volumes, elevating the total bypass/overflow volume for the year above the average. Reporting of Tertiary Treatment Facility bypass events commenced following the completion of Contract 3 - Tertiary Treatment Facility and Secondary Treatment Expansion, on October 30, 2024. This contributed to the higher total number of bypass and overflow events reported in 2025.

The table on the next page summarizes all bypass and overflow events occurring in 2025.

Table 1-15: 2025 Bypasses and Overflows

Spills Action Centre Reference #	Location	Start Time	Stop Time	Duration (Hours)	Volume (ML)
250128-000000	Tertiary Bypass	2025-01-28 11:17	2025-01-28 12:47	1.50	13.457
250225-000005	Tertiary Bypass	2025-02-25 14:26	2025-02-26 4:55	14.97	76.040
250305-000001	Tertiary Bypass	2025-03-05 7:17	2025-03-06 11:49	28.53	27.633
250305-000006	Primary Effluent Overflow	2025-03-05 8:45	2025-03-07 0:37	39.87	451.000
250315-000006	Tertiary Bypass	2025-03-15 18:08	2025-03-15 18:15	0.12	0.106
250316-000014	Primary Effluent Overflow	2025-03-16 15:58	2025-03-17 5:32	13.88	65.710
250402-000010	Tertiary Bypass	2025-04-02 17:17	2025-04-03 23:07	30.24	151.344
250402-000017	Primary Effluent Overflow	2025-04-02 19:32	2025-04-05 0:57	53.42	758.320
1-N79I5M	Preliminary Effluent Overflow	2025-04-03 3:03	2025-04-03 9:28	6.42	55.686
250521-000010	Primary Effluent Overflow	2025-05-21 20:10	2025-05-24 3:05	55.44	664.197
250724-000008	Tertiary Bypass	2025-07-24 22:56	2025-07-24 22:59	0.05	0.002
1-PB5VJQ	Tertiary Bypass	2025-08-11 15:42	2025-08-11 15:51	0.15	0.277
250820-000003	Tertiary Bypass	2025-08-20 1:47	2025-08-20 3:40	1.88	2.040
250922-000000	Tertiary Bypass	2025-09-22 0:09	2025-09-22 7:19	2.90	1.800
250925-000000	Primary Effluent Overflow	2025-09-25 1:09	2025-09-25 3:25	2.27	21.732
251017-000000	Tertiary Bypass	2025-10-17 2:04	2025-10-17 3:25	1.35	5.180
251030-000006	Tertiary Bypass	2025-10-30 17:57	2025-10-30 22:59	5.03	28.291
251219-000003	Tertiary Bypass	2025-12-19 6:50	2025-12-19 8:38	1.80	3.100
251228-000001	Tertiary Bypass	2025-12-28 15:18	2025-12-29 18:21	27.03	173.711
251228-000004	Primary Effluent Overflow	2025-12-28 18:20	2025-12-29 22:03	27.72	352.849

1.3.11.1 Spill Events

Two spill events related to the Woodward Avenue WWTP were reported in 2025. The table below summarizes these spills.

Table 1-16: Spills Reported to Spills Action Centre (SAC) in 2025

Date	SAC Reference #	Spill Material	Approximate Volume	Event Description
2025-12-05	1-PVQ5KN	Secondary Effluent	611 m^3	An industrial spill of mineral oil resulted in impacted filter performance in the Woodward Avenue WWTP's tertiary filtration system. The filters were placed on continuous backwash in an attempt to mitigate potential overflows. Despite this action, filter basin levels continued to spike, resulting in several filters overflowing secondary effluent into the final effluent channel, which was discharged through the Woodward Avenue WWTP's outfall into Red Hill Creek. The duration of this overflow was approximately 47 minutes.
2025-12-11	1-PWNEJ3	Effluent Water	18.6 m^3	A leak was observed in the effluent water system within the Woodward Avenue WWTP. Sandbags were placed on the discharge of the leak to divert the effluent water from a storm catch basin to the sanitary sewer system. The leak persisted for approximately 52 hours and 10 minutes before it could be repaired.

1.3.12 Condition 11 (4L) Notice of Modification

No Notices of Modification were submitted in 2025.

1.3.13 Condition 11 (4M) Efforts Made to Achieve Conformance with F-5-1 and F-5-5

Procedure F-5-5, “Determination of Treatment Requirements for Municipal and Private Combined is a supporting document for Guideline F-5, “Levels of Treatment for Municipal and Private Sewage Treatment Works Discharging to Surface Waters.” The City has ongoing programs and has undertaken various projects to meet the MECP’s requirements for municipal combined sewer systems as per Procedure F-5-5.

Wet weather system capture is highly influenced by annual rainfall conditions. In 2020 and, 2022, the City achieved the most effective capture rates of combined sewage during wet weather at 91.3% and 91.2% respectively.

The City of Hamilton completed the Pollution Prevention Control Plan (PPCP) – Parts A, B & C- and submitted it to MECP. The City provided a response letter to the MECP’s comments on Part A and Part B on September 26, 2024, and submitted the final Part C of the Pollution Prevention and Control Plan: Implementation Plan Supporting Adaptive Enhancement Strategy, which was submitted to MECP in March 2025.

The City also completed the Combined Sewer Overflow Characterization Report in 2020. An update to the Combined Sewer Overflow Characterization report was started in 2025, with the sampling period extended into 2026 to collect more data. An updated characterization report will be completed in 2026.

In addition, the following projects are underway that will improve combined sewage capture during wet weather and identify options to remove wet weather flow from the combined sewer system:

1.3.13.1 Wastewater Collection System Control Upgrades (Real-Time Control Phase 2)

The Real-Time Control Phase 2 project involved modifying flow-control structures at two locations in the combined sewer system and improving the hydraulic control system to reduce sewer overflows into Hamilton Harbour, particularly at Cootes Paradise. Work included adjusting weirs, installing level monitoring devices and automating control gates. Completed in December 2024, the system has operated smoothly for over a year with minimal issues. The two-year warranty period will end this year on December 4, 2026.

1.3.13.2 Flooding and Drainage Improvement Framework

Following the completion of a draft Flooding and Drainage Master Servicing Study in 2019, the City initiated a new assignment called the Flooding and Drainage Improvement Framework. This new study advanced the work completed in the previous assignment. It provides a framework and an implementation roadmap for recommended solutions to address short-term and long-term urban flooding issues in the combined sewer service area. The Flooding and Drainage Improvement Framework was completed in 2022. The study's recommendation was a program of further, more

detailed studies (including Class Environmental Assessments), investigations, policies and infrastructure work over a twenty-plus-year timeframe to achieve system performance objectives. The program's cost over the twenty-plus-year timeframe is estimated at $1.03 billion. Several studies have been included within the City’s 2025 capital budget and are planned for initiation. Some capital budget has been approved to allow for sewer separations as they are recommended by the Class Environmental Assessment and alternative funding opportunities are being explored to continue the program. It is estimated that the projects identified in the Flooding and Drainage Improvement Framework could take more than twenty years to complete.

1.3.14 Condition 11 (4N) Changes or Updates to the Construction Schedule

The updated completion dates for the Woodward Avenue WWTP upgrade projects are as follows:

Anaerobic Primary Digester #5 testing and commissioning are targeted for Q1 2026, with a forecasted substantial performance date of February 2027.

The deficiencies in the Thickening Sludge Building odour control system identified during the 2023 inspections were addressed. The biotrickling recirculation pump was upgraded and an additional input/output to improve monitoring of the system was added in Q3 of 2025.

2 Dundas Wastewater Treatment Plant

2.1 General Information

2.1.1 The Dundas Wastewater Treatment Plant

The Dundas Wastewater Treatment Plant (WWTP) is located at 135 King Street East in Dundas, Ontario. It serves a population of approximately 49,610 and features an average day design capacity of 18.2 million litres per day (ML/d). The Dundas WWTP treated an average of 11.5 ML/d in 2025, compared to 12.3 ML/d in 2024.

2.1.2 The Dundas Wastewater Treatment Process

The Dundas WWTP began operations in 1919. The original facility consisted only of grit channels and an Imhoff tank. Over time, the Dundas WWTP has undergone several major upgrades, including the introduction of new treatment processes and the expansion and enhancing existing processes.

Today, the Dundas WWTP consists of a preliminary treatment process containing bar screens and a grit removal chamber. Ferric sulphate is added upstream of preliminary treatment to aid in removing phosphorus through precipitation. Next, wastewater flows into the primary clarifiers, where fine solids settle to the bottom of the tanks as “raw sludge,” while lighter materials, such as fats, oils, and grease, float to the top as “scum.” Chain-and-flight systems continuously remove both sludge and scum. Primary effluent flows into aeration basins where air blowers force air through diffusers at the bottom of the tanks to supply oxygen for microbial populations that process organic material and oxidize ammonia. Following aeration, wastewater flows into the secondary clarifiers, where solids settle out again, this time as “activated sludge” due to the high level of microbial activity. Most of this sludge is returned to aeration as “return activated sludge,” while the rest will be removed for further processing as “waste activated sludge”. The secondary effluent is then disinfected with chlorine from May 1 to October 31. A tertiary sand filtration system is then used to further reduce the effluent's suspended solids and phosphorus content, after which sodium bisulphite is added to remove chlorine during disinfection season. The treated effluent water is then released into the Desjardins Canal.

The Dundas WWTP does not have its own solids treatment process. Sludge generated at the Dundas WWTP is hauled by truck to the Woodward Avenue WWTP, where it is mixed and processed with the Woodward Avenue WWTP sludge. For additional details, refer to Subsection 1.1.2 of this Wastewater Facilities Annual Report.

2.1.3 Improvements

In 2024, in collaboration with various City divisions and an engineering consultant firm, the City completed a conceptual design and evaluation study for replacing the Dundas WWTP. This study involved a comprehensive screening and evaluation process to

select the best available technology economically achievable to meet the proposed effluent criteria set by the Harbour Remedial Action Plan (HHRAP) Coordinating Committee and to assess the necessary upgrades to achieve various performance levels. The evaluation recommended a membrane bioreactor process, considering multiple options and costs to achieve HHRAP targets and long-term operations and maintenance objectives.

The estimated capital cost for the Dundas WWTP upgrade project is $254M, including inflation, engineering, construction and contingency. Timing estimates will evolve as more information is developed through the detailed design phase. Currently, the project is preparing for the design phase of work, with the request for proposal (RFP) scheduled for release in Q2 2026. Construction is anticipated to start in 2028, with completion planned by 2033.

In the interim, Capital Delivery is conducting an immediate needs project to address health and safety concerns and ensure efficient facility operations. The project includes concrete repair and restoration, replacement of guardrails around open tanks, miscellaneous improvements throughout the Dundas WWTP, and replacement of the Plant A&B aeration tank diffusers. Construction of this project commenced in Q2 2025, with completion expected in Q4 2026.

2.2 Regulatory Instruments

2.2.1 Environmental Compliance Approval

2.2.1.1 Sewage

No. 3101-89PNRC: October 6, 2010 – Amended Certificate of Approval

2.2.1.2 Air

In response to the Ministry of the Environment, Conservation and Parks (MECP) inspection conducted in March 2020, the City retained a consultant to submit an application for an ECA (Air) for the Dundas WWTP. The initial application was submitted to the MECP in 2020. The consultant completed a noise assessment and the application was resubmitted to the MECP in 2023. Subsequently, the MECP requested that additional work be completed to support the noise assessment. The City is currently in the process of undertaking the additional work to support the assessment.

2.2.2 Effluent Requirements

Table 2-1: Final Effluent Quality Requirements (Concentrations)

Parameter	Monthly Average Concentration Objectives (mg/L)	Monthly Average Concentration Limits (mg/L)	Effluent Daily Loading Limits (kg/d)
cBOD	5.0	5.0	91.0
TSS	5.0	5.0	91.0
TKN – (May 1 to Oct 31)	2.0	2.0	36.4
TKN – (Nov 1 to Apr 30)	10	10	182
TP	0.5	0.5	9.1
Chlorine Residual (May 1 to Oct 31)	0.02	0.02	-
E. coli (May 1 to Oct 31)	100 organisms/100 mL	-	-

pH of the effluent is to be maintained between 6.0 and 9.5, inclusive, at all times.

2.2.3 Sampling Procedures

Raw influent wastewater is sampled weekly and is tested for ammonia, carbonaceous biochemical oxygen demand (cBOD), chemical oxygen demand (COD), potential of hydrogen (pH), soluble phosphorus (SP), total phosphorus (TP), total biochemical oxygen demand (tBOD), Total Kjeldahl Nitrogen (TKN) and total suspended solids (TSS).

Final effluent is sampled weekly and is tested for alkalinity, ammonia, cBOD, nitrates (NO_3), nitrites (NO_2), pH, SP, TP, TKN, and TSS. E. coli and total chlorine residuals are sampled weekly on a seasonal basis from May 1 to October 31.

Samples are collected using a flow-proportional automatic water quality sampler and composited over 24 hours. The samples are refrigerated before analysis at the City of Hamilton Environmental Laboratory CHEL, located at the Woodward Avenue WWTP.

2.3 Environmental Compliance Approval Reporting Requirements

The following information addresses the items listed under Subsection 6 regarding Condition 11 ‘Reporting’ in Certificate of Approval #3101-89PNRC.

2.3.1 Condition 11 (6A) Effluent Limits Summary and Interpretation

Throughout 2025, the Dundas WWTP met the effluent concentration and loading limits as per Condition 7 of the Certificate of Approval with monitoring data for all applicable parameters, except for exceedances of Total Kjeldahl Nitrogen (TKN) in May 2025. The Dundas WWTP exceeded both the Monthly Average Effluent Concentration Limit of 2.0 mg/L and the Daily Effluent Loading Limit of 36.4 kg/d on May 14, 2025. This is the first exceedance at the Dundas WWTP in 10 years.

In response to a noise complaint, air flow to the blowers was reduced. These blowers were set to manual mode to reduce noise, resulting in insufficient aeration and affecting nitrification, which led to high TKN. Corrective actions were taken promptly, including increasing blower speed, which improved dissolved oxygen levels. Following the elevated TKN result, additional sampling confirmed that TKN levels had returned to below 1.0 mg/L, indicating the issue had been resolved.

Details of plant performance in 2025 can be found in Appendix E, titled ‘Dundas WWTP Operating Data Summary’ in the table titled ‘Final Effluent Quality (Concentrations)’ and ‘Final Effluent Quality (Loadings).’ Historical data show effluent concentrations and loadings in 2025 fell within the expected ranges.

Table 2-2: Final Effluent Quality (Concentrations)

Year	TSS (mg/L)	cBOD (mg/L)	TP (mg/L)	SP (mg/L)	TKN (mg/L)	NH_3 (mg/L)
2020	0.89	1.26	0.108	0.091	0.60	0.08
2021	0.88	1.99	0.131	0.103	1.27	0.66
2022	1.16	1.49	0.129	0.105	0.67	0.07
2023	0.85	1.21	0.089	0.071	0.57	0.06
2024	0.97	1.41	0.093	0.070	0.60	0.13
2025	1.16	1.22	0.114	0.084	0.82	0.31

Table 2-3: Final Effluent Concentrations (Loadings)

Year	TSS (kg/d)	cBOD (kg/d)	TP (kg/d)	SP (kg/d)	TKN (kg/d)	NH_3 (kg/d)
2020	10.7	15.2	1.3	1.1	7.2	0.9
2021	10.0	21.1	1.5	1.1	13.2	6.4
2022	11.7	15.1	1.3	1.0	6.7	0.6
2023	10.0	14.3	1.1	0.1	6.7	0.7
2024	12.0	17.6	1.1	0.8	7.3	1.7
2025	13.3	14.2	1.3	0.9	9.5	3.7

2.3.2 Condition 11 (6B) Operating Problems and Corrective Actions

2.3.2.1 Blower Noise

The Dundas WWTP has been experiencing ongoing vibration in the blower discharge pipe. The blowers have been operated in manual mode to minimize noise while still allowing adequate treatment. There are ongoing projects to address this issue in the long-term.

2.3.2.2 Plant A Concrete Rehabilitation

In Q4 of 2025, parging was performed to repair concrete on the Dundas WWTP primary clarifiers, the inlet channel, and the Plant A Parshall Flume.

2.3.2.3 Sludge Storage Tank Rehabilitation

In Q4 of 2025, asbestos material was removed from the outside wall of the sludge storage tank and replaced with cladding.

2.3.2.4 Flow Control Diversion Plate Replacement

In Q4 2025, the Dundas WWTP flow control diversion plate required replacement. Flow was temporarily diverted to the Dundas Equalization Tank (HC060) while the new plate

was constructed. This diversion resulted in low flows through Plant A in November 2025. The new diversion plate was put into service in early December 2025 and flows returned to normal.

2.3.2.5 Labour Disruption

A labour disruption occurred from May 14, 2025, to July 16, 2025, due to strike action taken by the City's, Hamilton Ontario Water Employees Association (HOWEA) union. HOWEA represents 55 members who work at Hamilton Water in positions including Water/Wastewater Operators, Millwrights, Electricians and Instruments & Control Technicians. During this time, the City implemented comprehensive contingency plans to maintain critical facilities operations and ensure the continued delivery of water and wastewater services. Contingency plans were submitted to the MECP in accordance with Ontario Regulation 129/04: Licensing of Sewage Works Operators. In addition, written notice was obtained by the MECP accepting the plan. The MECP accepted this plan and there were no compliance issues related to the labour disruption during this time.

2.3.3 Condition 11 (6C) Maintenance Activities

City Plant Maintenance staff based at the Woodward Avenue WWTP carry out regular plant maintenance at the Dundas WWTP. Typically, a computerized maintenance management system schedules and tracks routine and preventative maintenance. Third-party external contractors complete larger or specialized maintenance activities.

Significant maintenance activities completed at the Dundas WWTP in 2025 are provided in Appendix B, titled 'Maintenance Activities'. In February 2024, a cybersecurity incident caused an information technology (IT) outage that affected multiple systems across the City of Hamilton's network. Although some systems have been restored since then, the work order system and the databases containing information on wastewater system expenses have not yet been recovered.

2.3.4 Condition 11 (6D) Effluent Quality Assurance

The City of Hamilton Environmental Laboratory, which is accredited by the Canadian Association for Laboratory Accreditation Incorporated, performs analytical tests to monitor required parameters. The Dundas WWTP's operation and performance are monitored by licensed operators and the facility's management team. Standard operating procedures, emergency plans, equipment, preventative maintenance and a team of support staff help ensure a rapid and effective response to issues and maintain high-quality effluent.

The City's Wastewater Quality Management System (WWQMS) was fully implemented and operational in 2021. The City's WWQMS was endorsed most recently by Council on March 29, 2023. The WWQMS was implemented to ensure the effective and efficient collection and treatment of wastewater that protects the environment, meets legal and regulatory requirements and meets the City's commitment to operating and maintaining a high-quality wastewater system.

2.3.5 Condition 11 (6E) Calibration & Maintenance of Effluent Monitoring Equipment

Appendix C, titled ‘Calibration and Maintenance of Monitoring Equipment’, table titled ‘Dundas WWTP Calibration and Maintenance of Monitoring Equipment,’ contains records of the calibrations performed on monitoring equipment during 2025.

2.3.6 Condition 11 (6F) Effluent Objectives – Efforts Made and Results Achieved

Condition 6 of the Certificate of Approval identifies effluent concentration objectives for cBOD, TSS, TP, TKN, total residual chlorine, and E. coli, which match the effluent limit requirements in Section 2.2.2.

Throughout 2025, the Dundas WWTP effluent consistently met the effluent objectives as per Condition 6 of the Certificate of Approval, except for an exceedance of Total Kjeldahl Nitrogen (TKN) in May 2025.

Details of performance can be found in Appendix E, titled ‘Dundas WWTP Operating Data Summary’ in the table titled ‘Final Effluent Quality (Concentrations)’ and ‘Final Effluent Quality (Loadings).’ Efforts made to obtain these objectives include:

- continual monitoring and periodic adjustment of processes by licensed and highly skilled operators
- continuous sampling and monitoring to ensure compliance with the City of Hamilton’s Sewer-Use By-law #14-090 and follow up with contraventions to take appropriate enforcement actions
- preventive maintenance routines of vital components

2.3.7 Condition 11 (6G) Quality of Landfill Leachate

Leachate from the Redland Brow Landfill contributed 46,656 m^3 in 2025. Appendix E, titled ‘Dundas WWTP Operating Data Summary’, includes the table titled ‘Redland Brow Landfill Leachate’, which captures the monthly volume of leachate entering the Dundas WWTP.

2.3.8 Condition 11 (6H) Chemical Characterization of Landfill Leachate

Appendix E, titled ‘Dundas WWTP Operating Data Summary’ in the table titled ‘2025 Redland Brow Landfill Sampling Results’, contains the 2025 quarterly sewer discharge sampling results from the Redland Brow Landfill.

2.3.9 Condition 11 (6I) Sludge Volume

Raw sludge collected at the Dundas WWTP is hauled by truck to the Woodward Avenue WWTP for processing. The sludge volume generated in 2025 totalled 38,973 m^3. Based

on recent history, the volume anticipated for 2026 is forecasted to be approximately 40,000 m^3. Monthly details can be found in Appendix E, titled 'Dundas WWTP Operating Data Summary' in the table titled 'Sludge Hauled to Woodward Avenue WWTP.'

2.3.10 Condition 11 (6J) Summary of Complaints

Appendix D, titled 'Summary of Complaints,' in the table titled '2025 Complaints at Dundas WWTP', contains a summary of the complaints received in 2025.

In 2025, one complaint was associated with the Dundas WWTP. The complaint was for noise. Plant Operations staff responded to the complaint by conducting thorough investigations and taking appropriate corrective action.

2.3.11 Condition 11 (6K) Summary of all Bypass, Spill and Abnormal Discharge Events

One spill event at the Dundas WWTP was reported in 2025. The table below summarizes these spills.

Table 2-4: Spills Reported to Spills Action Centre (SAC) in 2025

Date	SAC Reference #	Spill Material	Volume (approximate)	Event Description
2025-03-11	1-IPX7AF	Raw Sludge	50 -100 L	At 9:00 a.m., a tanker truck experienced a hose failure, causing raw sludge to spray onto the tanker wall, building wall and concrete pad. The spill was fully contained with no environmental impact. Cleanup efforts began promptly, including notifications to relevant authorities and the arrival of a vacuum truck. By 12:00 p.m., the cleanup was completed and the contents were sent to Woodward WWTP for treatment.

