PERFORMANCE REPORT 2023

CITY OF ST. THOMAS

SANITARY SEWER COLLECTION SYSTEM

2023 Annual Performance Report

Consolidated Linear Infrastructure - Environmental Compliance Approval Number# 057-W601

For the Period:
January 1st to December 31st, 2023

ST. THOMAS
THE RAILWAY CITY

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1 St. Thomas Sewage Collection System

The St Thomas Sewage Collection System consists of approx. 213 km of sewage pipe, approx. 3.4 km of Combined Sewer, and 9 Sewage Pump Stations (SPS's), that deliver sanitary and combined sewage flows to the St. Thomas Water Pollution Control Plant (WPCP) located at 40359 Bush Line, St. Thomas. The St. Thomas Sewage Collection System also accepts sewage flows from 5 Pump Stations and through the gravity system under contract from within the Municipality of Central Elgin (St. Thomas Suburban Areas) and Township of Southwold (Lynhurst Park and Ferndale).

An Inline Storage Facility exists immediately upstream of the WPCP through which Collection System flows are directed to, prior to reaching the treatment plant. This In-line Storage Facility serves to protect the WPCP during heavy rainfall events and is equipped with a metered overflow discharge location.

For the purposes of this report the St. Thomas Sewage Collection System shall be referred to as 'the Collection System' and Ontario Ministry of the Environment, Conservation and Parks (MECP) Consolidated Linear Infrastructure - Environmental Compliance Approval (CLI-ECA) 057-W601 shall be referred to as the 'CLI-ECA'.

2 Monitoring Data Overview and Interpretation

The Monitoring Guidance document has not yet been released by the MECP, as such, current system monitoring consisted of the sampling and flow monitoring/estimations required as listed in the previously issued ECA's from January 1 to March 25, 2023. Effective March 25, 2023 sampling and flow monitoring/estimation has been conducted as per the requirements in the CLI-ECA. Further sampling and monitoring requirements introduced by the MECP Monitoring Guidance, if necessary, will be implemented within the timelines required by the document, following its release.

The following represents a comprehensive interpretation of all monitoring and certified analytical data obtained during the 2023 reporting period, comparing Collection System flows and Overflows, Spills and WPCP system By-passes to the rated capacities stipulated in the WPCP ECA.

Table 1 – Summary of 2023 Collection System Flows

2023	
Total Flow directed to Collection System (m^3)	**7,039,450**
Inline Storage Facility Overflow Volume (m^3)	252,441
# of Events	14
Pump Station Overflow & Collection System Overflow and/or Spill Volume (m^3)	17,805
# of Pump Station/ Collection System Overflow Events	17
Total Collection System Overflow Volume (m^3)	**270,246**
% Overflow of Total Flow	**3.84%**
Plant Influent (m^3)	**6,769,204**
WPCP Bypasses (m^3)	1,900
# of Events	8
Total Flow Receiving Full Treatment (m^3)	**6,767,304**

Over the 2023 operating year, the Sewage Collection System handled a total flow of 7,039,450 m^3, of which, 6,767,304 m^3 was successfully delivered to the St. Thomas Water Pollution Control Plant (WPCP) for treatment.

The Collection System has a number of overflow locations that can allow for discharge of sewage to the natural environment during and in response to wet weather events, pump station failures and other emergency conditions, in order to protect the cities infrastructure from damage and/or prevent basement flooding events.

In 2023, a total of 17 events, detailed in Section 5 Tables 5(b) and 5(c) of this report, resulted in the release of sewage to the environment from Pump Station overflow locations or as a result of collection system surcharge events. This resulted in 17,805 m^3 of sewage being released to the environment. All collection system spills,

and pump station overflows were reported to the MECP and responded to in accordance with City of St. Thomas procedures.

Over the 2023 year, a total 14 events, detailed in Section 5, Table 5(a) of this report, resulted in 252,441 m^3 of sewage being discharged to the environment from the In-line Storage Facility overflow location. All were in response to wet weather, were reported to the MECP Spills Action Centre (SAC) and responded to in accordance with City of St. Thomas procedures.

WPCP Bypasses typically occur as a result mechanical failure or power failure at the WPCP, affecting treatment