2.3.12 Condition 11 (6L) Other Information Required by the Ministry of the Environment, Conservation and Parks District Manager

The District Manager requested no additional information for inclusion in this report.

3 Wastewater Collection Facilities

3.1 General Information

The City operates 71 sewage pumping stations and nine combined sewer overflow tank facilities. It is required to report on the performance of 21 facilities in accordance with Environmental Compliance Approval (ECA) requirements. This report satisfies the reporting requirements of the existing ECAs. In addition, all Spills and Abnormal Discharge Events associated with the City's collection facilities are also included in this report. Reporting requirements are expected to expand upon issuance of the Sewage Consolidated Linear Infrastructure Environmental Compliance Approval (CLI ECA).

3.1.1 HCS01/HCS06: Greenhill Combined Sewer Overflow Tanks

The Greenhill Combined Sewer Overflow Tanks are located on the south side of Greenhill Avenue and east of Rosseau Road. The first tank (HCS01) has a capacity of 75,000 m^3 and was completed in 1988. The second tank (HCS06) was built upstream of the first tank and has a volume of 65,000 m^3. It was completed in 2004 and was designed to reduce the frequency of combined sewer overflows entering Red Hill Creek at the Greenhill Combined Sewer Overflow Outfall. Flow into tank HCS06 is regulated upstream. If it becomes full, it overflows to HCS01 and upon its filling, overflows into a wetland area adjacent to Red Hill Creek.

3.1.2 HCS02: Strachan Combined Sewer Overflow Tank

The Strachan Combined Sewer Overflow Tank is located at 201 Harbourfront Drive, near Hamilton's Bayfront Park. The tank volume is 23,000 m^3, consisting of two cells of approximately equal size. It was completed in 1993 and was designed to reduce the frequency of combined sewer overflows entering Hamilton Harbour at the former Queen Street and Hess Street Combined Sewer Overflow Outfalls.

3.1.3 HCS03: James Street Combined Sewer Overflow Tank

The James Street Combined Sewer Overflow Tank is located at the foot of James Street, north of Guise Street. The tank has a volume of 2,000 m^3 and was completed in 1993. The station was designed to reduce the frequency of combined sewer overflows entering Hamilton Harbour at the James Street Combined Sewer Overflow Outfall. The James Street Combined Sewer Overflow Tank has been out of operation since 2020 due to construction upgrades. However, while this CSO tank has been out of service, the downstream CSO in-line pipe storage controlled by the Ferrie/Mary CSO regulator (HCG08) remained in full operation.

3.1.4 HCS04: Main/King Combined Sewer Overflow Tank

The Main/King Combined Sewer Overflow Tank is located in Cathedral Park, bounded by Main Street West, Highway 403, King Street West and Dundurn Street. The tank volume is 75,000 m^3 and consists of two cells. Cell #1 has an approximate volume of 22,000 m^3 and Cell #2 has an approximate volume of 53,000 m^3. It was completed in 1997 and was designed to reduce the frequency of combined sewer overflows entering Chedoke Creek at the Glen Road and former McKittrick Combined Sewer Overflow Outfalls.

3.1.5 HCS05: Eastwood Park Combined Sewer Overflow Tank

The Eastwood Park Combined Sewer Overflow Tank is located in Eastwood Park on the southwest corner of Ferguson Avenue and Dock Service Road. The tank volume is 25,000 m^3, consisting of two similarly sized cells. It was completed in 1997 and designed to reduce the frequency of combined sewer overflows entering Hamilton Harbour at the Catharine Street and Ferguson Avenue Combined Sewer Overflow Outfalls.

3.1.6 HCS07: Red Hill Combined Sewer Overflow Pipe

The Red Hill Combined Sewer Overflow Pipe is located below the Red Hill Valley Parkway between Lawrence Road and Barton Street. The 2.7 km by 3 m diameter pipe has a storage capacity of approximately 14,400 m^3. This facility became operational on December 20, 2011. It was designed to capture combined sewer overflows from Lawrence Road, Queenston Road and Melvin Avenue, which would have historically been discharged into Red Hill Creek.

3.1.7 HCS08: Royal Avenue Combined Sewer Overflow Tank

The Royal Avenue Combined Sewer Overflow Tank is located in Stroud Park, on the southwest corner of Royal Avenue and Stroud Road. The tank volume is 15,000 m^3. It was completed in late 2007 and was designed to reduce the frequency of combined sewer overflows entering Chedoke Creek from the Royal Avenue Combined Sewer System.

3.1.8 HCS09: McMaster Combined Sewer Overflow Tank

The McMaster Combined Sewer Overflow Tank is located in the Zone 6 parking lot at McMaster University. The tank was completed in April 2012. The storage volume of 5,935 m^3 was designed to reduce combined sewer overflows to Coldwater Creek, which discharges into Cootes Paradise.

3.1.9 HC011: Calvin Street Wastewater Pumping Station

The Calvin Street Wastewater Pumping Station is located at 170 Calvin Street. The facility is a single-storey building with an adjacent subsurface wet well. The station collects wastewater in a wet well and automatically pumps it to the Woodward Avenue WWTP collection system. There are two sewage lift pumps (one duty and one standby),

each with a rated capacity of 59 L/s. The station is equipped with an overflow to protect the sewer catchment area from surcharging. Should the pumps fail to operate or sewage inflows exceed the pump capacity ratings, the station may overflow into Ancaster Creek before basement flooding occurs.

3.1.10 HC018: Twenty Road Wastewater Pumping Station

The Twenty Road Wastewater Pumping Station is located at 1980 Upper James Street. The station itself consists of two separate sub-stations: HC018A, a single-storey building laid out in a drywell/wet well configuration and HC018B, which is a prefabricated wet well and associated concrete flow metering chamber. Incoming wastewater flows by gravity into both the HC018A and HC018B wet wells and is automatically pumped to a gravity sewer along Upper James Street, eventually flowing to the Woodward WWTP. The site has an outdoor pad-mounted generator with a noise abatement enclosure. The HC018A wet well is a single cell with three pumps (two duty, one standby). The HC018B wet well is a single cell with two pumps (one duty, one standby). Should the pumps fail to operate or when sewage inflows exceed the pump capacity ratings, there is a possibility that the station will overflow into the final receiver, Twenty Mile Creek. HC018 has a temporary capacity approval for 1000 L/s. There is a Conditional ECA to support development until trunk system improvements are made. The conditional ECA requires reporting of capacity status for the temporary rate of pumping.

3.1.11 HC019: English Church Wastewater Pumping Station

The English Church Wastewater Pumping Station is located at 2844 Upper James Street. The station is a single-storey building with an adjacent subsurface wet well. The station collects wastewater in a wet well and automatically pumps it to the Woodward Avenue WWTP collection system. There are three sewage lift pumps (two duty, one standby) with a rated capacity of 210 L/s. There are no overflow provisions at this facility.

3.1.12 HC027: Homestead Wastewater Pumping Station

The Homestead Wastewater Pumping Station is located at 3359 Homestead Drive. It is a single-storey building with an adjacent subsurface wet well. The station collects wastewater in two wet wells and automatically pumps it to the Woodward Avenue WWTP collection system. There are three sewage lift pumps (two duty, one standby) with a rated capacity of 91 L/s. There are no overflow provisions at this facility.

3.1.13 HC058: Binbrook Wastewater Pumping Station

The Regional Road 56 Binbrook Wastewater Pumping Station is located at 3255 Regional Road 56 in Binbrook. The station is a single-storey building with an adjacent subsurface wet well. The station collects wastewater in a wet well and automatically pumps it to the Woodward Avenue WWTP collection system. There are three sewage lift pumps (two duty, one standby) with a rated capacity of 257 L/s. The station is rated for an initial period peak flow of 231 L/s and an ultimate peak flow of 507 L/s. There is a

wet weather valve between the two discharge forcemains. During high flow conditions (two pumps are running), the valve will open to allow sewage to flow through both forcemains. There are no overflow provisions at this facility. A project is ongoing to reduce/eliminate hydrogen sulphide odours in downstream sewers by adding hydrogen peroxide as an oxidizing agent. It is the City's intention to continue the project until a permanent process can be implemented at the site.

3.1.14 Real-Time Control Facilities

3.1.14.1 HCG03: Rosemary-Wentworth Regulator

The Rosemary-Wentworth Regulator Chamber is located underground at the northeast corner of Rosemary Street and Wentworth Street. It houses the isolation actuator and associated gate. The Rosemary-Wentworth Regulator Chamber directs dry weather flow to the Burlington-Hillyard area, where flows enter the Western Sanitary Interceptor North branch. The Rosemary-Wentworth (HCG03) Monitoring Chamber is located underground in the middle of the intersection of Rosemary Street and Wentworth Street. A water level meter was installed to monitor the upstream gate water level for overflow detection. The purpose of the Rosemary-Wentworth Regulator site is to limit the surcharge of the Western Sanitary Interceptor and the peak flow at the Woodward Avenue WWTP. The regulator chamber houses the isolation sluice gate and electric actuator, which, when closed, directs flow to the 2,440 mm by 2,540 mm combined sewer overflow, north along Wentworth Street toward Hamilton Harbour. The Rosemary-Wentworth (HCG03) station isolation gate is controlled based on the Western Sanitary Interceptor North branch water level measurement at the Wellington-Burlington (HCG14) Western Sanitary Interceptor North branch monitoring chamber. The control building houses the electrical and communication equipment for the operation of the Rosemary-Wentworth (HCG03) Real-Time Control Station. It is located at the southeast corner of Rosemary Street and Wentworth Street.

3.1.14.2 HCG07: Ferguson-Ferrie Regulator

The Ferguson-Ferrie Wastewater Regulator (HCG07) is located at the intersection of Ferguson Street and Ferrie Street, where the local collector sewer crosses the Western Sanitary Interceptor South branch. The purpose of the Ferguson-Ferrie Regulator site is to limit the surcharge of the Western Sanitary Interceptor and the peak flow at the Woodward Avenue WWTP. The Ferguson-Ferrie Regulator Chamber is equipped with an isolation slide gate to limit the surcharge of the flow being conveyed to the Western Sanitary Interceptor South branch. The gate is operated based on level measurements on the receiving Western Sanitary Interceptor South branch provided by the Mary-Ferrie (HCG08) Station. The Ferguson-Ferrie Station consists of a main control panel that houses the programmable automation controller panel and the isolation gate local control panel for the operation of the station. The station is located at the northeast corner of Ferguson Street and Ferrie Street. The Mary-Ferrie (HCG08) Control Building houses the electrical and communication equipment for the operation of the Ferguson-Ferrie (HCG07) station. It is located at the northwest corner of Mary Street and Ferrie Street. A duct bank from Mary-Ferrie (HCG08) along Ferrie Street relays power and

communications to the Ferguson-Ferrie (HCG07) control panel near the gate regulator chamber.

HCG08: Mary-Ferrie Regulator

The Mary-Ferrie Wastewater Regulator is located at the intersection of Mary Street and Ferrie Street where the local collector sewer crosses the Western Sanitary Interceptor South branch. The purpose of the Mary-Ferrie Regulator site is to maximize the interception capacity of the Western Sanitary Interceptor South branch during small to medium-sized rain events by intercepting sub-catchment flows into the Western Sanitary Interceptor South branch without exceeding downstream conveyance capacity and without causing backflows from the interceptor into the local collection system. To control the flow to the Western Sanitary Interceptor South branch, the Mary-Ferrie Regulator Chamber is equipped with a modulation slide gate and backup isolation slide gate. The gates are operated based on level measurements on the receiving Western Sanitary Interceptor South branch and based on level monitoring within the regulator chamber. The station consists of a single-storey control building with a subsurface regulator chamber located at the intersection of Mary Street and Ferrie Street. The control building houses the electrical, control and communication equipment. Two slide gates with associated actuators, are housed in the regulator chamber. The isolation gate facilitates the maintenance of the modulation gate and provides a redundant backup if necessary. The modulation gate controls the site's flow.

3.1.14.3 HCG09: Main-Ewen Regulator

The Main-Ewen Regulator is located at the intersection of Main Street West and Ewen Road. This site consists of a manual sluice gate and crest weir. During storm or wet weather events that may exceed the treatment capacity of the Woodward Avenue WWTP, excess wastewater overflowing the weir is diverted to the McMaster Combined Sewage Overflow.

3.1.14.4 HCG14: Wellington-Burlington Regulator

The Wellington-Burlington Wastewater Regulator is located at the intersection of Wellington Street North and Burlington Street East, where the Wellington Combined Sewer Overflow Outfall Sewer crosses the Western Sanitary Interceptor North branch. The Wellington Combined Sewer Overflow Outfall Sewer runs south to north along Wellington Street, where combined overflows from the numerous regulators along Wellington Street are conveyed north to Hamilton Harbour. The purpose of the Wellington-Burlington Regulator is to reduce the volume of combined sewer overflows to Hamilton Harbour by capturing combined sewage from the Wellington Combined Sewer Overflow Outfall Sewer and conveying it to the Western Sanitary Interceptor North branch when capacity is available. The regulator chamber has modulation and backup isolation slide gates to control the flow being conveyed to the Western Sanitary Interceptor North branch. The gates are operated based on level measurements on the receiving Western Sanitary Interceptor North branch, level measurements within the combined sewer overflow outfall sewer and level monitoring within the regulator itself. The station consists of a single-storey control building with a subsurface regulator

chamber. The control building houses the electrical, control and communications equipment. Two slide gates with associated actuators are housed in the chamber. The isolation gate facilitates the maintenance of the modulation gate and provides a redundant backup if necessary. The modulation gate controls the site's flow. Two flap gates are also located just downstream of the flow diversion channel to the regulator, preventing the receiving lake from backflowing into the regulator.

3.1.14.5 HCG26: Glen Road Regulator and Glen-Tope Overflow Chamber

The Glen Road Regulation Chamber is located on the east side of Glen Road, between Macklin Street North and Tope Crescent in Hamilton. The station consists of an outdoor control cabinet with two adjacent underground chambers: the Glen Road/Main King #1 Regulation Chamber and the Glen-Tope overflow chamber. The Glen Road station is a Regulation Chamber with a 1.7 m wide by 1.0 m high modulating sluice gate. The flows from the Cootes Paradise area (from the HCG27 Sterling Weir Chamber) are routed through the Glen Road chamber, where the gate position is controlled so the flows are routed to the Glen-Tope overflow chamber without overflowing and then to the Woodward Avenue WWTP. At Glen Road, when the chamber level reaches an elevation of 87.65 m, the excess flows are discharged in the Main/King CSO Tank. The overflow structure consists of a 3-stop log wall. Three other spare stop logs are stored in the chamber (storage rack) for future use. At Glen-Tope, when the level reaches an elevation of 81.00 m, excess flows are discharged to the Glen Road Combined Sewer Overflow site. The programmable automation controller panel controls the gate to minimize overflows at Glen-Tope and then minimizes the overflows to the Main/King CSO Tank.

3.1.14.6 HCG27 Sterling Weir Chamber

The Sterling Weir Chamber consists of an overflow chamber equipped with two bending weirs. A bending weir consists of a structural frame fixed to an overflow weir wall, a pivoting flap and a counterweight structure. The bending weir mechanism is entirely passive and requires no external energy for operation. The fixed counterweights act directly against the bending weir flap to maintain a constant upstream water level for all overflows varying from zero to the design flow. The opening of each bending weir is monitored by an inclinometer and transmitted to the programmable automation controller. A programmed angle/flow relationship provides an overflow measurement.

The flows from the Main-Ewen chamber, the McMaster CSO tank and the Dundas Diversion tank are routed through the Sterling Chamber to the Glen-Road Chamber and from there to the Woodward WWTP. The flows in excess are discharged to Cootes Paradise via the Sterling Canal. The overflow level is not reached in dry weather and during small wet weather events. Therefore, the bending weirs are closed and all the incoming flow is routed to the downstream Glen Road Regulator. During major wet weather events, the chamber level rises. When the overflow level is reached, the weight of the water exceeds the force exerted by the counterweights and the bending weirs open. The upstream level is maintained at the overflow level. The installation is set for an initial control of the upstream water level at an elevation of 94 m.

3.2 Compliance Approvals

Table 3-1: City of Hamilton Wastewater Collection System ECAs

Facility	ECA #	Issue Date
HCS01/HCS06: Greenhill Combined Sewer Overflow Tanks	6240-8YAJ3G	September 19, 2012
HCS02: Strachan Combined Sewer Overflow Tank	0706-5UHHVC	February 4, 2004
HCS03: James Street Combined Sewer Overflow Tank	3-1194-92-006	October 16, 1992
HCS04: Main/King Combined Sewer Overflow Tank	3-1455-94-956	January 6, 1995
HCS05: Eastwood Park Combined Sewer Overflow Tank	3-1686-95-966	February 8, 1996
HCS07: Red Hill Superpipe	7667-5W4LBK	April 23, 2004
HCS08: Royal Avenue Combined Sewer Overflow Tank	5975-6ADPCK	May 31, 2005
HCS09: McMaster Combined Sewer Overflow Tank	7422-7K9GZE	November 14, 2008
HC011: Calvin Street Wastewater Pumping Station	0185-CMXL2M	March 29, 2023
HC018: Twenty Road Wastewater Pumping Station	6048-BS9KV5	March 23, 2021
HC019: English Church Wastewater Pumping Station	8318-BSCP8D	September 11, 2020
HC027: Homestead Wastewater Pumping Station	2627-BSEQB2	September 11, 2020
HC058: Binbrook Wastewater Pumping Station	4299-B75MSK	February 7, 2019
HCG03, HCG07, HCG08, HCG09, HCG14, HCG26 and HCG27: Real-Time Control Facilities	5433-CJ7JMB	April 5, 2023

3.2.1 Sewage Consolidated Linear Infrastructure Environmental Compliance Approval

The City submitted its application for a Sewage CLI ECA by the January 21, 2021 deadline. In 2023, the City received drafts of the CLI ECA from the MECP. Since then, the City has participated in multiple meetings with the MECP to review and discuss Hamilton-specific conditions in the Sewage CLI ECA.

In January 2024, an in-person meeting was held with the MECP to address key areas of concern and operational challenges identified by the City followed by several separate small working group meetings for Schedule B, D & E of the CLI-ECA in November and December of 2024. The City continued to work towards finalizing the Hamilton-specific conditions with the MECP in 2025. In December 2025, the City provided formal written correspondence to the MECP, accompanied by “supporting evidence,” regarding the outstanding concerns.

The City remains committed to working collaboratively with the MECP and anticipates continued progress toward finalizing the Sewage CLI ECA in 2026.

3.2.2 Notice of Modification

No Notices of Modification were submitted in 2025 for any of the above facilities.

3.2.3 Monitoring and Analytical Data

The Table ‘2025 Overflow Events’ below summarizes the overflows from each of the reported facilities in 2025. The table ‘Historical Overflow Events’ compares the 2025 overflows to previous years. Analytical results of samples collected during storm events can be found in Appendix F, titled ‘CSO Tank Analytical Data.’

It should be noted that 2023 represents the first year that the real-time control structures (HCG03, HCG07, HCG08 and HCG14) were required to be included in this report. They account for the majority of overflow events reported since that time.

Table 3-2: Overflow Events 2025

* Overflows were due to the height of the upstream static weir and not due to the operation of the control gate.

Facility	Number of Overflow Events	Total Duration (Hours)	Total Volume (ML)
HCS01: Greenhill CSO Tank	4	77.5	685.88
HCS02: Strachan CSO Tank	0	0.0	0
HCS03: James Street CSO Tank	0	0.0	0

Facility	Number of Overflow Events	Total Duration (Hours)	Total Volume (ML)
HCS04: Main/King CSO Tank	3	48.4	233.68
HCS05: Eastwood Park CSO Tank	3	35.1	123.29
HCS07: Red Hill Superpipe	0	0.0	0
HCS08: Royal Avenue CSO Tank	3	20.6	34.46
HCS09: McMaster CSO Tank	0	0.0	0
HCG03: Rosemary - Wentworth Regulator*	43	134.2	n/a
HCG07: Ferguson-Ferrie Regulator	0	0.0	0
HCG08: Mary-Ferrie Regulator	0	0.0	0
HCG14: Wellington-Burlington Regulator	21	20.1	n/a
All facilities	**77**	**335.93**	**1,077.31**

Table 3-3: Historical Overflow Events (2020 - 2025)

Year	Number of Overflow Events	Total Duration (Hours)	Total Volume (ML)
2020	13	261.03	963.04
2021	27	406.00	1,639.60
2022	10	158.00	699.70
2023	124	661.17	1,300.83
2024	108	493.85	1,080.38
2025	77	335.93	1,077.31
5-year average	**56**	**396.01**	**1,136.71**

A review of the historical trends in sewage characteristics and flow rates is required per ECA 5433-CJ7JMB for RTC Phase I & II sites (HCG03, HCG07, HCG08, HCG09,

HCG14, HCG26, and HCG27: Real-Time Control Facilities). This requirement is met with the annual Hamilton CSO Report.

3.2.4 Maintenance of Major Equipment

City Plant Maintenance staff based at the Woodward Avenue WWTP carry out regular facilities maintenance. Typically, a computerized maintenance management system schedules and tracks routine and preventative maintenance. Larger or specialized maintenance activities are completed by third-party external contractors.

Significant maintenance activities completed at the wastewater pumping stations and combined sewer overflow facilities in 2025 are provided in Appendix B, titled ‘Maintenance Activities.’ In February 2024, a cybersecurity incident caused an information technology (IT) outage that affected multiple systems across the City of Hamilton's network. Although some systems have been restored since then, the work order system and databases containing information related to expenses for the wastewater systems have not yet been recovered.

3.2.5 Effluent Quality Assurance or Control Measures Taken

The City of Hamilton Environmental Laboratory, which is accredited by the Canadian Association for Laboratory Accreditation Incorporated, performs analytical tests to monitor required parameters. The WWTP's operation and performance are monitored by licensed operators and the facility’s management team. Standard operating procedures, emergency plans, equipment, preventative maintenance and a team of support staff help ensure a rapid and effective response to issues and maintain high-quality effluent.

The City’s Wastewater Quality Management System (WWQMS) was fully implemented and operational in 2021. The City’s WWQMS was most recently endorsed by Council on March 29, 2023. The WWQMS was implemented to ensure the effective and efficient collection and treatment of wastewater in a manner that protects the environment, meets regulatory requirements and meets the City’s commitment to operating and maintaining a high-quality wastewater system.

3.2.6 Calibration and Maintenance of Monitoring Equipment

Appendix C, titled ‘Calibration and Maintenance of Monitoring Equipment’, in the table titled ‘Wastewater Collection Facilities Calibration and Maintenance of Monitoring Equipment’, contains the calibration activities for the monitoring equipment during 2025.

3.2.7 Operating Problems and Corrective Actions

The wastewater collection facilities generally operated as designed in 2025, except for the issues noted below.

Table 3-4: Summary of the 2025 Wastewater Collection Facilities Operational Problems and Corrective Actions

Wastewater Collection Facility	Operational Issues and Actions Taken
HC018B: Twenty Road Wastewater Pumping Station	A power failure in February 2025 caused Pump #4 at HC018B to fail, requiring replacement. The pump was replaced in December 2025.
HCS08: Royal CSO Tank	In 2024, it was identified that the overflow volume calculations at this location may be inaccurate. The City has engaged a consultant to review the methodology and recalculate the overflow volumes using all available historical data. The consultant submitted the final report in 2025. While the recalculated results did not show a major variance, several recommendations were made. Some of these recommendations have already been actioned and others are being reviewed.
HCS02: Strachan Combined Sewer Overflow Tank Generator	Throughout 2025, HCS02 experienced issues with its on-site generator. A portable generator connection has been installed to maintain power to the site while troubleshooting and repairs continue.

3.2.8 Summary of Complaints

Appendix D, titled ‘Summary of Complaints,’ includes the table ‘2025 Complaints at the Wastewater Collection Stations’, which summarizes all complaints received in 2025.

One complaint was recorded in association with the Elgin Sewage pump station (FC001). The complaint was related to an ongoing odour and was investigated by Plant Operations staff, who conducted a thorough review of the situation.

3.2.9 Summary of Spills and Abnormal Discharge Events

In 2025, there were six spill events: four were wet weather-related combined sewer spills and two were spills associated with the wastewater collection stations covered in Section 3.1.

Table 3-5: Spills Reported to Spills Action Centre (SAC) in 2025

Date	Location	SAC Reference #	Event Description
2025-03-23	HCG03 (Rosemary/Wentworth Wastewater Regulator)	1-MOGCCC	A water main break in the vicinity of Wentworth Street North and Wilson Street resulted in potable water entering the combined sewer system, causing an spill into the environment through the Wentworth CSO outfall. This overflow continued for approximately 1.02 hours, at which point distribution operators isolated the water main break.
2025-11-28	HC017 (Eastport Sewage Pumping Station)	1-P8TFTM	A gasket on a vacuum truck began leaking, resulting in a spill of approximately 20 L of raw sewage entering the storm sewer at the Eastport Sewage Pumping Station. An operator was able to contain some of the spill with absorbent socks and a sump pump was lowered into the storm sewer chamber to attempt to capture as much of the material as possible.
2025-03-16	DC012 (Pleasant/Sunrise Sanitary Sewer Overflow Pumping Station)	1 J188KY	A combined sewage spill occurred at the DC012 Pleasant/Sunrise Sanitary Sewer Overflow Pumping Station due to heavy rainfall with an approximate volume of 201.23 m^3. The event lasted 4.4 hours and was formally closed on March 17, 2025

Date	Location	SAC Reference #	Event Description
2025-03-16	DC011 (Pleasant/Edenbridge Sanitary Sewer Overflow Pumping Station)	1 J188GB	A combined sewage spill occurred at the DC011 Pleasant/Edenbridge Sanitary Sewer Overflow Pumping Station due to heavy rainfall, with an approximate volume of 216.8 m^3. The event lasted 4.4 hours and was formally closed on March 17, 2025.
2025-04-02	DC011 (Pleasant/Edenbridge Sanitary Sewer Overflow Pumping Station)	1 N6P0NB	A combined sewage spill occurred at the DC011 Pleasant/Edenbridge Sanitary Sewer Overflow Pumping Station due to heavy rainfall. The event lasted an estimated 11.97 hours with unknown volume and was exacerbated by a pump fault that prevented effective pumping. The wet well was pumped down by vacuum truck and a discharge blockage removed on April 4, 2025, after which SAC was notified, and the event was formally closed.
2025-04-03	DC012 (Pleasant/Sunrise Sanitary Sewer Overflow Pump Station)	1 N79I71	At 03:15, a combined sewage overflow occurred at the DC012 Pleasant/Sunrise Sanitary Sewer Overflow Pump Station due to heavy rainfall. There was an approximate overflow volume of 2.31m^3 and the event lasted 0.01 hours. It was closed out later that day, following final reporting.

3.2.10 Other Information Required by the Ministry of the Environment, Conservation and Parks District Manager

The District Manager requested no additional information for inclusion in this report.

3.2.11 Overview of the Success and Adequacy of the Works and Evaluation of the Need for Modifications

These combined sewer overflow tank facilities and wastewater pumping stations are operating effectively as designed. Several facilities are undergoing upgrades and modifications to optimize system operations and maintain the facilities in a state of good repair.

3.2.11.1 Calvin Street (HC011) WWPS Upgrades

The Cavin Street Wastewater Pump Station Upgrade project was initiated to replace aging assets and increase the station's capacity, thereby supporting and maintaining the system for the next 30 years. Hatch, a consultant hired by the City, has completed the design, including the necessary ECA approvals (0185-CMXL2M, March 29, 2023), and it is currently under construction with E.S. Fox Limited. Substantial performance is expected in Q2 2026.

3.2.11.2 Rosemary-Wentworth Regulator (HCG03) Overflow Weir Modification

An opportunity was identified to raise the overflow weir at HCG03 by 45 centimetres to reduce overflows to the environment. An amendment to the Environmental Compliance Approval (ECA) was submitted in Q2 2024 to support this change. The MECP has since approved the amendment, allowing the increase in weir height. Work is now underway and is scheduled for completion by March 30, 2026.

3.2.11.3 Main-King Combined Sewer Overflow (HCS04) Rehabilitation

The Main-King Combined Sewer Overflow (HCS04) Rehabilitation Project was initiated to address Provincial Order 1-J25YB, Item 7 and to implement selected recommendations from the CSO Facilities Engineering Feasibility Study completed in April 2020. The primary focus of the project was upgrading existing actuators and adding redundant gate position sensors, with substantial performance achieved in August 2024. The contract is expected to be awarded by Q3 2026.

3.2.11.4 CSO Storage Tank Gate Monitoring Upgrades

The CSO Storage Tank Gate Monitoring Upgrades project was initiated to address Provincial Order 1-J25YB, Item 7. Like the Main/King Combined Sewer Overflow (HCS04) Rehabilitation Project, this project will implement selected recommendations from the CSO Facilities Engineering Feasibility Study completed in April 2020 at various CSO locations. The primary focus of the project was upgrading existing actuators and adding redundant gate position sensors. This project design is expected to be awarded in Q1 2026.

3.2.11.5 Binbrook Odour Control Pilot Project

In previous years, high hydrogen sulphide (H_2S) levels were causing significant corrosion of new concrete sewers and odour concerns for residents living along

Highway 56 and Highway 20. A pilot project with USP Technologies - Canada (USP) was approved in December 2020. USP's scope included the interim supply of chemicals, equipment, logistics, monitoring and program management to mitigate high levels of hydrogen sulphide in the wastewater collection system. As a result of this success and the benefits to the City's assets, the City has decided to make the dosing system permanent. The design of the permanent works will start in 2026, with construction expected to follow in 2027.

3.2.11.6 Diesel Fuel Tank Storage TSSA Compliance Improvements

Upgrades at several outstations with diesel fuel-powered generators were completed in 2025 to achieve compliance with TSSA and "Ontario Regulation 213/01: Fuel Oil", including English Church Wastewater Pumping Station (HC019), Homestead Wastewater Pumping Station (HC027) and Binbrook Wastewater Pumping Station (HC058). Upgrades to fuel and exhaust piping, intake/exhaust actuators, overfill panels and the installation of diking and epoxy floors were completed, along with other minor items as required.

3.2.12 Summary of Efforts Made to Achieve Conformance with F-5-1 and F-5-5

Hamilton Water has ongoing programs and has undertaken various projects to meet the MECP's requirements for municipal combined sewer systems as per Procedure F-5-5, "Determination of Treatment Requirements for Municipal and Private Combined". For additional details, refer to Subsection 1.3.13 of the Woodward Avenue WWTP report.

3.2.13 Changes or Updates to the Construction Schedule

The updated completion dates for the following projects:

Rosemary-Wentworth Regulator (HCG03) Overflow Weir Modification. Work is now underway and is scheduled for completion by March 30, 2026.

Main/King Combined Sewer Overflow (HCS04) Rehabilitation. The next phase is now underway. The contract is expected to be awarded by January 30, 2026.

Binbrook Odour Control Pilot Project. The design of the works will start in 2026, with construction to follow in 2027.

4 Appendices

Appendix A - Woodward Avenue WWTP Operating Data Summary

Table 4-1: Woodward Avenue WWTP Plant Flows

Month	Monthly Volume (ML)	Daily Average Flow (ML/d)	Daily Maximum Flow (ML/d)	Daily Minimum Flow (ML/d)	Peak Instantaneous Flow (ML/d)	# of days >409 (ML/d)	# of days >90(%) of 409 (ML/d)	Disinfected Volume (ML)
Jan.	8,397.296	270.881	472.627	235.172	551.000	2	2	-
Feb.	8,042.203	287.222	547.291	232.579	616.000	4	4	-
Mar.	13,402.356	432.334	781.687	290.499	1,124.000	14	16	-
Apr.	11,125.081	370.836	1129.905	253.055	1,469.000	6	8	-
May	11,095.056	357.905	990.628	248.751	1,183.000	6	8	6,881.49
Jun.	8,280.951	276.032	448.019	239.448	647.000	1	2	8,280.95
Jul.	7,961.261	256.815	384.953	215.834	762.000	0	1	7,961.26
Aug.	7,591.865	244.899	452.505	205.133	644.000	2	2	7,591.86
Sept.	7,262.926	242.098	479.178	199.790	1,015.000	1	3	7,262.93
Oct.	7,643.320	246.559	470.572	200.210	758.000	2	3	3,230.12
Nov.	8,388.615	279.621	389.673	233.946	663.000	0	1	-
Dec.	9,781.369	315.528	811.116	232.672	1,399.000	3	5	-
Total	**108,972.300**	**-**	**-**	**-**	**-**	**41**	**-**	**41,208.62**
Avg.	**9,081.025**	**298.394**	**613.180**	**232.257**	**902.583**	**3**	**-**	**6,868.10**
Max.	**13,402.356**	**432.334**	**1,129.905**	**290.499**	**1,469.000**	**14**	**-**	**8,280.95**
Min.	**7,262.926**	**242.098**	**384.953**	**199.790**	**551.000**	**0**	**-**	**3,230.12**

Table 4-2: 2025 Plant Bypass (Raw Overflow)

Month	# of Events	Hours	Volume (ML)
January	0	0	0
February	0	0	0
March	0	0	0
April	0	0	0
May	0	0	0
June	0	0	0
July	0	0	0
August	0	0	0
September	0	0	0
October	0	0	0
November	0	0	0
December	0	0	0
Total	**0.00**	**0.00**	**0.000**
Average	**0.00**	**0.00**	**0.000**
Maximum	**0.00**	**0.00**	**0.000**
Minimum	**0.00**	**0.00**	**0.000**

Table 4-3: 2025 Primary/Headworks Bypass (Preliminary Effluent Overflow)

Month	# of Events	Hours	Volume (ML)
January	0	0	0
February	0	0	0
March	0	0	0
April	1	6.42	55.686
May	0	0	0
June	0	0	0
July	0	0	0
August	0	0	0
September	1	2.27	21.732
October	0	0	0
November	0	0	0
December	0	0	0
Total	**2.00**	**8.69**	**77.418**
Average	**1.00**	**4.35**	**38.709**
Maximum	**1.00**	**6.42**	**55.686**
Minimum	**1.00**	**2.27**	**352.849**

Table 4-4: 2025 Secondary Bypass (Primary Effluent Overflow)

Month	# of Events	Hours	Volume (ML)
January	0	0	0
February	0	0	0
March	2	53.75	516.710
April	1	53.42	758.320
May	1	55.44	664.197
June	0	0	0
July	0	0	0
August	0	0	0
September	0	0	0
October	0	0	0
November	0	0	0
December	1	27.72	352.849
Total	**5.00**	**190.33**	**2292.076**
Average	**1.25**	**47.58**	**573.019**
Maximum	**2.00**	**55.44**	**758.320**
Minimum	**1.00**	**27.72**	**352.849**

Table 4-5: 2025 Tertiary Bypass

Month	# of Events	Hours	Volume (ML)
January	1	1.5	13.457
February	1	14.97	76.040
March	2	28.65	27.739
April	1	30.24	151.344
May	0	0	0
June	0	0	0
July	1	0.05	0.002
August	2	2.03	2.317
September	1	2.9	1.800
October	2	6.38	33.471
November	0	0	0
December	2	28.83	176.811
Total	**13.00**	**115.55**	**482.981**
Average	**1.44**	**12.84**	**53.665**
Maximum	**2.00**	**30.24**	**176.811**
Minimum	**1.00**	**0.05**	**0.002**

Table 4-6: 2025 Percentage of Flow to Plant Bypassed or Overflowed

Month	%
January	0.00
February	0.00
March	3.86
April	7.32
May	5.99
June	0.00
July	0.00
August	0.00
September	0.30
October	0.00
November	0.00
December	3.61
Total	**21.07**
Average	**1.76**
Maximum	**7.32**
Minimum	**0.00**

Table 4-7: Raw Influent Quality (Concentrations)

Month	TSS (mg/L)	tBOD (mg/L)	cBOD (mg/L)	TP (mg/L)	SP (mg/L)	NH_3 (mg/L)	TKN (mg/L)	Temp (C)	Alkalinity (mg/L)	pH Grab
Jan.	578.44	262.06	223.00	7.62	1.59	24.94	45.35	15.80	280.10	7.63
Feb.	682.27	269.80	230.34	8.63	1.60	24.45	46.16	14.62	263.20	7.63
Mar.	545.18	198.67	164.63	6.96	0.89	16.27	32.64	13.12	243.72	7.64
Apr.	609.97	217.97	189.18	6.86	1.21	18.37	38.11	14.68	267.68	7.58
May	543.76	221.45	189.66	7.38	1.12	19.24	38.32	17.05	265.06	7.48
Jun.	661.25	273.81	225.81	8.98	1.43	23.28	46.81	19.77	279.38	7.64
Jul.	733.52	272.53	231.34	8.50	1.67	24.77	44.29	22.27	268.73	7.63
Aug.	660.45	285.35	204.87	8.49	1.47	25.36	45.36	24.29	276.03	7.65
Sept.	571.50	278.50	232.62	9.98	1.85	28.53	46.69	23.49	276.79	7.64
Oct.	604.21	289.96	240.20	10.61	1.89	27.06	47.07	22.67	278.00	7.63
Nov.	881.55	328.22	248.03	14.92	1.25	24.22	53.43	19.75	274.10	7.63
Dec.	707.00	261.72	217.53	12.95	1.01	23.19	48.35	16.38	254.98	7.64
Avg.	**648.26**	**263.34**	**216.43**	**9.32**	**1.42**	**23.30**	**44.38**	**18.66**	**268.98**	**7.62**
Max.	**881.55**	**328.22**	**248.03**	**14.92**	**1.89**	**28.53**	**53.43**	**24.29**	**280.10**	**7.65**
Min.	**543.76**	**198.67**	**164.63**	**6.86**	**0.89**	**16.27**	**32.64**	**13.12**	**243.72**	**7.48**

Table 4-8: Raw Influent Quality (Daily Loadings)

Month	TSS (kg/d)	tBOD (kg/d)	cBOD (kg/d)	TP (kg/d)	SP (kg/d)	NH_3 (kg/d)	TKN (kg/d)
Jan.	157,753	71,093	60,320	2,039	413	6,583	12,049
Feb.	190,737	74,877	63,825	2,352	429	6,659	12,658
Mar.	228,023	82,681	67,809	2,844	349	6,644	13,330
Apr.	210,837	76,214	65,379	2,330	400	6,141	12,880
May	194,065	77,180	64,721	2,435	354	6,169	12,533
Jun.	183,359	75,387	62,322	2,485	389	6,315	12,736
Jul.	189,377	69,330	59,151	2,178	419	6,262	11,241
Aug.	166,059	68,832	49,307	2,034	344	6,044	10,861
Sept.	144,924	67,921	56,517	2,504	426	6,682	11,122
Oct.	154,563	72,540	60,148	2,666	457	6,505	11,511
Nov.	250,060	91,153	68,956	4,138	347	6,676	14,715
Dec.	217,100	80,583	66,126	4,058	291	6,912	14,621
Avg.	**190,571**	**75,649**	**62,048**	**2,672**	**385**	**6,466**	**12,522**
Max.	**250,060**	**91,153**	**68,956**	**4,138**	**457**	**6,912**	**14,715**
Min.	**144,924**	**67,921**	**49,307**	**2,034**	**291**	**6,044**	**10,861**

Table 4-9: North Primary Effluent Quality (Concentrations)

Month	TSS (mg/L)	cBOD (mg/L)	NH_3 (mg/L)	TKN (mg/L)	TP (mg/L)	SP (mg/L)
January	114.29	76.10	23.92	32.92	2.84	0.28
February	133.57	83.61	23.17	33.82	2.98	0.22
March	118.10	63.00	16.03	23.08	2.41	0.22
April	113.15	67.87	18.23	26.82	2.49	0.21
May	101.16	64.48	19.19	26.19	2.44	0.15
June	113.12	79.27	22.34	32.25	2.65	0.15
July	92.96	74.87	22.72	29.24	2.29	0.11
August	93.54	71.48	23.64	29.72	2.35	0.10
September	89.42	82.50	27.79	32.61	2.54	0.16
October	88.93	83.23	27.56	32.10	2.55	0.18
November	145.36	85.13	23.48	33.50	3.16	0.15
December	223.06	108.71	22.69	35.93	4.38	0.15
Average	**118.89**	**78.35**	**22.56**	**30.68**	**2.76**	**0.17**
Maximum	**223.06**	**108.71**	**27.79**	**35.93**	**4.38**	**0.28**
Minimum	**88.93**	**63.00**	**16.03**	**23.08**	**2.29**	**0.10**

Table 4-10: South Primary Effluent Quality (Concentrations)

Month	TSS (mg/L)	cBOD (mg/L)	NH_3 (mg/L)	TKN (mg/L)	TP (mg/L)	SP (mg/L)
January	106.94	73.45	23.70	32.29	2.77	0.26
February	127.86	83.75	22.92	33.18	2.90	0.22
March	104.52	58.29	15.96	22.20	2.28	0.23
April	101.86	65.67	18.26	26.45	2.38	0.21
May	93.38	60.55	18.92	25.65	2.33	0.15
June	99.98	72.77	21.60	30.85	2.56	0.16
July	85.98	70.61	22.59	28.83	2.35	0.15
August	94.48	74.19	23.76	29.64	2.53	0.13
September	89.19	84.87	27.42	32.49	2.76	0.19
October	88.80	83.65	27.81	32.52	2.66	0.21
November	131.45	83.70	24.14	33.90	3.23	0.20
December	191.00	96.16	23.17	35.84	4.02	0.17
Average	**109.62**	**75.64**	**22.52**	**30.32**	**2.73**	**0.19**
Maximum	**191.00**	**96.16**	**27.81**	**35.84**	**4.02**	**0.26**
Minimum	**85.98**	**58.29**	**15.96**	**22.20**	**2.28**	**0.13**

Table 4-11: Primary Treatment Summary

Month	TSS Reduction (%)	cBOD Reduction (%)	TP Reduction (%)
January	78.55	64.91	61.67
February	78.65	62.45	64.07
March	76.07	62.26	63.64
April	80.84	63.78	62.62
May	80.96	66.61	66.59
June	83.09	65.12	68.90
July	86.30	67.40	70.34
August	83.96	63.66	69.52
September	83.16	63.32	71.53
October	83.56	64.66	72.68
November	82.07	65.21	76.79
December	68.59	50.11	64.64
Average	**80.48**	**63.29**	**67.75**
Maximum	**86.30**	**67.40**	**76.79**
Minimum	**68.59**	**50.11**	**61.67**

Table 4-12: Aeration North Summary

Month	North Flow (ML/day)	MLSS (mg/L)	MLVSS (mg/L)	SRT (days)	HRT (hrs)
January	163.54	2,487.74	1,857.42	11.06	10.40
February	172.89	2,329.29	1,754.64	7.81	10.21
March	250.04	2,764.84	2,003.87	9.71	7.03
April	206.09	2,170.67	1,588.33	7.95	8.52
May	201.73	2,153.55	1,578.71	8.47	8.82
June	165.44	2,024.33	1,522.00	7.14	10.22
July	154.09	1,937.74	1,416.45	12.91	10.99
August	146.87	1,999.00	1,418.00	11.70	11.71
September	144.73	1,892.67	1,385.00	7.52	11.95
October	147.83	1,859.35	1,384.52	9.09	11.78
November	165.09	1,950.67	1,417.33	5.49	10.27
December	181.21	2,563.87	1,832.26	6.97	9.69
Average	**174.96**	**2,177.81**	**1,596.54**	**8.82**	**10.13**
Maximum	**250.04**	**2,764.84**	**2,003.87**	**12.91**	**11.95**
Minimum	**144.73**	**1,859.35**	**1,384.52**	**5.49**	**7.03**

Table 4-13: Aeration South Summary

Month	South Flow (ML/day)	MLSS (mg/L)	MLVSS (mg/L)	SRT (days)	HRT (hrs)
January	163.54	1,840.97	1,370.97	8.32	10.63
February	172.89	1,864.29	1,406.79	6.86	9.68
March	250.04	2,163.55	1,581.94	5.89	6.46
April	206.09	2,179.67	1,589.33	6.88	8.46
May	201.73	1,643.55	1,212.45	5.37	8.83
June	165.44	1,482.00	1,100.00	6.90	11.52
July	154.09	1,703.87	1,230.97	8.80	10.72
August	146.87	1,590.33	1,129.73	7.16	10.96
September	144.73	1,799.67	1,302.00	9.69	11.31
October	147.83	1,797.42	1,296.71	11.66	11.28
November	165.09	1,954.33	1,378.50	9.13	10.75
December	181.21	2,109.03	1,478.06	6.17	9.34
Average	**174.96**	**1,844.06**	**1,339.79**	**7.74**	**9.99**
Maximum	**250.04**	**2,179.67**	**1,589.33**	**11.66**	**11.52**
Minimum	**144.73**	**1,482.00**	**1,100.00**	**5.37**	**6.46**

Table 4-14: Return Activated Sludge TSS

Month	North TSS (mg/L)	South TSS (mg/L)
January	6,097.10	5,131.29
February	6,168.93	5,154.64
March	7,481.29	6,950.00
April	5,525.33	7,329.67
May	5,533.55	6,015.33
June	5,408.93	4,997.86
July	4,518.33	5,385.17
August	5,952.90	4,525.48
September	6,755.33	4,692.33
October	5,720.97	4,479.35
November	6,958.67	6,852.00
December	8,834.84	6,278.06
Average	**6,246.35**	**5,649.27**
Maximum	**8,834.84**	**7,329.67**
Minimum	**4,518.33**	**4,479.35**

Table 4-15: Secondary Effluent Quality (Average Concentrations)

Month	cBOD (mg/L)	TSS (mg/L)	SP (mg/L)	TP (mg/L)	NH_3 (mg/L)	TKN (mg/L)	NO_3 (mg/L)	NO_2 (mg/L)	Alkalinity (mg/L)	pH (Composite)
Jan.	12.35	47.71	0.17	0.90	0.25	5.86	20.63	0.30	103.15	7.39
Feb.	13.55	58.69	0.18	1.04	0.46	6.19	20.07	0.66	82.91	7.14
Mar.	12.40	44.89	0.18	0.94	0.56	4.91	14.25	0.52	130.94	7.52
Apr.	10.69	45.64	0.19	0.91	0.33	5.26	17.33	0.27	128.28	7.57
May	12.23	45.51	0.18	0.92	0.22	4.47	16.69	0.25	122.28	7.56
Jun.	12.26	41.21	0.25	0.90	0.88	5.20	16.42	0.25	125.49	7.69
Jul.	9.62	24.61	0.24	0.61	0.39	2.69	17.48	0.25	100.68	7.57
Aug.	7.80	26.21	0.19	0.61	0.92	3.13	16.84	0.22	101.66	7.60
Sept.	6.96	15.12	0.16	0.43	1.38	3.07	17.81	0.19	94.35	7.54
Oct.	7.67	20.27	0.19	0.55	1.02	3.16	18.76	0.17	92.51	7.48
Nov.	13.11	43.52	0.19	0.91	0.66	5.26	19.89	0.25	98.91	7.45
Dec.	17.53	56.80	0.16	1.08	0.83	6.84	16.53	0.97	107.54	7.35
Avg.	**11.35**	**39.18**	**0.19**	**0.82**	**0.66**	**4.67**	**17.73**	**0.36**	**107.39**	**7.49**
Max.	**17.53**	**58.69**	**0.25**	**1.08**	**1.38**	**6.84**	**20.63**	**0.97**	**130.94**	**7.69**
Min.	**6.96**	**15.12**	**0.16**	**0.43**	**0.22**	**2.69**	**14.25**	**0.17**	**82.91**	**7.14**

Table 4-16: Secondary Effluent Quality (Loadings)

Month	cBOD (kg/d)	TSS (kg/d)	SP (kg/d)	TP (kg/d)	NH_3 (kg/d)	TKN (kg/d)	NO_3 (kg/d)	NO_2 (kg/d)	Alkalinity (kg/d)
Jan.	2,000	7,579	26	142	38	925	3,343	50	17,286
Feb.	2,382	10,192	29	179	94	1,070	3,369	108	15,163
Mar.	3,018	10,766	42	225	137	1,166	3,439	122	32,477
Apr.	2,154	9,218	35	183	59	1,053	3,318	55	25,847
May	2,409	8,844	34	178	42	864	3,165	50	23,935
Jun.	2,071	6,892	41	151	142	862	2,753	41	21,077
Jul.	1,506	3,839	36	95	64	421	2,673	39	15,584
Aug.	1,213	4,224	29	98	140	482	2,602	32	15,921
Sept.	1,030	2,251	23	63	200	449	2,540	27	13,536
Oct.	1,129	3,050	27	81	146	463	2,690	24	13,456
Nov.	2,180	7,256	30	151	110	877	3,280	42	16,729
Dec.	3,110	10,221	28	195	149	1,215	2,914	187	19,613
Avg.	**2,017**	**7,028**	**32**	**145**	**110**	**821**	**3,007**	**65**	**19,219**
Max.	**3,110**	**10,766**	**42**	**225**	**200**	**1,215**	**3,439**	**187**	**32,477**
Min.	**1,030**	**2,251**	**23**	**63**	**38**	**421**	**2,540**	**24**	**13,456**

Table 4-17: Secondary Effluent Quality (Removals)

Month	TSS (%)	cBOD (%)	TP (%)
January	91.19	94.29	87.79
February	90.51	94.01	87.38
March	89.91	91.85	84.14
April	91.89	94.20	85.83
May	90.91	93.19	86.43
June	93.28	94.41	89.27
July	96.40	95.63	92.11
August	95.67	95.98	92.30
September	97.23	96.93	95.43
October	96.24	96.53	94.39
November	94.25	94.70	93.53
December	91.21	91.39	91.23
Average	**93.23**	**94.43**	**89.98**
Maximum	**97.23**	**96.93**	**95.43**
Minimum	**89.91**	**91.39**	**84.14**

Table 4-18: Final Effluent Quality (Concentrations)

Month	TSS (mg/L)	cBOD (mg/L)	TP (mg/L)	SP (mg/L)	Unionized NH_3 (ug/L)	NH_3 (mg/L)	TKN (mg/L)	NO_3 (mg/L)	NO_2 (mg/L)	Alkalinity (mg/L)	Temp (°C)	pH (Grab)	E. coli (MPN/ 100 mL)
Jan.	7.71	3.93	0.24	0.04	0.66	0.43	1.92	21.27	0.28	99.07	12.21	7.47	-
Feb.	10.64	4.95	0.28	0.04	1.43	0.58	1.96	20.95	0.64	78.95	11.73	7.33	-
Mar.	6.77	3.64	0.24	0.05	1.83	0.81	1.78	14.28	0.62	128.25	13.10	7.65	-
Apr.	6.80	3.55	0.22	0.04	1.02	0.56	1.70	17.84	0.22	123.32	13.46	7.61	-
May	7.00	3.34	0.24	0.05	1.15	0.61	1.55	17.87	0.14	114.02	16.35	7.59	1.00
Jun.	6.43	3.42	0.25	0.07	5.74	0.84	1.97	18.73	0.17	108.67	19.80	7.67	1.00
Jul.	5.67	2.50	0.22	0.05	2.00	0.54	1.55	19.78	0.13	82.93	22.37	7.54	1.00
Aug.	6.27	3.24	0.20	0.04	7.03	1.15	2.10	19.02	0.20	87.11	23.41	7.58	1.00
Sept.	5.70	2.77	0.19	0.04	9.28	1.61	2.38	19.64	0.23	80.45	21.97	7.52	1.00
Oct.	5.04	2.65	0.18	0.04	6.55	1.25	2.11	20.18	0.17	84.24	20.56	7.58	1.00
Nov.	6.20	2.95	0.19	0.03	3.25	0.84	1.90	20.48	0.21	91.84	14.89	7.64	-
Dec.	10.22	5.26	0.24	0.03	2.86	0.91	2.30	17.85	0.87	95.63	14.10	7.55	-
Avg.	**7.04**	**3.52**	**0.22**	**0.04**	**3.57**	**0.84**	**1.93**	**18.99**	**0.32**	**97.87**	**17.00**	**7.56**	**1.00**
Max.	**10.64**	**5.26**	**0.28**	**0.07**	**9.28**	**1.61**	**2.38**	**21.27**	**0.87**	**128.25**	**23.41**	**7.67**	**1.00**
Min.	**5.04**	**2.50**	**0.18**	**0.03**	**0.66**	**0.43**	**1.55**	**14.28**	**0.13**	**78.95**	**11.73**	**7.33**	**1.00**

Table 4-19: Final Effluent Quality (Loadings)

Month	TSS (kg/d)	cBOD (kg/d)	TP (kg/d)	SP (kg/d)	Unionized NH_3 (kg/d)	NH_3 (kg/d)	TKN (kg/d)	NO_3 (kg/d)	NO_2 (kg/d)	Alkalinity (kg/d)
Jan.	2,020	1,034	63	11	0	111	501	5,704	77	27,378
Feb.	3,231	1,481	81	11	1	182	572	5,751	176	23,224
Mar.	3,087	1,593	102	21	1	338	744	6,004	250	54,936
Apr.	2,750	1,285	81	13	0	177	611	6,089	84	45,592
May	2,535	1,193	83	15	0	194	524	5,898	48	39,741
Jun.	1,818	970	69	18	1	229	541	5,174	47	30,060
Jul.	1,486	654	57	14	0	149	406	5,016	34	21,426
Aug.	1,664	833	52	9	2	284	514	4,651	48	21,752
Sept.	1,528	708	49	9	2	405	596	4,679	56	19,398
Oct.	1,242	640	42	9	1	294	502	4,744	40	20,136
Nov.	1,781	843	55	9	1	238	540	5,676	58	26,157
Dec.	3,708	1,783	85	9	1	291	744	5,566	296	31,183
Avg.	**2,237**	**1,085**	**68**	**12**	**1**	**241**	**566**	**5,413**	**101**	**30,082**
Max.	**3,708**	**1,783**	**102**	**21**	**2**	**405**	**744**	**6,089**	**296**	**54,936**
Min.	**1,242**	**640**	**42**	**9**	**0**	**111**	**406**	**4,651**	**34**	**19,398**

Table 4-20: Final Effluent Quality (Removals)

Month	TSS (%)	cBOD (%)	TP (%)
January	98.56	98.21	96.61
February	98.21	97.73	96.45
March	98.50	97.75	96.25
April	98.78	98.10	96.67
May	98.60	98.18	96.67
June	98.98	98.41	96.96
July	99.17	98.91	97.12
August	98.93	98.35	97.31
September	98.99	98.74	97.87
October	99.07	98.84	98.19
November	99.20	98.79	98.60
December	98.29	97.35	97.89
Average	**98.77**	**98.28**	**97.22**
Maximum	**99.20**	**98.91**	**98.60**
Minimum	**98.21**	**97.35**	**96.25**

Table 4-21: Raw Sludge

Month	Total RS (m^3)	TS (%)	VS (%)
January	38,235	3.03	71.31
February	35,156	3.47	73.54
March	37,001	4.22	62.39
April	34,649	3.59	62.76
May	35,892	3.55	68.72
June	34,376	3.09	72.12
July	34,851	4.00	66.03
August	31,185	3.62	66.43
September	28,048	3.72	66.76
October	34,262	2.97	70.95
November	36,087	3.01	68.52
December	37,366	3.32	67.27
Total	**417,109.89**	**-**	**-**
Average	**34,759.16**	**3.46**	**68.07**
Maximum	**38,234.89**	**4.22**	**73.54**
Minimum	**28,048.50**	**2.97**	**62.39**

Table 4-22: Thickened Raw Sludge

Month	TRS Total (m^3)	Total TRS dry solids (t)	TRS TS (%)	TRS VS (%)
January	23,647	1,322	5.63	75.33
February	22,213	1,463	6.58	76.95
March	27,621	1,921	7.03	67.63
April	28,812	1,779	6.24	69.44
May	27,796	1,919	7.14	69.84
June	28,175	1,679	6.09	73.27
July	24,395	1,687	7.10	71.40
August	23,351	1,644	7.13	69.57
September	29,001	1,564	5.38	70.46
October	20,949	1,343	6.52	73.07
November	23,968	1,430	6.05	71.05
December	27,525	1,606	5.83	69.54
Total	**307,454**	**19,357**	**-**	**-**
Average	**25,621**	**1,613**	**6.39**	**71.46**
Maximum	**29,001**	**1,921**	**7.14**	**76.95**
Minimum	**20,949**	**1,322**	**5.38**	**67.63**

Table 4-23: Waste Activated Sludge (WAS)

Month	WAS Volume (m^3)	WAS Combined TS (%)
January	108,327	0.56
February	119,138	0.57
March	115,196	0.72
April	120,929	0.64
May	135,290	0.58
June	138,211	0.52
July	104,756	0.50
August	131,336	0.52
September	121,816	0.57
October	120,189	0.51
November	137,238	0.69
December	135,635	0.76
Total	**1,488,063**	**-**
Average	**124,005**	**0.59**
Maximum	**138,211**	**0.76**
Minimum	**104,756**	**0.50**

Table 4-24: Thickened Waste Activated Sludge (TWAS)

Month	TWAS Total (m^3)	TWAS TS (%)	TWAS VS (%)	TWAS Dry Solids (t)
January	16,678	4.65	73.70	776
February	18,877	4.53	73.35	854
March	23,490	5.53	71.58	1,298
April	17,986	5.50	72.24	989
May	21,422	4.60	72.48	985
June	19,556	4.43	72.90	865
July	16,087	4.38	71.12	705
August	19,110	4.33	68.58	826
September	19,186	4.78	71.70	917
October	22,020	4.38	72.93	963
November	24,284	4.78	71.40	1,160
December	24,571	4.94	69.74	1,214
Total	**243,266**	**-**	**-**	**11,552**
Average	**20,272**	**4.73**	**71.81**	**963**
Maximum	**24,571**	**5.53**	**73.70**	**1,298**
Minimum	**16,087**	**4.33**	**68.58**	**705**

Table 4-25: Primary Digesters

Month	Total Feed (m^3)	Primary Retention Time (Avg. d)	TS (%)	VS (%)
January	40,325	12.07	3.00	58.18
February	41,090	10.62	2.93	60.90
March	51,111	9.73	3.23	57.10
April	46,799	10.23	3.50	56.76
May	49,218	9.83	3.20	57.20
June	47,730	10.04	3.18	58.25
July	40,483	12.58	3.12	56.60
August	42,461	11.74	3.08	55.48
September	48,187	10.05	2.70	57.14
October	42,969	11.45	1.98	58.75
November	48,252	9.91	2.85	60.05
December	52,096	9.75	3.08	58.12
Total	**550,721**	**-**	**-**	**-**
Average	**45,893**	**10.67**	**2.99**	**57.88**
Maximum	**52,096**	**12.58**	**3.50**	**60.90**
Minimum	**40,325**	**9.73**	**1.98**	**55.48**

Table 4-26: Secondary Digesters

Month	Secondary TS (%)	Secondary VS (%)	VS Reduction #3 SD (%)
January	2.93	58.85	52.71
February	2.85	60.95	48.62
March	3.18	56.78	46.79
April	3.44	55.86	48.24
May	3.38	56.98	43.89
June	3.38	57.95	53.17
July	3.18	56.48	46.49
August	3.15	54.75	48.03
September	2.92	56.00	47.56
October	2.53	59.13	46.29
November	2.98	59.48	41.00
December	3.12	58.62	37.59
Average	**3.08**	**57.65**	**46.70**
Maximum	**3.44**	**60.95**	**53.17**
Minimum	**2.53**	**54.75**	**37.59**

Table 4-27: Biogas Production

Month	Biogas (m^3/day)	Cogen Total (m^3/day)	BPU Total (m^3/day)	Waste Gas Total (m^3/day)
January	629,869	347,149	389	282,331
February	625,404	320,633	127,385	177,386
March	572,792	338,277	179,785	54,730
April	571,776	312,884	221,450	37,442
May	626,715	352,087	213,287	61,341
June	603,363	337,223	103,014	163,126
July	605,591	115,955	33,939	455,697
August	528,441	149,069	36,800	342,572
September	514,036	277,924	92,125	143,987
October	535,695	298,897	71,125	165,673
November	497,241	193,734	74	303,433
December	519,592	88,568	265	430,759
Total	**6,830,514**	**3,132,400**	**1,079,638**	**2,618,477**
Average	**569,210**	**261,033**	**89,970**	**218,206**
Maximum	**629,869**	**352,087**	**221,450**	**455,697**
Minimum	**497,241**	**88,568**	**74**	**37,442**

Table 4-28: Biosolids to Synagro

Month	Sludge Cake (tonnes)	Cake Solids (%)
January	4,684	24.19
February	4,482	24.03
March	5,290	25.60
April	5,236	26.82
May	4,867	27.52
June	4,711	27.61
July	4,256	28.08
August	4,605	26.67
September	4,687	26.21
October	4,182	25.71
November	4,826	24.76
December	4,738	24.49
Total	**56,564**	**-**
Average	**4,714**	**25.97**
Maximum	**5,290**	**28.08**
Minimum	**4,182**	**24.03**

Table 4-29: Chlorination/Dechlorination

Month	Chlorine Used (kg)	Chlorine Dosage (mg/L)	Disinfection Total Chlorine Residual (mg/L)	SBS Used (L)	Final Total Chlorine Residual (mg/L)
January	-	-	-	-	-
February	-	-	-	-	-
March	-	-	-	-	-
April	-	-	-	-	-
May	9,668	1.45	0.45	49,214	0.01
June	12,542	1.51	0.44	50,254	0.01
July	15,430	1.95	0.47	61,695	0.01
August	13,538	1.77	0.59	53,069	0.01
September	11,229	1.54	0.58	43,506	0.01
October	5,173	1.60	0.48	19,483	0.01
November	-	-	-	-	-
December	-	-	-	-	-
Total	**67,580**	**-**	**-**	**277,221**	**-**
Average	**11,263**	**1.64**	**0.50**	**46,204**	**0.01**
Maximum	**15,430**	**1.95**	**0.59**	**61,695**	**0.01**
Minimum	**5,173**	**1.45**	**0.44**	**19,483**	**0.01**

Table 4-30: Ferric Sulphate

Month	Dosage as Iron (mg/L)	Total Consumption (L)
January	7.80	322,709
February	8.80	343,148
March	4.84	315,435
April	6.57	338,716
May	7.48	390,454
June	8.58	359,532
July	10.24	410,627
August	10.45	401,390
September	10.88	395,030
October	10.66	407,148
November	8.59	359,172
December	7.49	355,464
Total	**-**	**4,398,827**
Average	**8.53**	**366,569**
Maximum	**10.88**	**410,627**
Minimum	**4.84**	**315,435**

Table 4-31: Liquid Waste Hauler

Month	Dundas Sludge (m^3)	Septic Haulers (m^3)
January	3,216	5,212
February	2,921	1,687
March	2,761	4,306
April	3,076	6,057
May	3,255	2,638
June	3,546	4
July	3,667	3,203
August	3,259	5,162
September	3,225	5,566
October	3,442	5,215
November	3,098	4,549
December	3,508	4,724
Total	**38,973**	**48,325**
Average	**3,248**	**4,027**
Maximum	**3,667**	**6,057**
Minimum	**2,761**	**4**

Table 4-32: Primary Effluent Overflow Quality

Event #	Bypass Date	Influent TBOD (mg/L)	Influent TSS (mg/L)	Primary Effluent North Channel TBOD (mg/L)	Primary Effluent North Channel TSS (mg/L)	Percent Removal TBOD (%)	Percent Removal TSS (%)
8	2025-03-05	163	419	82	158	49.7%	62.3%
8	2025-03-06	102	173	58	129	42.9%	25.2%
8	2025-03-07	123	176	54	80	55.9%	54.2%
18	2025-03-16	179	609	65	110	63.6%	81.9%
18	2025-03-17	172	333	62	97	64.0%	70.9%
27	2025-04-02	223	605	89	123	60.1%	79.7%
27	2025-04-03	125	364	62	153	50.4%	57.9%
27	2025-04-04	166	338	41	63	75.2%	81.5%
27	2025-04-05	177	349	65	76	63.3%	78.2%
46	2025-05-21	262	698	83	103	68.3%	85.2%
46	2025-05-22	182	627	61	100	66.4%	84.1%
46	2025-05-23	151	300	38	62	74.8%	79.3%
46	2025-05-24	291	521	47	76	83.8%	85.4%
81	2025-09-25	297	736	64	91	78.5%	87.7%
100	2025-12-28	253	615	99	146	60.8%	76.3%
100	2025-12-29	155	377	123	394	20.4%	-4.6%
-	**Annual Average**	**-**	**-**	**-**	**-**	**61%**	**68%**
-	**Objective**	**-**	**-**	**-**	**-**	**>30%**	**>50%**

Table 4-33: Primary Effluent Quality (Overflow Disinfection)

Event #	Sample Date	Sample Time	E. coli (MPN/100 mL)	E. coli geometric mean (MPN/100 mL)	Total Residual Chlorine (mg/L)
46	2025-05-21	21:00	2,500	1,225	0.00
46	2025-05-22	5:00	49	1,225	0.02
46	2025-05-22	13:00	900	1,225	0.02
46	2025-05-22	21:00	310	1,225	0.00
46	2025-05-23	5:00	2,310	1,225	0.02
46	2025-05-23	13:00	1,900	1,225	0.02
46	2025-05-23	21:00	27,600	1,225	0.00
81	2025-09-25	1:09	900	900	0.00

Appendix B – Maintenance Activities

Historically, the City provides a table summarizing major maintenance activities with expenditures to the City's vertical infrastructure for a reporting year. However, on February 25, 2024, the City experienced a cybersecurity incident that led to the loss of all computerized maintenance management systems and the inability to provide these expenditures.

Significant Works

System-wide Vibration analysis

Thermographic scanning program

System-wide PRV valve inspection/certification

Woodward Wastewater Treatment Plant

Rebuild of Primary Tanks #8 & 14

Inspection of Final Tanks #5 & 6, repairs made as necessary

Cake Pump #1 Rams and Poppets replaces and oil changed

Centrifuge #3 feed pump rebuilt

Aeration Blower #1 rebuilt

Archimedes Screw #5 bearing and auger replaced

Archimedes Screw #4 & 6 bearings replaced

All 3 Methane gas compressors were opened and inspected.

High voltage system maintenance (yearly)

Electrical Power Centre C C-Can H.V. battery maintenance (yearly)

Battery charger maintenance program completed (yearly)

HD005 Generator PLC upgrade

Electrical Power Centre Toromont generator yearly inspection and battery bank load test

Dundas Wastewater Treatment Plant

Rebuild of Primary Tank 1 Plant A

Inspection and rebuild of Aeration Blower

Appendix C – Calibration and Maintenance of Monitoring Equipment

Table 4-34: Woodward Avenue WWTP Calibration and Maintenance of Monitoring Equipment

* Work Order numbers were not available for the 2025 reporting year due to the cybersecurity incident.

** Some equipment numbers were not available for the 2025 reporting year due to the cybersecurity incident.

*Work Order	Description	**Equipment	Equipment Description	Date Completed
-	I-WW-2W-MOE-EFFLUENT AUTO SAMPLERS-SERVICE	114514	HSMPS, EFFLUENT AUTO SAMPLER #2	13-Jan-25
-	I-WW-2W-MOE-EFFLUENT AUTO SAMPLERS-SERVICE	114513	HSMPS, EFFLUENT AUTO SAMPLER #1	13-Jan-25
-	I-WW-2W-MOE-EFFLUENT AUTO SAMPLERS-SERVICE	114514	HSMPS, EFFLUENT AUTO SAMPLER #2	27-Jan-25
-	I-WW-2W-MOE-EFFLUENT AUTO SAMPLERS-SERVICE	114513	HSMPS, EFFLUENT AUTO SAMPLER #1	27-Jan-25
-	I-WW-2W-MOE-EFFLUENT AUTO SAMPLERS-SERVICE	114514	HSMPS, EFFLUENT AUTO SAMPLER #2	10-Feb-25
-	I-WW-2W-MOE-EFFLUENT AUTO SAMPLERS-SERVICE	114513	HSMPS, EFFLUENT AUTO SAMPLER #1	10-Feb-25
-	I-WW-2W-MOE-EFFLUENT AUTO SAMPLERS-SERVICE	114514	HSMPS, EFFLUENT AUTO SAMPLER #2	24-Feb-25
-	I-WW-2W-MOE-EFFLUENT AUTO SAMPLERS-SERVICE	114513	HSMPS, EFFLUENT AUTO SAMPLER #1	24-Feb-25
-	I-WW-1Y-MOE-FLOW TRANSMITTER-CALIBRATION	114501	HSMPS, SEWAGE LIFT PUMP #1 DISCHARGE FLOW TRANSMITTER	1-Feb-25
-	I-WW-1Y-MOE-FLOW TRANSMITTER-CALIBRATION	114502	HSMPS, SEWAGE LIFT PUMP #2 DISCHARGE FLOW TRANSMITTER	1-Feb-25
-	I-WW-1Y-MOE-FLOW TRANSMITTER-CALIBRATION	114506	HSMPS, SEWAGE LIFT PUMP #6 DISCHARGE FLOW TRANSMITTER	4-Feb-25

*Work Order	Description	**Equipment	Equipment Description	Date Completed
-	I-WW-1Y-MOE-FLOW TRANSMITTER-CALIBRATION	114508	HSMPS, SEWAGE LIFT PUMP #8 DISCHARGE FLOW TRANSMITTER	4-Feb-25
-	I-WW-1Y-MOE-FLOW TRANSMITTER-CALIBRATION	114507	HSMPS, SEWAGE LIFT PUMP #7 DISCHARGE FLOW TRANSMITTER	4-Feb-25
-	I-WW-1Y-MOE-FLOW TRANSMITTER-CALIBRATION	114511	HSMPS, SEWAGE LIFT PUMP #11 DISCHARGE FLOW TRANSMITTER	5-Feb-25
-	I-WW-1Y-MOE-FLOW TRANSMITTER-CALIBRATION	114510	HSMPS, SEWAGE LIFT PUMP #10 DISCHARGE FLOW TRANSMITTER	5-Feb-25
-	I-WW-1Y-MOE-FLOW TRANSMITTER-CALIBRATION	114509	HSMPS, SEWAGE LIFT PUMP #9 DISCHARGE FLOW TRANSMITTER	4-Feb-25
-	I-WW-1Y-MOE-FLOW TRANSMITTER-CALIBRATION	114505	HSMPS, SEWAGE LIFT PUMP #5 DISCHARGE FLOW TRANSMITTER	3-Feb-25
-	I-WW-1Y-MOE-FLOW TRANSMITTER-CALIBRATION	114504	HSMPS, SEWAGE LIFT PUMP #4 DISCHARGE FLOW TRANSMITTER	3-Feb-25
-	I-WW-1Y-MOE-FLOW TRANSMITTER-CALIBRATION	114503	HSMPS, SEWAGE LIFT PUMP #3 DISCHARGE FLOW TRANSMITTER	1-Feb-25
-	I-WW-1Y-MOE-FLOW TRANSMITTER-CALIBRATION	114512	HSMPS, SEWAGE LIFT PUMP #12 DISCHARGE FLOW TRANSMITTER	5-Feb-25
-	I-WW-2W-MOE-EFFLUENT AUTO SAMPLERS-SERVICE	114513	HSMPS, EFFLUENT AUTO SAMPLER #1	10-Mar-25
-	I-WW-2W-MOE-EFFLUENT AUTO SAMPLERS-SERVICE	114514	HSMPS, EFFLUENT AUTO SAMPLER #2	10-Mar-25
-	I-WW-2W-MOE-EFFLUENT AUTO SAMPLERS-SERVICE	114513	HSMPS, EFFLUENT AUTO SAMPLER #1	24-Mar-25
-	I-WW-2W-MOE-EFFLUENT AUTO SAMPLERS-SERVICE	114514	HSMPS, EFFLUENT AUTO SAMPLER #2	24-Mar-25
-	I-WW-2W-MOE-EFFLUENT AUTO SAMPLERS-SERVICE	114513	HSMPS, EFFLUENT AUTO SAMPLER #1	7-Apr-25
-	I-WW-2W-MOE-EFFLUENT AUTO SAMPLERS-SERVICE	114514	HSMPS, EFFLUENT AUTO SAMPLER #2	7-Apr-25
-	I-WW-2W-MOE-EFFLUENT AUTO SAMPLERS-SERVICE	114513	HSMPS, EFFLUENT AUTO SAMPLER #1	5-May-25
-	I-WW-2W-MOE-EFFLUENT AUTO SAMPLERS-SERVICE	114514	HSMPS, EFFLUENT AUTO SAMPLER #2	5-May-25
-	I-WW-2W-MOE-EFFLUENT AUTO SAMPLERS-SERVICE	114513	HSMPS, EFFLUENT AUTO SAMPLER #1	2-Jun-25

*Work Order	Description	**Equipment	Equipment Description	Date Completed
-	I-WW-2W-MOE-EFFLUENT AUTO SAMPLERS-SERVICE	114514	HSMPS, EFFLUENT AUTO SAMPLER #2	2-Jun-25
	I-WW-2W-MOE-EFFLUENT AUTO SAMPLERS-SERVICE	114513	HSMPS, EFFLUENT AUTO SAMPLER #1	16-Jun-25
	I-WW-2W-MOE-EFFLUENT AUTO SAMPLERS-SERVICE	114514	HSMPS, EFFLUENT AUTO SAMPLER #2	16-Jun-25
	I-WW-2W-MOE-EFFLUENT AUTO SAMPLERS-SERVICE	114513	HSMPS, EFFLUENT AUTO SAMPLER #1	30-Jun-25
-	I-WW-2W-MOE-EFFLUENT AUTO SAMPLERS-SERVICE	114514	HSMPS, EFFLUENT AUTO SAMPLER #2	30-Jun-25
-	I-WW-2W-MOE-EFFLUENT AUTO SAMPLERS-SERVICE	114513	HSMPS, EFFLUENT AUTO SAMPLER #1	14-Jul-25
-	I-WW-2W-MOE-EFFLUENT AUTO SAMPLERS-SERVICE	114514	HSMPS, EFFLUENT AUTO SAMPLER #2	14-Jul-25
-	I-WW-2W-MOE-EFFLUENT AUTO SAMPLERS-SERVICE	114513	HSMPS, EFFLUENT AUTO SAMPLER #1	28-Jul-25
-	I-WW-2W-MOE-EFFLUENT AUTO SAMPLERS-SERVICE	114514	HSMPS, EFFLUENT AUTO SAMPLER #2	28-Jul-25
-	I-WW-2W-MOE-EFFLUENT AUTO SAMPLERS-SERVICE	114513	HSMPS, EFFLUENT AUTO SAMPLER #1	11-Aug-25
-	I-WW-2W-MOE-EFFLUENT AUTO SAMPLERS-SERVICE	114514	HSMPS, EFFLUENT AUTO SAMPLER #2	11-Aug-25
-	I-WW-2W-MOE-EFFLUENT AUTO SAMPLERS-SERVICE	114513	HSMPS, EFFLUENT AUTO SAMPLER #1	25-Aug-25
-	I-WW-2W-MOE-EFFLUENT AUTO SAMPLERS-SERVICE	114514	HSMPS, EFFLUENT AUTO SAMPLER #2	25-Aug-25
-	I-WW-2W-MOE-EFFLUENT AUTO SAMPLERS-SERVICE	114513	HSMPS, EFFLUENT AUTO SAMPLER #1	8-Sep-25
-	I-WW-2W-MOE-EFFLUENT AUTO SAMPLERS-SERVICE	114514	HSMPS, EFFLUENT AUTO SAMPLER #2	8-Sep-25
-	I-WW-2W-MOE-EFFLUENT AUTO SAMPLERS-SERVICE	114513	HSMPS, EFFLUENT AUTO SAMPLER #1	22-Sep-25
-	I-WW-2W-MOE-EFFLUENT AUTO SAMPLERS-SERVICE	114514	HSMPS, EFFLUENT AUTO SAMPLER #2	22-Sep-25
-	I-WW-2W-MOE-EFFLUENT AUTO SAMPLERS-SERVICE	114513	HSMPS, EFFLUENT AUTO SAMPLER #1	6-Oct-25
-	I-WW-2W-MOE-EFFLUENT AUTO SAMPLERS-SERVICE	114514	HSMPS, EFFLUENT AUTO SAMPLER #2	6-Oct-25
-	I-WW-2W-MOE-EFFLUENT AUTO SAMPLERS-SERVICE	114513	HSMPS, EFFLUENT AUTO SAMPLER #1	20-Oct-25
-	I-WW-2W-MOE-EFFLUENT AUTO SAMPLERS-SERVICE	114514	HSMPS, EFFLUENT AUTO SAMPLER #2	20-Oct-25
-	I-WW-2W-MOE-EFFLUENT AUTO SAMPLERS-SERVICE	114513	HSMPS, EFFLUENT AUTO SAMPLER #1	3-Nov-25

*Work Order	Description	**Equipment	Equipment Description	Date Completed
-	I-WW-2W-MOE-EFFLUENT AUTO SAMPLERS-SERVICE	114514	HSMPS, EFFLUENT AUTO SAMPLER #2	17-Nov-25
-	I-WW-2W-MOE-EFFLUENT AUTO SAMPLERS-SERVICE	114513	HSMPS, EFFLUENT AUTO SAMPLER #1	17-Nov-25
-	I-WW-2W-MOE-EFFLUENT AUTO SAMPLERS-SERVICE	114514	HSMPS, EFFLUENT AUTO SAMPLER #2	10-Nov-25
-	I-WW-2W-MOE-EFFLUENT AUTO SAMPLERS-SERVICE	114513	HSMPS, EFFLUENT AUTO SAMPLER #1	1-Dec-25
-	I-WW-2W-MOE-EFFLUENT AUTO SAMPLERS-SERVICE	114514	HSMPS, EFFLUENT AUTO SAMPLER #2	1-Dec-25
-	I-WW-2W-MOE-EFFLUENT AUTO SAMPLERS-SERVICE	114513	HSMPS, EFFLUENT AUTO SAMPLER #1	15-Dec-25
-	I-WW-2W-MOE-EFFLUENT AUTO SAMPLERS-SERVICE	114514	HSMPS, EFFLUENT AUTO SAMPLER #2	15-Dec-25
-	I-WW-2W-MOE-EFFLUENT AUTO SAMPLERS-SERVICE	114513	HSMPS, EFFLUENT AUTO SAMPLER #1	29-Dec-25
-	I-WW-2W-MOE-EFFLUENT AUTO SAMPLERS-SERVICE	114514	HSMPS, EFFLUENT AUTO SAMPLER #2	29-Dec-25
-	I-WW-2W-MOE-EFFLUENT AUTO SAMPLERS-SERVICE	-	HSTTB FE1 SAMPLER	6-Jan-25
-	I-WW-2W-MOE-EFFLUENT AUTO SAMPLERS-SERVICE	-	HSTTB FE2 SAMPLER	6-Jan-25
-	I-WW-2W-MOE-EFFLUENT AUTO SAMPLERS-SERVICE	-	HSTTB FE1 SAMPLER	20-Jan-25
-	I-WW-2W-MOE-EFFLUENT AUTO SAMPLERS-SERVICE	-	HSTTB FE2 SAMPLER	20-Jan-25
-	I-WW-2W-MOE-EFFLUENT AUTO SAMPLERS-SERVICE	-	HSTTB FE1 SAMPLER	3-Feb-25
-	I-WW-2W-MOE-EFFLUENT AUTO SAMPLERS-SERVICE	-	HSTTB FE2 SAMPLER	3-Feb-25
-	I-WW-2W-MOE-EFFLUENT AUTO SAMPLERS-SERVICE	-	HSTTB FE1 SAMPLER	17-Feb-25
-	I-WW-2W-MOE-EFFLUENT AUTO SAMPLERS-SERVICE	-	HSTTB FE2 SAMPLER	17-Feb-25
-	I-WW-2W-MOE-EFFLUENT AUTO SAMPLERS-SERVICE	-	HSTTB FE1 SAMPLER	3-Mar-25
-	I-WW-2W-MOE-EFFLUENT AUTO SAMPLERS-SERVICE	-	HSTTB FE2 SAMPLER	3-Mar-25
-	I-WW-2W-MOE-EFFLUENT AUTO SAMPLERS-SERVICE	-	HSTTB FE1 SAMPLER	17-Mar-25
-	I-WW-2W-MOE-EFFLUENT AUTO SAMPLERS-SERVICE	-	HSTTB FE2 SAMPLER	17-Mar-25
-	I-WW-2W-MOE-EFFLUENT AUTO SAMPLERS-SERVICE	-	HSTTB FE1 SAMPLER	31-Mar-25

*Work Order	Description	**Equipment	Equipment Description	Date Completed
-	I-WW-2W-MOE-EFFLUENT AUTO SAMPLERS-SERVICE	-	HSTTB FE2 SAMPLER	31-Mar-25
-	I-WW-2W-MOE-EFFLUENT AUTO SAMPLERS-SERVICE	-	HSTTB FE1 SAMPLER	14-Apr-25
-	I-WW-2W-MOE-EFFLUENT AUTO SAMPLERS-SERVICE	-	HSTTB FE2 SAMPLER	14-Apr-25
-	I-WW-2W-MOE-EFFLUENT AUTO SAMPLERS-SERVICE	-	HSTTB FE1 SAMPLER	28-Apr-25
-	I-WW-2W-MOE-EFFLUENT AUTO SAMPLERS-SERVICE	-	HSTTB FE2 SAMPLER	28-Apr-25
-	I-WW-2W-MOE-EFFLUENT AUTO SAMPLERS-SERVICE	-	HSTTB FE1 SAMPLER	12-May-25
-	I-WW-2W-MOE-EFFLUENT AUTO SAMPLERS-SERVICE	-	HSTTB FE2 SAMPLER	12-May-25
-	I-WW-2W-MOE-EFFLUENT AUTO SAMPLERS-SERVICE	-	HSTTB FE1 SAMPLER	26-May-25
-	I-WW-2W-MOE-EFFLUENT AUTO SAMPLERS-SERVICE	-	HSTTB FE2 SAMPLER	26-May-25
-	I-WW-2W-MOE-EFFLUENT AUTO SAMPLERS-SERVICE	-	HSTTB FE1 SAMPLER	9-Jun-25
-	I-WW-2W-MOE-EFFLUENT AUTO SAMPLERS-SERVICE	-	HSTTB FE2 SAMPLER	9-Jun-25
-	I-WW-2W-MOE-EFFLUENT AUTO SAMPLERS-SERVICE	-	HSTTB FE1 SAMPLER	23-Jun-25
-	I-WW-2W-MOE-EFFLUENT AUTO SAMPLERS-SERVICE	-	HSTTB FE2 SAMPLER	23-Jun-25
-	I-WW-2W-MOE-EFFLUENT AUTO SAMPLERS-SERVICE	-	HSTTB FE1 SAMPLER	7-Jul-25
-	I-WW-2W-MOE-EFFLUENT AUTO SAMPLERS-SERVICE	-	HSTTB FE2 SAMPLER	7-Jul-25
-	I-WW-2W-MOE-EFFLUENT AUTO SAMPLERS-SERVICE	-	HSTTB FE1 SAMPLER	21-Jul-25
-	I-WW-2W-MOE-EFFLUENT AUTO SAMPLERS-SERVICE	-	HSTTB FE2 SAMPLER	21-Jul-25
-	I-WW-2W-MOE-EFFLUENT AUTO SAMPLERS-SERVICE	-	HSTTB FE1 SAMPLER	18-Aug-25
-	I-WW-2W-MOE-EFFLUENT AUTO SAMPLERS-SERVICE	-	HSTTB FE2 SAMPLER	18-Aug-25
-	I-WW-2W-MOE-EFFLUENT AUTO SAMPLERS-SERVICE	-	HSTTB FE1 SAMPLER	15-Sep-25
-	I-WW-2W-MOE-EFFLUENT AUTO SAMPLERS-SERVICE	-	HSTTB FE2 SAMPLER	15-Sep-25
-	I-WW-2W-MOE-EFFLUENT AUTO SAMPLERS-SERVICE	-	HSTTB FE1 SAMPLER	29-Sep-25

*Work Order	Description	**Equipment	Equipment Description	Date Completed
-	I-WW-2W-MOE-EFFLUENT AUTO SAMPLERS-SERVICE	-	HSTTB FE2 SAMPLER	29-Sep-25
-	I-WW-2W-MOE-EFFLUENT AUTO SAMPLERS-SERVICE	-	HSTTB FE1 SAMPLER	27-Oct-25
-	I-WW-2W-MOE-EFFLUENT AUTO SAMPLERS-SERVICE	-	HSTTB FE2 SAMPLER	27-Oct-25
-	I-WW-2W-MOE-EFFLUENT AUTO SAMPLERS-SERVICE	-	HSTTB FE1 SAMPLER	10-Nov-25
-	I-WW-2W-MOE-EFFLUENT AUTO SAMPLERS-SERVICE	-	HSTTB FE2 SAMPLER	10-Nov-25
-	I-WW-2W-MOE-EFFLUENT AUTO SAMPLERS-SERVICE	-	HSTTB FE1 SAMPLER	24-Nov-25
-	I-WW-2W-MOE-EFFLUENT AUTO SAMPLERS-SERVICE	-	HSTTB FE2 SAMPLER	24-Nov-25
-	I-WW-2W-MOE-EFFLUENT AUTO SAMPLERS-SERVICE	-	HSTTB FE1 SAMPLER	8-Dec-25
-	I-WW-2W-MOE-EFFLUENT AUTO SAMPLERS-SERVICE	-	HSTTB FE2 SAMPLER	8-Dec-25
-	I-WW-2W-MOE-EFFLUENT AUTO SAMPLERS-SERVICE	-	HSTTB FE1 SAMPLER	22-Dec-25
-	I-WW-2W-MOE-EFFLUENT AUTO SAMPLERS-SERVICE	-	HSTTB FE2 SAMPLER	22-Dec-25
-	1Y-MOE-HSPRI, SECONDARY BYPASS FLOWMETER	-	SECONDARY BYPASS FLOW METER	25-Sep-25
-	1Y-MOE-HSPRI, Primary BYPASS FLOWMETER	-	PRIMARY BYPASS FLOWMETER	25-Sep-25

Table 4-35: Dundas WWTP Calibration and Maintenance of Monitoring Equipment

* Work Order numbers were not available for the 2025 reporting year due to the cybersecurity incident.

*Work Order	Description	Equipment	Equipment Description	Date Completed
-	I-WW-1Y-MOE-FLOW METER-CALIBRATION	002661	DSCBB, PLANT B EFFLUENT FLOW METER	03-Mar-25
-	I-Y1 DSSTP SEASONAL DISINFECTION SYSTEM START-UP	DSCHL	DUNDAS CHLORINE BUILDING	30-Apr-25
-	I-WW-1Y-MOE-FLOW METER-CALIBRATION	002660	DSCBA, PLANT A EFFLUENT FLOW METER	05-Sept-25
-	I-Y1 SEASONAL BISULFITE ANALYZERS SYSTEM SHUT-DOWN	012169	DSFIL, BI-SULFITE ANALYZER #2	06-Nov-25
-	I-Y1 SEASONAL BISULFITE ANALYZERS SYSTEM SHUT-DOWN	012168	DSFIL, BI-SULFITE ANALYZER #1	06-Nov-25

Table 4-36: Wastewater Collection Facilities Calibration and Maintenance of Monitoring Equipment

* Work Order numbers were not available for the 2025 reporting year due to the cybersecurity incident.

** Some equipment numbers were not available for the 2025 reporting year due to the cybersecurity incident.

*** Could not complete due to staffing resources.

*Work Order	Description	**Equipment	Equipment Description	Date Completed
-	I-6M-POD-VERIFICATION HCG14 LIT03 INTERCEPTOR LEVEL TRANSMITTER	107330	HCG14 LIT03 INTERCEPTOR LEVEL TRANSMITTER	***Cancelled
-	I-6M-POD-VERIFICATION HCG14 LIT02 INFLOW 2 LEVEL TRANSMITTER	107329	HCG14 LIT02 INFLOW 2 LEVEL TRANSMITTER	***Cancelled
-	I-6M-POD-VERIFICATION HCG14 LIT01 INFLOW 1 LEVEL TRANSMITTER	107328	HCG14 LIT01 INFLOW 1 LEVEL TRANSMITTER	***Cancelled
-	I-6M-POD-VERIFICATION HCG14 LAKE LEVEL TRANSMITTER	107331	HCG14 LIT04 LAKE LEVEL TRANSMITTER	***Cancelled
-	I-6M-POD-VERIFICATION HCG14 WSIN LEVEL TRANSMITTER	116112	HCG14, WSIN LEVEL TRANSMITTER	***Cancelled
-	I-6M-POD-VERIFICATION HCG14 UPSTREAM LEVEL TRANSMITTER	116110	HCG14, LEVEL TRANSMITTER, BURLINGTON/WELLINGTON UPSTREAM LEVEL	***Cancelled
-	I-WW-1Y-MOE-FLOW METER-CALIBRATION	210989	HCS05, CSO OVERFLOW TRANSMITTER	06-May-25
-	I-WW-1Y-POD-LEVEL TRANSMITTER-CALIBRATION	001583	HC018, WET WELL LEVEL TRANSMITTER	07-Aug-25
-	I-WW-1Y-POD-LEVEL TRANSMITTER-CALIBRATION	-	HC018B, WET WELL LEVEL TRANSMITTER	07-Aug-25
-	I-Y1-MOE- ANNUAL CALIBRATION HCS01 CHAMBER OUTLET LEVEL TRANSMITTER	106165	HCS01, OUTLET CHAMBER LEVEL TRANSMITTER	11-Aug-25
-	I-WW-1Y-MOE-FLOW METER-CALIBRATION	001664	HCS04, OVERFLOW CHANNEL LEVEL	13-Sept-25

*Work Order	Description	**Equipment	Equipment Description	Date Completed
-	I-6M-POD-VERIFICATION HCG14 LIT01 INFLOW 1 LEVEL TRANSMITTER	107328	HCG14 LIT01 INFLOW 1 LEVEL TRANSMITTER	***Cancelled
-	I-WW-1Y-POD-LEVEL TRANSMITTER-CALIBRATION	107293	HC019, WET WELL #1 LEVEL TRANSMITTER	31-Oct-25
-	I-WW-1Y-POD-LEVEL TRANSMITTER-CALIBRATION	107294	HC019, WET WELL #2 LEVEL TRANSMITTER	31-Oct-25
-	I-WW-1Y-MOE-FLOW METER-CALIBRATION	004686	HCS01, OVERFLOW TO CREEK TRANSMITTER	13-Sept-25
-	I-WW-1Y-MOE-FLOW METER-CALIBRATION	002839	HCS08, CHANNEL OVERFLOW FLOW TRANSMITTER	15-Oct-25
-	I-Y1-POD- HCS06 TANK #2 LEVEL TRANSMITTER CALIBRATION	106156	HCS06, CELL #2 LEVEL TRANSMITTER	12-Feb-25
-	I-Y1-POD- HCS06 TANK #1 LEVEL TRANSMITTER CALIBRATION	106155	HCS06, CELL #1 LEVEL TRANSMITTER	25-Feb-12
-	I-Y1-POD- HCS01 CELL #2 LEVEL TRANSMITTER CALIBRATION	107067	HCS01, CELL 2 LEVEL TRANSMITTER	25-Feb-25
-	I-Y1-POD- HCS01 CELL #1 LEVEL TRANSMITTER CALIBRATION	106174	HCS01, CELL #1 LEVEL TRANSMITTER	25-Feb-25
-	I-WW-1Y-MOE-FLOW METER-CALIBRATION	107303	HCS03, OVERFLOW CHANNEL FLOW TRANSMITTER	11-Oct-25
-	I-WW-1Y-MOE-FLOW METER-CALIBRATION	013158	HCS09, OVER FLOW LEVEL TRANSMITTER	15-Oct-25
-	I-Y1-POD- ANNUAL CALIBRATION TANK CELL LEVEL TRANSMITTER	013157	HCS09, TANK #2 LEVEL TRANSMITTER	08-Jan-25
-	I-Y1-POD- ANNUAL CALIBRATION TANK CELL LEVEL TRANSMITTER	-	HCS08, WET WELL LEVEL TRANSMITTER	***Cancelled
-	I-Y1-POD- ANNUAL CALIBRATION TANK CELL LEVEL TRANSMITTER	013891	HCS08, CSO TANK LEVEL TRANSMITTER	***Cancelled
-	I-Y1-POD- ANNUAL CALIBRATION WET WELL LEVEL TRANSMITTER	013156	HCS09, TANK #1 LEVEL TRANSMITTER	08-Jan-25
-	I-WW-1Y-POD-LEVEL TRANSMITTER-CALIBRATION	118171	HC058, WET WELL LEVEL TRANSMITTER	***Cancelled

*Work Order	Description	**Equipment	Equipment Description	Date Completed
-	I-WW-1Y-POD-LEVEL TRANSMITTER-CALIBRATION	118171	HC058, WET WELL LEVEL TRANSMITTER	***Cancelled
-	I-Y1-POD- ANNUAL CALIBRATION WET WELL LEVEL TRANSMITTER	-	HCS05, WET WELL LEVEL TRANSMITTER	12-Mar-25
-	I-Y1-POD- ANNUAL CALIBRATION WET WELL LEVEL TRANSMITTER	010722	HCS05, CSO TANK LEVEL TRANSMITTER	12-Mar-25
-	I-Y1-POD- ANNUAL CALIBRATION WET WELL LEVEL TRANSMITTER	118107	HCS02, CELL #1 LEVEL TRANSMITTER (HYDROSTATIC)	22-Jan-25
-	I-Y1-POD- ANNUAL CALIBRATION TANK CELL LEVEL TRANSMITTER	108560	HCS02, CELL #2 LEVEL TRANSMITTER (HYDROSTATIC)	22-Jan-25
-	I-Y1-POD- ANNUAL VERIFICATION OVERFLOW LEVEL TRANSMITTER	108561	HCS02, OVERFLOW OUTLET CHANNEL LEVEL TRANSMITTER (HYDROSTATIC)	22-Jan-25
-	I-Y1-POD- ANNUAL CALIBRATION TANK CELL LEVEL TRANSMITTER	108565	HCS04, TANK CELL #2 LEVEL TRANSMITTER (HYDROSTATIC)	19-Mar-25
-	I-Y1-POD- ANNUAL CALIBRATION TANK CELL LEVEL TRANSMITTER	108564	HCS04, TANK CELL #1 LEVEL TRANSMITTER (HYDROSTATIC)	19-Mar-25
-	I-Y1-POD- ANNUAL VERIFICATION CHAMBER LEVEL TRANSMITTER	115222	HCG03, UPSTREAM LEVEL TRANSMITTER	***Cancelled
-	I-Y1 ANNUAL CALIBRATION HCG08 WSIS LEVEL TRANSMITTER	108231	HCG08, WSIS LEVEL TRANSMITTER	***Cancelled
-	I-WW-1Y-POD-LEVEL TRANSMITTER-CALIBRATION	-	HC003 – WET WELL 1 LEVEL - CALIBRATION	26-Feb-25
-	I-WW-1Y-POD-LEVEL TRANSMITTER-CALIBRATION	-	HC003 – WET WELL 2 LEVEL - CALIBRATION	26-Feb-25
-	I-WW-1Y-POD-LEVEL TRANSMITTER-CALIBRATION	-	HCS06 - CSO CELL 1 LEVEL - CALIBRATION	12-Feb-25
-	I-WW-1Y-POD-LEVEL TRANSMITTER-CALIBRATION	-	HCS06 - CSO CELL 2 LEVEL - CALIBRATION	12-Feb-25
-	I-WW-1Y-POD-LEVEL TRANSMITTER-CALIBRATION	-	1Y-POD-HC017-WET WELL 1 LEVEL - CALIBRATION	5-Feb-25
-	I-WW-1Y-POD-LEVEL TRANSMITTER-CALIBRATION	-	1Y-POD-HC017-WET WELL 1 LEVEL - CALIBRATION	5-Feb-25

*Work Order	Description	**Equipment	Equipment Description	Date Completed
-	I-WW-1Y-POD-FLOW TRANSMITTER-CALIBRATION	-	1Y-POD-HC003 - PUMP#1 FLOW - CALIBRATION	26-Feb-25
-	I-WW-1Y-POD-FLOW TRANSMITTER-CALIBRATION	-	1Y-POD-HC003 - PUMP#2 FLOW - CALIBRATION	26-Feb-25
-	I-WW-1Y-POD-FLOW TRANSMITTER-CALIBRATION	-	1Y-POD-HC003 - PUMP#2 FLOW - CALIBRATION	26-Feb-25
-	I-WW-1Y-POD-LEVEL TRANSMITTER-CALIBRATION	-	1Y-POD-HCS01- CSO CELL #1 LEVEL - CALIBRATION	25-Feb-25
-	I-WW-1Y-POD-LEVEL TRANSMITTER-CALIBRATION	-	1Y-POD-HCS01- CSO CELL #2 LEVEL - CALIBRATION	25-Feb-25
-	I-WW-1Y-POD-LEVEL TRANSMITTER-CALIBRATION	-	1Y-POD-HCS7A-CHAMBER 1A LEVEL - CALIBRATION	25-Feb-25
-	I-WW-1Y-POD-FLOW TRANSMITTER-CALIBRATION	-	1Y-SOD-HC005 - PUMP #1 FLOW - CALIBRATION	28-Feb-25
-	I-WW-1Y-POD-FLOW TRANSMITTER-CALIBRATION	-	1Y-SOD-HC005 - PUMP #2 FLOW - CALIBRATION	28-Feb-25
-	I-WW-1Y-POD-FLOW TRANSMITTER-CALIBRATION	-	1Y-SOD-HC005 - PUMP #3 FLOW - CALIBRATION	28-Feb-25
-	I-WW-1Y-POD-LEVEL TRANSMITTER-CALIBRATION	-	1Y-POD-HC059-WET WELL #1 LEVEL - CALIBRATION	16-Sep-25
-	I-WW-1Y-POD-LEVEL TRANSMITTER-CALIBRATION	-	1Y-POD-HC059-WET WELL #2 LEVEL - CALIBRATION	16-Sep-25
-	I-WW-1Y-POD-FLOW TRANSMITTER-CALIBRATION	-	1Y-POD-HC059-STATION DISCHARGE FLOW - CALIBRATION	16-Sep-25
-	I-WW-1Y-POD-FLOW TRANSMITTER-CALIBRATION	-	1Y- POD - HC062 DISCHARGE HEADER 1 FLOW TRANSMITTER - CALIBRATION	7-Oct-25
-	I-WW-1Y-POD-FLOW TRANSMITTER-CALIBRATION	-	1Y- POD - HC062 DISCHARGE HEADER 2 FLOW TRANSMITTER - CALIBRATION	7-Oct-25

*Work Order	Description	**Equipment	Equipment Description	Date Completed
-	I-WW-1Y-POD-FLOW TRANSMITTER-CALIBRATION	-	1Y- POD - HC062 - SERVICE WATER FLOW TRANSMITTER - CALIBRATION	7-Oct-25
-	I-WW-1Y-POD-LEVEL TRANSMITTER-CALIBRATION	-	1Y- POD - HC062 WET WELL LEVEL - CALIBRATION	7-Oct-25
-	I-WW-1Y-POD-LEVEL TRANSMITTER-CALIBRATION	-	1Y- POD - HC062 STORAGE TANK LEVEL - CALIBRATION	7-Oct-25
-	I-WW-1Y-POD-LEVEL TRANSMITTER-CALIBRATION	-	1Y-POD-HC053-WET WELL LEVEL - CALIBRATION	4-Nov-25
-	I-WW-1Y-SOD-PRESSURE TRANSMITTER-CALIBRATION	-	1Y-SOD-HC053-CITY WATER PRESSURE - CALIBRATION	4-Nov-25
-	I-WW-1Y-POD-LEVEL TRANSMITTER-CALIBRATION	-	1Y-POD-HC014-WET WELL 1 LEVEL - CALIBRATION	11-Nov-25
-	I-WW-1Y-POD-LEVEL TRANSMITTER-CALIBRATION	-	1Y-POD-HC014-WET WELL 2 LEVEL - CALIBRATION	11-Nov-25
-	I-WW-1Y-POD-FLOW TRANSMITTER-CALIBRATION	-	1Y-POD-HC014-PUMP #1 FLOW - CALIBRATION	11-Nov-25
-	I-WW-1Y-POD-FLOW TRANSMITTER-CALIBRATION	-	1Y-POD-HC014-PUMP #2 FLOW - CALIBRATION	11-Nov-25
-	I-WW-1Y-POD-FLOW TRANSMITTER-CALIBRATION	-	1Y-POD-HC014-PUMP #3 FLOW - CALIBRATION	11-Nov-25
-	I-WW-1Y-POD-LEVEL TRANSMITTER-CALIBRATION	-	1Y-POD-HC001-WET WELL LEVEL- CALIBRATION	7-Nov-25
-	I-WW-1Y-POD-LEVEL TRANSMITTER-CALIBRATION	-	1Y-POD-HC002-WET WELL 1 LEVEL - CALIBRATION	13-Nov-25
-	I-WW-1Y-POD-LEVEL TRANSMITTER-CALIBRATION	-	1Y-POD-HC002-WET WELL 1 LEVEL - CALIBRATION	13-Nov-25
-	I-WW-1Y-POD-FLOW TRANSMITTER-CALIBRATION	-	1Y-POD-HC002-PUMP #1 FLOW - CALIBRATION	13-Nov-25

*Work Order	Description	**Equipment	Equipment Description	Date Completed
-	I-WW-1Y-POD-FLOW TRANSMITTER-CALIBRATION	-	1Y-POD-HC002-PUMP #2 FLOW - CALIBRATION	13-Nov-25
-	I-WW-1Y-POD-FLOW TRANSMITTER-CALIBRATION	-	1Y-POD-HC002-PUMP #3 FLOW - CALIBRATION	13-Nov-25
-	I-WW-1Y-POD-LEVEL TRANSMITTER-CALIBRATION	-	1Y-POD-HC005-WET WELL 1 LEVEL - CALIBRATION	29-Nov-25
-	I-WW-1Y-POD-LEVEL TRANSMITTER-CALIBRATION	-	1Y-POD-HC005-WET WELL 2 LEVEL - CALIBRATION	29-Nov-25
-	I-WW-1Y-POD-LEVEL TRANSMITTER-CALIBRATION	-	1Y-POD-HC007-WET WELL LEVEL - CALIBRATION	24-Nov-25
-	I-WW-1Y-POD-LEVEL TRANSMITTER-CALIBRATION	-	1Y-POD-HC010-WET WELL LEVEL - CALIBRATION	15-Nov-25
-	I-WW-1Y-POD-LEVEL TRANSMITTER-CALIBRATION	-	1Y-POD-HC011-WET WELL LEVEL - CALIBRATION	15-Nov-25
-	I-WW-1Y-POD-LEVEL TRANSMITTER-CALIBRATION	-	1Y-POD-HC015-WET WELL LEVEL - CALIBRATION	15-Nov-25
-	I-WW-1Y-POD-FLOW TRANSMITTER-CALIBRATION	-	1Y-POD-HC019-STATION DISCHARGE FLOW - CALIBRATION	4-Nov-25
-	I-WW-1Y-POD-LEVEL TRANSMITTER-CALIBRATION	-	1Y-POD-HC020-WET WELL LEVEL - CALIBRATION	11-Nov-25
-	I-WW-1Y-POD-LEVEL TRANSMITTER-CALIBRATION	-	1Y-POD-HC028-WET WELL 1 LEVEL - CALIBRATION	19-Nov-25
-	I-WW-1Y-POD-LEVEL TRANSMITTER-CALIBRATION	-	1Y-POD-HC028-WET WELL 2 LEVEL - CALIBRATION	19-Nov-25
-	I-WW-1Y-POD-FLOW TRANSMITTER-CALIBRATION	-	1Y-POD-HC028-STATION DISCHARGE FLOW - CALIBRATION	19-Nov-25
-	I-WW-1Y-POD-LEVEL TRANSMITTER-CALIBRATION	-	1Y-POD-DC017-WET WELL LEVEL-CALIBRATION	11-Nov-25

Appendix D – Summary of Complaints

Table 4-37: 2025 Complaints at Woodward Avenue WWTP

Date	Time Call Received	Reason for Complaint	Odour Control System in Service	Investigator Observations and Actions Taken
2025-05-07	16:47	Odour	Yes	On April 29, 2025, Public Health Services received an odour complaint regarding a strong smell along Woodward Avenue. The complaint was forwarded via email to the Hamilton Water Plant Operations team on May 5 and relayed to the wastewater treatment plant supervisor on May 7. Upon notification, the supervisor increased the plant's perfume dosing to help mitigate potential odours. A site inspection was conducted, including a check of the surrounding area, but no odours were detected at the time of investigation.
2025-05-09	10:32	Odour	Yes	On the morning of May 9, 2025, a resident reported strong odours along Woodward, Glow, and Dunn Avenues. The process supervisor acknowledged the concern and initiated an investigation. A site inspection confirmed that all odour control systems were functioning properly. As a precaution, perfume dosing was increased. A drive-through of the affected area revealed only a brief odour, with no noticeable smells on the return route. The complainant was contacted with the findings and expressed appreciation for the follow-up. The Synagro Biosolids Treatment Facility was notified and committed to conducting its own investigation and documentation.

Date	Time Call Received	Reason for Complaint	Odour Control System in Service	Investigator Observations and Actions Taken
2025-05-17	20:22	Odour	Yes	On the evening of May 17, 2025, an odour complaint was received via the City Dispatcher, reporting a sewage-like smell near the wastewater plant along Woodward Avenue. The process supervisor responded promptly and conducted a site inspection. No odours were detected during the inspection. Wind conditions were recorded at 11 km/h, blowing westward toward Lake Ontario. All odour control systems were operating correctly. All bay doors at the Synagro facility were confirmed closed. Relevant personnel were notified, and plant operations committed to monitoring the situation overnight to ensure continued odour control.
2025-09-21	18:00	Odour	Yes	On the evening of September 21, 2025, a resident reported odours along Brampton Street. The process supervisor responded by increasing perfume dosing at the plant and placing the system on continuous operation. The Synagro Biosolids Treatment Facility was contacted and confirmed normal operations. A site inspection was conducted, with no odours detected at the wastewater plant or on Brampton Street. Slight odours were noted near the administration building parking lot and the south and west sides of the Synagro facility. Portable odour misters were activated near the Main Pump House and Synagro facility. The complainant was contacted with the findings and confirmed that no odours were present at the time of follow-up.

Table 4-38: 2025 Complaints at Dundas WWTP

Date	Reason for Complaint	Investigator Observations and Actions Taken
2025-05-02	Noise	Operations was notified of a noise complaint by a nearby resident. The resident reported hearing a loud, low-frequency humming sound coming from the Dundas WWTP. In response, the blower speed was reduced and the noise level monitored over the following week. The City followed up with the resident, outlining the corrective actions taken.

Table 4-39: 2025 Complaints at Wastewater Collection Facilities

Date	Time Call Received	Reason for Complaint	Odour Control System in Service	Investigator Observations and Actions Taken
2025-09-17	10:00	Odour	None	An Operator was notified by a resident of an ongoing odour at FC001: Elgin Sewage pump station while carrying out station checks. The Operator investigated the station and checked the wet well. At the time of the notification, neither the resident nor the operator was able to detect the odour. The resident was given the City's Customer Contact Center number to report the issue if it occurred again, so that it could be further investigated.

Appendix E – Dundas WWTP Operating Data Summary

Table 4-40: Plant Flows - Plant A

Month	Monthly Volume (m^3/mth)	Percent of Flow (%)	Daily Average (m^3/day)	Daily Maximum (m^3/day)	Daily Minimum (m^3/day)
January	143,379	39.8%	4,625	5,814	2,815
February	79,692	27.8%	2,846	3,473	2,578
March	103,048	24.3%	3,324	3,724	2,968
April	109,456	27.5%	3,649	5,503	3,143
May	131,744	35.4%	4,250	5,299	3,721
June	118,736	33.0%	3,958	4,267	3,657
July	117,813	32.1%	3,800	4,318	3,444
August	108,139	30.9%	3,488	4,056	2,758
September	101,654	25.9%	3,388	3,633	3,139
October	105,603	32.2%	3,407	4,941	2,376
November	91,739	36.8%	3,058	5,937	1,755
December	96,054	30.0%	3,099	4,900	1,776
Total	**1,307,057**	**-**	**-**	**-**	**-**
Average	**108,921**	**31.3%**	**3,574**	**-**	**-**
Maximum	**143,379**	**39.8%**	**4,625**	**5,937**	**-**
Minimum	**79,692**	**24.3%**	**2,846**	**-**	**1,755**

Table 4-41: Plant Flows - Plant B

Month	Monthly Volume (m^3/mth)	Percent of Flow (%)	Daily Average (m^3/day)	Daily Maximum (m^3/day)	Daily Minimum (m^3/day)
January	216,762	60.2%	6,992	8,849	5,535
February	207,155	72.2%	7,398	11,090	6,377
March	320,843	75.7%	10,350	12,408	8,810
April	288,415	72.5%	9,614	13,351	5,172
May	240,764	64.6%	7,767	11,405	5,606
June	240,617	67.0%	8,021	9,709	6,970
July	249,458	67.9%	8,047	9,176	6,985
August	241,272	69.1%	7,783	8,756	6,479
September	290,148	74.1%	9,672	11,623	8,679
October	221,864	67.8%	7,157	8,725	5,386
November	157,491	63.2%	5,250	6,718	4,322
December	224,315	70.0%	7,236	10,935	4,727
Total	**2,899,106**	**-**	**-**	**-**	**-**
Average	**241,592**	**68.7%**	**7,940**	**-**	**-**
Maximum	**320,843**	**75.7%**	**10,350**	**13,351**	**-**
Minimum	**157,491**	**60.2%**	**5,250**	**-**	**4,322**

Table 4-42: Combined Plant Flows

Month	Monthly Volume (m^3/mth)	Daily Average (m^3/day)	Daily Maximum (m^3/day)	Daily Minimum (m^3/day)
January	360,141	11,617	14,663	9,747
February	286,847	10,245	14,524	8,998
March	423,890	13,674	16,132	11,886
April	397,872	13,262	17,509	9,250
May	372,508	12,016	15,924	9,927
June	359,354	11,978	13,973	10,727
July	367,271	11,847	13,082	10,429
August	349,412	11,271	12,089	9,658
September	391,802	13,060	15,122	11,964
October	327,467	10,563	12,196	9,373
November	249,231	8,308	11,411	7,120
December	320,370	10,335	12,719	7,944
Total	**4,206,163**	**-**	**-**	**-**
Average	**350,514**	**11,515**	**14,112**	**9,752**
Maximum	**423,890**	**13,674**	**17,509**	**11,964**
Minimum	**249,231**	**8,308**	**11,411**	**7,120**

Table 4-43: Dundas Diversion Tank

Month	Monthly Volume (m^3/mth)
January	5,991
February	5,530
March	107,597
April	65,217
May	37,491
June	2,974
July	1,095
August	1,556
September	2,893
October	108
November	59,076
December	27,572
Total	**317,101**
Average	**26,425**
Maximum	**107,597**
Minimum	**108**

Table 4-44: Redland Brow Landfill Leachate

Month	Monthly Volume (m^3/mth)	Proportion of Plant Flow (%)
January	2,054	0.57%
February	1,927	0.67%
March	4,984	1.18%
April	5,755	1.45%
May	4,675	1.26%
June	6,503	1.81%
July	6,071	1.65%
August	4,146	1.19%
September	3,221	0.82%
October	2,991	0.91%
November	2,039	0.82%
December	2,290	0.71%
Total	**46,656**	**-**
Average	**3,888**	**1.09%**
Maximum	**6,503**	**1.81%**
Minimum	**1,927**	**0.57%**

Table 4-45: Raw Influent Quality (Concentrations)

Month	pH	TSS (mg/L)	tBOD (mg/L)	cBOD (mg/L)	TP (mg/L)	SP (mg/L)	TKN (mg/L)	NH_3 (mg/L)	COD (mg/L)	Temp °C
January	7.59	106.62	105.80	89.20	3.48	1.69	25.04	20.22	190.40	12.41
February	7.54	154.65	133.00	116.00	3.97	2.16	29.43	21.68	248.00	10.82
March	7.81	133.98	76.00	71.00	3.07	1.55	21.88	13.88	176.75	10.25
April	7.65	163.80	93.40	88.20	3.35	1.58	24.54	17.16	251.60	11.35
May	7.47	172.00	134.25	119.75	4.20	2.09	30.58	22.50	314.00	13.61
June	7.55	190.50	127.50	110.00	4.13	2.11	30.55	23.38	341.50	15.74
July	7.62	410.20	158.20	131.40	5.18	2.65	37.20	27.88	645.20	18.12
August	7.47	251.25	141.25	119.25	4.49	2.18	32.98	24.50	371.50	19.99
September	7.40	363.75	170.00	150.50	5.46	2.13	39.88	29.08	357.75	20.07
October	7.59	250.80	138.40	123.00	5.26	2.60	34.30	23.44	430.00	19.13
November	7.50	191.50	119.25	101.00	4.52	2.01	28.83	21.63	298.50	16.76
December	7.54	165.20	130.00	123.80	3.87	1.99	28.48	20.98	299.20	13.31
Average	**7.56**	**212.85**	**127.25**	**111.93**	**4.25**	**2.06**	**30.31**	**22.19**	**327.03**	**15.13**
Maximum	**7.81**	**410.20**	**170.00**	**150.50**	**5.46**	**2.65**	**39.88**	**29.08**	**645.20**	**20.07**
Minimum	**7.40**	**106.62**	**76.00**	**71.00**	**3.07**	**1.55**	**21.88**	**13.88**	**176.75**	**10.25**

Table 4-46: Raw Influent Quality (Daily Loadings)

Month	TSS (kg/day)	tBOD (kg/day)	cBOD (kg/day)	TP (kg/day)	SP (kg/day)	TKN (kg/day)	NH_3 (kg/day)
January	1,239	1,229	1,036	40	20	291	235
February	1,584	1,363	1,188	41	22	301	222
March	1,832	1,039	971	42	21	299	190
April	2,172	1,239	1,170	44	21	325	228
May	2,067	1,613	1,439	50	25	367	270
June	2,282	1,527	1,318	49	25	366	280
July	4,860	1,874	1,557	61	31	441	330
August	2,832	1,592	1,344	51	25	372	276
September	4,751	2,220	1,966	71	28	521	380
October	2,649	1,462	1,299	56	28	362	248
November	1,591	991	839	38	17	239	180
December	1,707	1,343	1,279	40	21	294	217
Average	**2,464**	**1,458**	**1,284**	**49**	**24**	**348**	**255**
Maximum	**4,860**	**2,220**	**1,966**	**71**	**31**	**521**	**380**
Minimum	**1,239**	**991**	**839**	**38**	**17**	**239**	**180**

Table 4-47: Primary Effluent Quality (Concentrations for Plant A)

Month	TSS (mg/L)	cBOD (mg/L)	TKN (mg/L)	NH_3 (mg/L)
January	68.30	41.40	20.18	16.46
February	45.40	36.50	20.53	15.34
March	30.58	19.00	12.65	8.90
April	63.82	33.20	19.06	12.27
May	73.13	44.00	23.60	17.15
June	45.93	31.50	20.28	16.73
July	38.00	29.40	19.96	16.50
August	57.18	32.00	21.28	18.58
September	36.73	29.00	24.80	23.08
October	102.10	26.40	21.76	18.08
November	30.73	17.00	15.10	13.00
December	40.74	25.20	17.74	14.52
Average	**52.72**	**30.38**	**19.74**	**15.88**
Maximum	**102.10**	**44.00**	**24.80**	**23.08**
Minimum	**30.58**	**17.00**	**12.65**	**8.90**

Table 4-48: Primary Effluent Quality (Concentrations for Plant B)

Month	TSS (mg/L)	cBOD (mg/L)	TKN (mg/L)	NH_3 (mg/L)
January	25.76	33.80	18.84	16.80
February	38.45	39.50	21.80	16.75
March	38.43	24.50	15.15	9.91
April	51.84	36.40	20.22	13.50
May	28.80	33.00	21.38	17.95
June	21.58	31.75	20.30	18.10
July	17.70	30.40	19.52	17.68
August	43.15	33.50	21.35	19.13
September	30.48	42.00	26.13	24.48
October	38.86	29.00	19.82	18.90
November	22.50	20.25	14.88	13.78
December	35.12	31.20	20.34	16.30
Average	**32.72**	**32.11**	**19.98**	**16.94**
Maximum	**51.84**	**42.00**	**26.13**	**24.48**
Minimum	**17.70**	**20.25**	**14.88**	**9.91**

Table 4-49: Primary Effluent Quality (Daily Loading for Plant A)

Month	TSS (kg/day)	cBOD (kg/day)	TKN (kg/day)	NH_3 (kg/day)
January	316	191	93	76
February	129	104	58	44
March	102	63	42	30
April	233	121	70	45
May	311	187	100	73
June	182	125	80	66
July	144	112	76	63
August	199	112	74	65
September	124	98	84	78
October	348	90	74	62
November	94	52	46	40
December	126	78	55	45
Average	**192**	**111**	**71**	**57**
Maximum	**348**	**191**	**100**	**78**
Minimum	**94**	**52**	**42**	**30**

Table 4-50: Primary Effluent Quality (Daily Loadings for Plant B)

Month	TSS (kg/day)	cBOD (kg/day)	TKN (kg/day)	NH_3 (kg/day)
January	180	236	132	117
February	284	292	161	124
March	398	254	157	103
April	498	350	194	130
May	224	256	166	139
June	173	255	163	145
July	142	245	157	142
August	336	261	166	149
September	295	406	253	237
October	278	208	142	135
November	118	106	78	72
December	254	226	147	118
Average	**265**	**258**	**160**	**134**
Maximum	**498**	**406**	**253**	**237**
Minimum	**118**	**106**	**78**	**72**

Table 4-51: Raw Sludge Pumped

Month	Plant A (m^3/mth)	Plant B (m^3/mth)	Total (m^3/mth)
January	1,072	2,144	3,216
February	974	1,947	2,921
March	920	1,841	2,761
April	1,025	2,051	3,076
May	1,085	2,170	3,255
June	1,182	2,364	3,546
July	1,222	2,444	3,667
August	1,086	2,172	3,259
September	1,075	2,150	3,225
October	1,147	2,295	3,442
November	1,033	2,065	3,098
December	1,169	2,339	3,508
Total	**12,991**	**25,982**	**38,973**
Average	**1,083**	**2,165**	**3,248**
Maximum	**1,222**	**2,444**	**3,667**
Minimum	**920**	**1,841**	**2,761**

Table 4-52: Raw Sludge Solids Content

Month	Plant A Total Solids (%)	Plant A Volatile Solids (%)	Plant B Total Solids (%)	Plant B Volatile Solids (%)
January	2.52	75.98	1.22	62.92
February	1.88	74.58	1.70	73.80
March	1.30	65.23	1.85	68.43
April	1.64	70.06	2.04	71.92
May	1.93	74.83	1.73	76.23
June	1.53	73.40	2.00	77.50
July	2.28	71.20	2.56	74.92
August	2.25	71.10	1.83	69.78
September	1.78	67.78	1.00	67.93
October	1.76	69.12	1.20	68.38
November	2.00	68.25	1.35	69.13
December	1.28	71.56	1.36	70.30
Average	**1.85**	**71.09**	**1.65**	**70.94**
Maximum	**2.52**	**75.98**	**2.56**	**77.50**
Minimum	**1.28**	**65.23**	**1.00**	**62.92**

Table 4-53: Sludge Hauled to Woodward Avenue WWTP

Month	Volume (m^3/mth)	Anticipated 2026 Volume (m^3/mth)
January	3,216	3,333
February	2,921	3,333
March	2,761	3,333
April	3,076	3,333
May	3,255	3,333
June	3,546	3,333
July	3,667	3,333
August	3,259	3,333
September	3,225	3,333
October	3,442	3,333
November	3,098	3,333
December	3,508	3,333
Total	**38,973**	**40,000**
Average	**3,248**	**3,333**
Maximum	**3,667**	**3,333**
Minimum	**2,761**	**3,333**

Table 4-54: Aeration - Plant A

Month	MLSS (mg/L)	MLVSS (mg/L)	SVI (mL/g)	F/M (Ratio)	SRT (Days)
January	1,462.00	1,112.60	120.47	0.10	7.44
February	1,487.50	1,117.00	100.60	0.06	14.53
March	1,425.00	1,021.25	174.76	0.04	19.29
April	1,602.00	1,157.80	180.61	0.06	12.39
May	1,735.00	1,295.00	202.88	0.09	9.25
June	1,930.00	1,395.00	180.48	0.05	17.97
July	1,776.00	1,224.00	148.21	0.05	15.92
August	1,642.50	1,101.25	156.53	0.06	8.90
September	1,490.00	1,027.25	99.55	0.06	13.83
October	1,680.00	1,170.40	99.08	0.05	11.13
November	1,537.50	1,086.25	123.79	0.03	14.66
December	1,516.00	1,095.40	95.11	0.04	22.77
Average	**1,606.96**	**1,150.27**	**140.17**	**0.06**	**14.01**
Maximum	**1,930.00**	**1,395.00**	**202.88**	**0.10**	**22.77**
Minimum	**1,425.00**	**1,021.25**	**95.11**	**0.03**	**7.44**

Table 4-55: Aeration - Plant B

Month	MLSS (mg/L)	MLVSS (mg/L)	SVI (mL/g)	F/M (Ratio)	SRT (Days)
January	1,882.00	1,474.00	439.31	0.05	61.08
February	1,675.00	1,307.50	391.90	0.07	12.01
March	1,570.00	1,208.50	427.98	0.06	43.14
April	2,166.00	1,662.00	415.20	0.06	19.74
May	1,787.50	1,390.00	482.42	0.06	26.10
June	1,667.50	1,307.50	553.92	0.06	34.65
July	1,934.00	1,462.00	438.50	0.05	30.71
August	1,650.00	1,180.50	204.11	0.07	37.69
September	2,122.50	1,482.50	101.92	0.08	28.36
October	2,120.00	1,504.00	110.93	0.04	18.94
November	1,610.00	1,139.75	148.24	0.03	51.58
December	2,486.00	1,830.00	235.38	0.04	20.29
Average	**1,889.21**	**1,412.35**	**329.15**	**0.06**	**32.03**
Maximum	**2,486.00**	**1,830.00**	**553.92**	**0.08**	**61.08**
Minimum	**1,570.00**	**1,139.75**	**101.92**	**0.03**	**12.01**

Table 4-56: Final Effluent Quality (Concentrations)

Month	pH	Alkalinity (mg/L)	TSS (mg/L)	cBOD (mg/L)	TP (mg/L)	SP (mg/L)	TKN (mg/L)	NH_3 (mg/L)	NO_3 (mg/L)	NO_2 (mg/L)	E Coli (MPN/100 mL)	Chlorine Residual (mg/L)
January	7.60	97.20	0.78	1.20	0.102	0.084	1.22	0.51	16.28	1.41	-	-
February	7.08	52.75	0.95	1.25	0.133	0.110	0.50	0.03	22.35	0.10	-	-
March	7.66	117.50	0.73	1.25	0.058	0.044	0.40	0.02	14.90	0.10	-	-
April	7.62	106.80	0.90	1.20	0.071	0.051	0.68	0.12	15.52	0.14	-	-
May	7.65	111.75	1.43	2.25	0.168	0.111	2.65	2.24	13.96	0.25	1	0.01
June	7.57	76.50	1.28	1.00	0.106	0.070	0.73	0.05	17.30	0.31	1	0.01
July	7.47	68.40	1.60	1.20	0.123	0.081	0.62	0.10	15.50	0.21	1	0.01
August	7.36	51.50	2.30	1.25	0.127	0.072	0.73	0.09	18.15	0.25	9	0.01
September	7.19	35.50	0.98	1.25	0.113	0.085	0.58	0.07	19.73	0.14	11	0.01
October	7.43	48.40	1.22	1.00	0.135	0.102	0.82	0.40	15.86	0.07	1	0.01
November	7.27	47.50	0.85	1.00	0.111	0.096	0.40	0.09	18.73	0.06	-	-
December	7.33	68.40	0.90	1.00	0.125	0.097	0.50	0.03	18.10	0.05	-	-
Average	**7.43**	**73.52**	**1.16**	**1.24**	**0.114**	**0.084**	**0.82**	**0.31**	**17.20**	**0.26**	**4**	**0.01**
Maximum	**7.66**	**117.50**	**2.30**	**2.25**	**0.168**	**0.111**	**2.65**	**2.24**	**22.35**	**1.41**	**11**	**0.01**
Minimum	**7.08**	**35.50**	**0.73**	**1.00**	**0.058**	**0.044**	**0.40**	**0.02**	**13.96**	**0.05**	**1**	**0.01**

Table 4-57: Final Effluent Quality (Loadings)

Month	TSS (kg/day)	cBOD (kg/day)	TP (kg/day)	SP (kg/day)	TKN (kg/day)	NH_3 (kg/day)	NO_3 (kg/day)	NO_2 (kg/day)
January	9.1	13.9	1.19	0.97	14.17	5.95	189.13	16.40
February	9.7	12.8	1.37	1.13	5.12	0.31	228.97	1.02
March	10.0	17.1	0.79	0.60	5.47	0.24	203.74	1.37
April	11.9	15.9	0.94	0.68	9.02	1.56	205.83	1.83
May	17.2	27.0	2.02	1.34	31.84	26.95	167.75	3.00
June	15.3	12.0	1.26	0.84	8.68	0.63	207.23	3.71
July	19.0	14.2	1.45	0.96	7.35	1.23	183.64	2.51
August	25.9	14.1	1.43	0.81	8.17	0.99	204.57	2.86
September	12.8	16.3	1.48	1.10	7.51	0.88	257.61	1.78
October	12.9	10.6	1.42	1.08	8.66	4.18	167.54	0.72
November	7.1	8.3	0.92	0.80	3.32	0.73	155.56	0.49
December	9.3	10.3	1.29	1.00	5.17	0.31	187.05	0.55
Average	**13.3**	**14.4**	**1.30**	**0.94**	**9.5**	**3.7**	**196.6**	**3.02**
Maximum	**25.9**	**27.0**	**2.02**	**1.34**	**31.8**	**26.9**	**257.6**	**16.40**
Minimum	**7.1**	**8.3**	**0.79**	**0.60**	**3.3**	**0.2**	**155.6**	**0.49**

Table 4-58: Final Effluent Quality (Removal Efficiency)

Month	TSS (%)	cBOD (%)	TP (%)	SP (%)	TKN (%)	NH_3 (%)
January	99.3%	98.7%	97.1%	95.0%	95.1%	97.5%
February	99.4%	98.9%	96.6%	94.9%	98.3%	99.9%
March	99.5%	98.2%	98.1%	97.2%	98.2%	99.9%
April	99.5%	98.6%	97.9%	96.7%	97.2%	99.3%
May	99.2%	98.1%	96.0%	94.7%	91.3%	90.0%
June	99.3%	99.1%	97.4%	96.7%	97.6%	99.8%
July	99.6%	99.1%	97.6%	97.0%	98.3%	99.6%
August	99.1%	99.0%	97.2%	96.7%	97.8%	99.6%
September	99.7%	99.2%	97.9%	96.0%	98.6%	99.8%
October	99.5%	99.2%	97.4%	96.1%	97.6%	98.3%
November	99.6%	99.0%	97.6%	95.2%	98.6%	99.6%
December	99.5%	99.2%	96.8%	95.1%	98.2%	99.9%
Average	**99.4%**	**98.9%**	**97.3%**	**95.9%**	**97.2%**	**98.6%**
Maximum	**99.7%**	**99.2%**	**98.1%**	**97.2%**	**98.6%**	**99.9%**
Minimum	**99.1%**	**98.1%**	**96.0%**	**94.7%**	**91.3%**	**90.0%**

Table 4-59: Liquid Stream Contaminate Removal

Month	TSS (kg/mth)	cBOD (kg/mth)	TP (kg/mth)	SP (kg/mth)	TKN (kg/mth)	NH_3 (kg/mth)
January	38,117	31,692	1,218	579	8,579	7,098
February	44,088	32,916	1,100	587	8,297	6,209
March	56,481	29,566	1,277	640	9,103	5,877
April	64,813	34,615	1,305	607	9,493	6,781
May	63,539	43,770	1,500	735	10,402	7,546
June	67,997	39,170	1,445	731	10,718	8,381
July	150,067	47,819	1,858	944	13,435	10,201
August	86,986	41,231	1,524	737	11,269	8,530
September	142,134	58,476	2,096	799	15,398	11,365
October	81,729	39,951	1,680	819	10,964	7,546
November	47,516	24,923	1,100	478	7,084	5,368
December	52,637	39,341	1,199	605	8,964	6,712
Total	**896,105**	**463,470**	**17,301**	**8,260**	**123,705**	**91,614**
Average	**74,675**	**38,622**	**1,442**	**688**	**10,309**	**7,634**
Maximum	**150,067**	**58,476**	**2,096**	**944**	**15,398**	**11,365**
Minimum	**38,117**	**24,923**	**1,100**	**478**	**7,084**	**5,368**

Table 4-60: Chemical Addition - Disinfection

Sodium hypochlorite is added from May 1 to October 31

Month	Sodium Hypochlorite (kg/mth)	Dosage (mg/L)	Residual Level (mg/L)
January	-	-	-
February	-	-	-
March	-	-	-
April	-	-	-
May	14,398	5.6	1.53
June	12,848	5.0	1.53
July	14,079	5.4	1.76
August	13,833	5.6	4.27
September	13,571	4.9	1.91
October	15,231	6.5	1.97
November	-	-	-
December	-	-	-
Total	**83,960**	**-**	**-**
Average	**13,993.4**	**5.5**	**2.16**
Maximum	**15,231**	**6.5**	**4.27**
Minimum	**12,848**	**4.9**	**1.53**

Table 4-61: Chemical Addition - Dechlorination

Month	Sodium Bisulfite (m^3/mth)	Outfall Residual (mg/L)
January	-	-
February	-	-
March	-	-
April	-	-
May	3,761	0.01
June	5,131	0.01
July	5,574	0.01
August	3,801	0.01
September	3,435	0.01
October	5,951	0.01
November	-	-
December	-	-
Total	**27,653.6**	**-**
Average	**4,608.9**	**0.01**
Maximum	**5,950.6**	**0.01**
Minimum	**3,434.7**	**0.01**

Table 4-62: Chemical Addition - Ferric Sulphate

Month	Ferric Sulphate (L/mth)	Dosage (mg/L)
January	26,945	10.70
February	24,874	9.81
March	24,417	10.90
April	26,400	11.05
May	29,007	9.58
June	31,181	10.91
July	29,348	15.67
August	21,980	14.41
September	21,441	13.80
October	23,522	13.24
November	18,513	15.47
December	16,672	9.50
Total	**294,302**	**-**
Average	**24,525**	**12.09**
Maximum	**31,181**	**15.67**
Minimum	**16,672**	**9.50**

Table 4-63: 2025 Redland Brow Landfill Sampling Results

Parameter List (Dundas WWTP C of A)	RDL	Units	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
BOD_5	2	mg/L	22	12	24	22
COD	4	mg/L	180	89	230	200
Dissolved Organic Carbon	0.2	mg/L	54	27	65	67
Oil and Grease	0.5	mg/L	5.9	0.9	1	1.4
Total Dissolved Solids	10	mg/L	1260	925	925	1590
Total Kjeldahl Nitrogen	0.5	mg/L	21	12	26	25
Phosphorus	0.004	mg/L	0.32	0.048	0.12	0.15
Total Suspended Solids	10	mg/L	130	100	61	38
Alkalinity (as $CaCO_3$)	1	mg/L	400	160	580	590
Conductivity	1	µmho/cm	2400	1600	2690	2800
pH (20°C)	-	-	8.02	7.97	8.51	8.32
Aluminium	0.005	mg/L	0.065	0.0083	0.0086	0.014
Ammonia (as N)	0.25	mg/L	19	9.8	24	24
Unionized Ammonia		mg/L	3.22	0.166	2.255	5.709
Arsenic	0.001	mg/L	0.018	0.01	0.015	0.02
Beryllium	0.0005	mg/L	<0.0004	<0.0004	<0.0004	<0.0004
Boron	0.01	mg/L	3.7	1.6	4.3	4.2
Cadmium	0.0001	mg/L	<0.00009	<0.00009	<0.00009	<0.00009
Calcium	0.2	mg/L	64	84	47	41
Chloride	2	mg/L	300	180	350	330
Chromium	0.005	mg/L	<0.005	<0.005	0.022	0.0069
Copper	0.001	mg/L	0.0032	0.0014	0.0014	0.0018
Sulphide	0.02	mg/L	0.12	0.13	<0.02	0.21
Iron	0.1	mg/L	0.22	0.26	0.31	0.29
Lead	0.0005	mg/L	0.003	0.0043	0.0015	0.0011
Magnesium	0.05	mg/L	24	24	21	23
Nitrate (as N)	0.1	mg/L	<0.1	0.11	0.11	<0.1
Nitrite (as N)	0.01	mg/L	0.068	0.135	0.153	0.085
Phenols	0.002	mg/L	0.038	0.037	0.098	0.023
Potassium	0.2	mg/L	54	40	55	58
Selenium	0.002	mg/L	<0.0002	<0.0002	<0.0002	<0.0002
Silver	0.0001	mg/L	<0.00009	<0.00009	<0.00009	<0.00009
Sulphate (as SO_4)	1	mg/L	240	240	200	240
Zinc	0.005	mg/L	0.03	0.017	0.02	0.02

1. 1st Quarter sample collected on February 21, 2025
2. 2nd Quarter sample collected on April 22, 2025
3. 3rd Quarter sample collected on August 21, 2025
4. 4th Quarter sample collected on November 19, 2025
5. Unionized Ammonia calculated from field pH, Field Temperature and total ammonia results

Appendix F – CSO Tank Analytical Data

For statistical purposes, average, minimum and maximum results are reported with 2 decimal places for E. coli & inorganics and 4 decimal places for metals. When the result is <MDL (Method Detection Limit), the MDL is used.

Eastwood Effluent

The following four tables are formatted for accessibility and are alphabetized by Eastwood Effluent. Table 4-63 Eastwood Effluent - Part 1 shows the Eastwood Effluent from A-C for metal parameters, Table 4-63 Eastwood Effluent - Part 2 shows the Eastwood Effluent from C-S for metal parameters, Table 4-63 Eastwood Effluent - Part 3 shows the Eastwood Effluent from S-Z for metal parameters and Table 4-63 Eastwood Effluent - Part 4 shows the Eastwood Effluents from A-Z for inorganic and microbiological parameters.

Table 4-64: Eastwood Effluent – Part 1

Date	Time	Aluminum (mg/L)	Arsenic (mg/L)	Barium (mg/L)	Beryllium (mg/L)	Bismuth (mg/L)	Cadmium (mg/L)	Chromium (mg/L)	Cobalt (mg/L)
2025-04-03	08:45:00	0.871	<0.020	0.025	<0.0001	<0.020	<0.0005	0.006	<0.0009
2025-05-23	02:53:00	0.137	<0.020	0.018	<0.0001	<0.020	<0.0005	0.002	<0.0009
2025-12-29	11:17:00	0.325	<0.020	0.014	<0.0001	<0.020	<0.0005	0.004	0.0015
Average	**-**	**0.4443**	**0.0200**	**0.0190**	**0.0001**	**0.0200**	**0.0005**	**0.0040**	**0.0011**
Maximum	**-**	**0.8710**	**0.0200**	**0.0250**	**0.0001**	**0.0200**	**0.0005**	**0.0060**	**0.0015**
Minimum	**-**	**0.1370**	**0.0200**	**0.0140**	**0.0001**	**0.0200**	**0.0005**	**0.0020**	**0.0009**

Table 4-63: Eastwood Effluent – Part 2

Date	Time	Copper (mg/L)	Iron (mg/L)	Lead (mg/L)	Manganese (mg/L)	Molybdenum (mg/L)	Nickel (mg/L)	Phosphorus Total (mg/L)	Selenium (mg/L)
2025-04-03	08:45:00	0.018	1.49	<0.020	0.113	<0.005	<0.005	0.592	<0.020
2025-05-23	02:53:00	0.014	0.252	<0.020	0.042	<0.005	<0.005	0.869	<0.020
2025-12-29	11:17:00	0.013	0.608	<0.020	0.058	<0.005	<0.005	0.614	<0.020
Average	**-**	**0.0150**	**0.7833**	**0.0200**	**0.0710**	**0.0050**	**0.0050**	**0.6917**	**0.0200**
Maximum	**-**	**0.0180**	**1.4900**	**0.0200**	**0.1130**	**0.0050**	**0.0050**	**0.8690**	**0.0200**
Minimum	**-**	**0.0130**	**0.2520**	**0.0200**	**0.0420**	**0.0050**	**0.0050**	**0.5920**	**0.0200**

Table 4-63: Eastwood Effluent – Part 3

Date	Time	Silver (mg/L)	Strontium (mg/L)	Thallium (mg/L)	Tin (mg/L)	Titanium (mg/L)	Vanadium (mg/L)	Zinc (mg/L)
2025-04-03	08:45:00	<0.005	0.254	<0.010	<0.020	0.045	0.005	0.100
2025-05-23	02:53:00	<0.005	0.237	<0.010	<0.020	0.003	<0.002	0.069
2025-12-29	11:17:00	<0.005	0.178	<0.010	<0.020	0.016	0.002	0.064
Average	**-**	**0.0050**	**0.2230**	**0.0100**	**0.0200**	**0.0213**	**0.0030**	**0.0777**
Maximum	**-**	**0.0050**	**0.2540**	**0.0100**	**0.0200**	**0.0450**	**0.0050**	**0.1000**
Minimum	**-**	**0.0050**	**0.1780**	**0.0100**	**0.0200**	**0.0030**	**0.0020**	**0.0640**

Table 4-63: Eastwood Effluent – Part 4

Date	Time	Ammonia + Ammonium as N (mg/L)	cBiochemical Oxygen Demand (mg/L)	Escherichia coli (MPN/100 mL)	Nitrate as N (mg/L)	Total Kjeldahl Nitrogen as N (mg/L)	Total Suspended Solids (mg/L)
2025-04-03	08:45:00	2.01	15	270,000	0.95	4.9	58.3
2025-05-23	02:53:00	5.04	23	1,370,000	0.68	7.5	19.0
2025-12-29	11:17:00	2.62	17	250,000	0.61	4.9	19.2
Average	**-**	**3.22**	**18.33**	**630,000**	**0.75**	**5.77**	**32.17**
Maximum	**-**	**5.04**	**23.00**	**1,370,000**	**0.95**	**7.50**	**58.30**
Minimum	**-**	**2.01**	**15.00**	**250,000**	**0.61**	**4.90**	**19.00**

Royal Effluent

The following four tables are formatted for accessibility and are alphabetized by Royal Effluent. Table 4-64 Royal Effluent - Part 1 shows the Royal Effluent from A-C (metal parameters), Table 4-64 Royal Effluent - Part 2 shows the Royal Effluent from C-S (metal parameters), Table 4-64 Royal Effluent - Part 3 shows the Royal Effluent from S-Z (metal parameters) and Table 4-64 Royal Effluent - Part 4 shows the Royal Effluents from A-Z for inorganic and microbiological parameters.

Table 4-65: Royal Effluent – Part 1

Date	Time	Aluminum (mg/L)	Arsenic (mg/L)	Barium (mg/L)	Beryllium (mg/L)	Bismuth (mg/L)	Cadmium (mg/L)	Chromium (mg/L)	Cobalt (mg/L)
2025-03-06	02:03:00	5.18	<0.020	0.057	<0.0001	<0.020	<0.0005	0.010	0.0025
2025-03-16	19:34:00	12.8	<0.020	0.089	0.0005	<0.020	<0.0005	0.016	0.0075
2025-04-03	09:10:00	3.46	<0.020	0.044	<0.0001	<0.020	<0.0005	0.005	0.0017
Average	**-**	**7.1467**	**0.0200**	**0.0633**	**0.0002**	**0.0200**	**0.0005**	**0.0103**	**0.0039**
Maximum	**-**	**12.8000**	**0.0200**	**0.0890**	**0.0005**	**0.0200**	**0.0005**	**0.0160**	**0.0075**
Minimum	**-**	**3.4600**	**0.0200**	**0.0440**	**0.0001**	**0.0200**	**0.0005**	**0.0050**	**0.0017**

Table 4-64: Royal Effluent – Part 2

Date	Time	Copper (mg/L)	Iron (mg/L)	Lead (mg/L)	Manganese (mg/L)	Molybdenum (mg/L)	Nickel (mg/L)	Phosphorus Total (mg/L)	Selenium (mg/L)
2025-03-06	02:03:00	0.019	6.86	<0.020	0.196	<0.005	0.009	0.497	<0.020
2025-03-16	19:34:00	0.028	16.1	0.021	0.360	<0.005	0.018	0.658	<0.020
2025-04-03	09:10:00	0.012	4.25	<0.020	0.114	<0.005	<0.005	0.255	<0.020
Average	**-**	**0.0197**	**9.0700**	**0.0203**	**0.2233**	**0.0050**	**0.0107**	**0.4700**	**0.0200**
Maximum	**-**	**0.0280**	**16.1000**	**0.0210**	**0.3600**	**0.0050**	**0.0180**	**0.6580**	**0.0200**
Minimum	**-**	**0.0120**	**4.2500**	**0.0200**	**0.1140**	**0.0050**	**0.0050**	**0.2550**	**0.0200**

Table 4-64: Royal Effluent – Part 3

Date	Time	Silver (mg/L)	Strontium (mg/L)	Thallium (mg/L)	Tin (mg/L)	Titanium (mg/L)	Vanadium (mg/L)	Zinc (mg/L)
2025-03-06	02:03:00	<0.005	0.549	<0.010	<0.020	0.092	0.010	0.114
2025-03-16	19:34:00	<0.005	0.431	<0.010	<0.020	0.171	0.023	0.182
2025-04-03	09:10:00	<0.005	0.498	<0.010	<0.020	0.058	0.007	0.098
Average	**-**	**0.0050**	**0.4927**	**0.0100**	**0.0200**	**0.1070**	**0.0133**	**0.1313**
Maximum	**-**	**0.0050**	**0.5490**	**0.0100**	**0.0200**	**0.1710**	**0.0230**	**0.1820**
Minimum	**-**	**0.0050**	**0.4310**	**0.0100**	**0.0200**	**0.0580**	**0.0070**	**0.0980**

Table 4-64: Royal Effluent – Part 4

Date	Time	Ammonia + Ammonium as N (mg/L)	cBiochemical Oxygen Demand (mg/L)	Escherichia coli (MPN/100 mL)	Nitrate as N (mg/L)	Total Kjeldahl Nitrogen as N (mg/L)	Total Suspended Solids (mg/L)
2025-03-06	02:03:00	0.76	10	150,000	0.82	2.1	149
2025-03-16	19:34:00	0.52	7	155,000	0.84	2.5	400
2025-04-03	09:10:00	0.33	<6	50,000	0.82	1.6	113
Average	**-**	**0.54**	**7.67**	**118,333**	**0.83**	**2.07**	**220.67**
Maximum	**-**	**0.76**	**10.00**	**155,000**	**0.84**	**2.50**	**400.00**
Minimum	**-**	**0.33**	**6.00**	**50,000**	**0.82**	**1.60**	**113.00**

Strachan Influent 24-Hour Composite

The following four tables are formatted for accessibility and are alphabetized by Strachan Influent 24-Hour Composite. Table 4-65 Strachan Influent 24-Hour Composite- Part 1 shows the Strachan Influent 24-Hour Composite from A-C for metal parameters, Table 4-65 Strachan Influent 24-Hour Composite - Part 2 shows the Strachan Influent 24-Hour Composite from C-S for metal parameters, Table 4-65 Strachan Influent 24-Hour Composite - Part 3 shows the Strachan Influent 24-Hour Composite from S-Z for metal parameters and Table 4-65 Strachan Influent 24-Hour Composite - Part 4 shows the Strachan Influent 24-Hour Composite from A-Z for inorganic and microbiological parameters.

Table 4-66: Strachan Influent 24-Hour Composite – Part 1

Date	Time	Aluminum (mg/L)	Arsenic (mg/L)	Barium (mg/L)	Beryllium (mg/L)	Bismuth (mg/L)	Cadmium (mg/L)	Chromium (mg/L)	Cobalt (mg/L)
2025-03-05	19:53:00	8.87	<0.020	0.147	<0.0001	<0.020	0.0008	0.044	0.0059
2025-05-22	04:02:00	0.987	<0.020	0.024	<0.0001	<0.020	<0.0005	0.006	<0.0009
2025-05-22	22:00:00	0.132	<0.020	0.065	<0.0001	<0.020	<0.0005	<0.001	<0.0009
2025-06-19	05:36:00	0.262	<0.020	0.121	<0.0001	<0.020	<0.0005	0.001	<0.0009
2025-07-13	23:07:00	0.807	<0.020	0.082	<0.0001	<0.020	<0.0005	0.003	<0.0009
2025-09-22	14:25:00	0.191	<0.020	0.088	<0.0001	<0.020	<0.0005	0.002	<0.0009
2025-09-25	10:59:00	0.212	<0.020	0.082	<0.0001	<0.020	<0.0005	<0.001	<0.0009
2025-04-03	02:49:00	2.52	<0.020	0.049	<0.0001	<0.020	0.0006	0.015	0.0016
Average	**-**	**1.7476**	**0.0200**	**0.0823**	**0.0001**	**0.0200**	**0.0006**	**0.0091**	**0.0016**
Maximum	**-**	**8.8700**	**0.0200**	**0.1470**	**0.0001**	**0.0200**	**0.0008**	**0.0440**	**0.0059**
Minimum	**-**	**0.1320**	**0.0200**	**0.0240**	**0.0001**	**0.0200**	**0.0005**	**0.0010**	**0.0009**

Table 4-65: Strachan Influent 24 Hour Composite – Part 2

Date	Time	Copper (mg/L)	Iron (mg/L)	Lead (mg/L)	Manganese (mg/L)	Molybdenum (mg/L)	Nickel (mg/L)	Phosphorus Total (mg/L)	Selenium (mg/L)
2025-03-05	19:53:00	0.113	18.5	0.123	1.02	<0.005	0.021	2.09	<0.020
2025-05-22	04:02:00	0.015	1.64	<0.020	0.151	<0.005	<0.005	0.337	<0.020
2025-05-22	22:00:00	0.008	0.826	<0.020	0.137	<0.005	<0.005	0.194	<0.020
2025-06-19	05:36:00	0.007	1.71	<0.020	0.503	<0.005	<0.005	0.322	<0.020
2025-07-13	23:07:00	0.006	2.16	<0.020	0.331	<0.005	<0.005	0.438	<0.020
2025-09-22	14:25:00	0.008	1.28	<0.020	0.290	<0.005	<0.005	0.255	<0.020
2025-09-25	10:59:00	0.004	1.14	<0.020	0.202	<0.005	<0.005	0.224	<0.020
2025-04-03	02:49:00	0.042	5.00	0.035	0.314	0.007	0.006	1.18	<0.020
Average	**-**	**0.0254**	**4.0320**	**0.0348**	**0.3685**	**0.0053**	**0.0071**	**0.6300**	**0.0200**
Maximum	**-**	**0.1130**	**18.5000**	**0.1230**	**1.0200**	**0.0070**	**0.0210**	**2.0900**	**0.0200**
Minimum	**-**	**0.0040**	**0.8260**	**0.0200**	**0.1370**	**0.0050**	**0.0050**	**0.1940**	**0.0200**

Table 4-65: Strachan Influent 24 Hour Composite – Part 3

Date	Time	Silver (mg/L)	Strontium (mg/L)	Thallium (mg/L)	Tin (mg/L)	Titanium (mg/L)	Vanadium (mg/L)	Zinc (mg/L)
2025-03-05	19:53:00	<0.005	0.531	<0.010	<0.020	0.293	0.036	0.638
2025-05-22	04:02:00	<0.005	0.194	<0.010	<0.020	0.035	0.003	0.093
2025-05-22	22:00:00	<0.005	1.23	<0.010	<0.020	0.003	<0.002	0.051
2025-06-19	05:36:00	<0.005	2.48	<0.010	<0.020	0.014	<0.002	0.041
2025-07-13	23:07:00	<0.005	1.63	<0.010	<0.020	0.029	<0.002	0.053
2025-09-22	14:25:00	<0.005	2.02	<0.010	<0.020	0.006	<0.002	0.047
2025-09-25	10:59:00	<0.005	2.39	<0.010	<0.020	0.005	<0.002	0.065
2025-04-03	02:49:00	<0.005	0.342	<0.010	<0.020	0.126	0.011	0.207
Average	**-**	**0.0050**	**1.3521**	**0.0100**	**0.0200**	**0.0639**	**0.0075**	**0.1494**
Maximum	**-**	**0.0050**	**2.4800**	**0.0100**	**0.0200**	**0.2930**	**0.0360**	**0.6380**
Minimum	**-**	**0.0050**	**0.1940**	**0.0100**	**0.0200**	**0.0030**	**0.0020**	**0.0410**

Table 4-65: Strachan Influent 24 Hour Composite – Part 4

Date	Time	Ammonia + Ammonium as N (mg/L)	cBiochemical Oxygen Demand (mg/L)	Escherichia coli (MPN/100 mL)	Nitrate as N (mg/L)	Total Kjeldahl Nitrogen as N (mg/L)	Total Suspended Solids (mg/L)
2025-03-05	19:53:00	1.06	43	90,000	0.34	7.4	653
2025-05-22	04:02:00	0.60	15	90,000	0.24	1.7	64.0
2025-05-22	22:00:00	0.33	6	20,000	1.08	0.8	15.5
2025-06-19	05:36:00	1.36	7	40,000	1.17	2.0	27.9
2025-07-13	23:07:00	0.90	6	190,000	0.92	1.7	56.0
2025-09-22	14:25:00	0.90	5	19,900	1.44	1.2	10.0
2025-09-25	10:59:00	0.78	<5	19,900	1.20	1.1	13.6
2025-04-03	02:49:00	0.57	18	50,000	0.34	3.3	231
Average	**-**	**0.81**	**13.13**	**64,975**	**0.84**	**2.40**	**133.88**
Maximum	**-**	**1.36**	**43.00**	**190,000**	**1.44**	**7.40**	**653.00**
Minimum	**-**	**0.33**	**5.00**	**19,900**	**0.24**	**0.80**	**10.00**

Notes:

03/05/2025 19:53:00 Note: cBOD test replicates show more than 30% difference between the highest and lowest values.

04/03/2025 02:49:00 Note: cBOD test replicates show more than 30% difference between the highest and lowest values.

Main and King Effluent

The following four tables are formatted for accessibility and are alphabetized by Main and King Effluent. Table 4-66 Main and King Effluent - Part 1 shows the Main and King Effluents from A-C for metal parameters, Table 4-66 Main and King Effluent - Part 2 shows the Main and King Effluents from C-S for metal parameters, Table 4-66 Main and King Effluent - Part 3 shows the Main and King Effluents from S-Z for metal parameters and Table 4-66 Main and King Effluent - Part 4 shows the Main and King Effluents from A-Z for inorganic and microbiological parameters.

Table 4-67: Main and King Effluent – Part 1

Date	Time	Aluminum (mg/L)	Arsenic (mg/L)	Barium (mg/L)	Beryllium (mg/L)	Bismuth (mg/L)	Cadmium (mg/L)	Chromium (mg/L)	Cobalt (mg/L)
2025-05-22	09:06:00	0.820	<0.020	0.024	<0.0001	<0.020	<0.0005	0.003	<0.0009
Average	**-**	**0.8200**	**0.0200**	**0.0240**	**0.0001**	**0.0200**	**0.0005**	**0.0030**	**0.0009**
Maximum	**-**	**0.8200**	**0.0200**	**0.0240**	**0.0001**	**0.0200**	**0.0005**	**0.0030**	**0.0009**
Minimum	**-**	**0.8200**	**0.0200**	**0.0240**	**0.0001**	**0.0200**	**0.0005**	**0.0030**	**0.0009**

Table 4-66: Main and King Effluent – Part 2

Date	Time	Copper (mg/L)	Iron (mg/L)	Lead (mg/L)	Manganese (mg/L)	Molybdenum (mg/L)	Nickel (mg/L)	Phosphorus Total (mg/L)	Selenium (mg/L)
2025-05-22	09:06:00	0.013	1.08	<0.020	0.062	0.006	<0.005	0.679	<0.020
Average	**-**	**0.0130**	**1.0800**	**0.0200**	**0.0620**	**0.0060**	**0.0050**	**0.6790**	**0.0200**
Maximum	**-**	**0.0130**	**1.0800**	**0.0200**	**0.0620**	**0.0060**	**0.0050**	**0.6790**	**0.0200**
Minimum	**-**	**0.0130**	**1.0800**	**0.0200**	**0.0620**	**0.0060**	**0.0050**	**0.6790**	**0.0200**

Table 4-66: Main and King Effluent – Part 3

Date	Time	Silver (mg/L)	Strontium (mg/L)	Thallium (mg/L)	Tin (mg/L)	Titanium (mg/L)	Vanadium (mg/L)	Zinc (mg/L)
2025-05-22	09:06:00	<0.005	0.346	<0.010	<0.020	0.016	0.003	0.064
Average	**-**	**0.0050**	**0.3460**	**0.0100**	**0.0200**	**0.0160**	**0.003**	**0.064**
Maximum	**-**	**0.0050**	**0.3460**	**0.0100**	**0.0200**	**0.0160**	**0.003**	**0.064**
Minimum	**-**	**0.0050**	**0.3460**	**0.0100**	**0.0200**	**0.0160**	**0.003**	**0.064**

Table 4-66: Main and King Effluent – Part 4

Date	Time	Ammonia + Ammonium as N (mg/L)	cBiochemical Oxygen Demand (mg/L)	Escherichia coli (MPN/100 mL)	Fecal Coliform (MPN/100 mL)	Nitrate as N (mg/L)	Total Kjeldahl Nitrogen as N (mg/L)	Total Suspended Solids (mg/L)
2025-05-22	09:06:00	3.00	13	510,000	>2420	1.01	5.1	33.0
Average	**-**	**3.00**	**13**	**510,000**	**2420**	**1.01**	**5.10**	**33.0**
Maximum	**-**	**3.00**	**13**	**510,000**	**2420**	**1.01**	**5.10**	**33.0**
Minimum	**-**	**3.00**	**13**	**510,000**	**2420**	**1.01**	**5.10**	**33.0**

Note:

05/22/2025 09:06:00 Note: Sample was past the 48h holding time for fecal coliform analysis when received at the Subcontract lab; result may be unreliable.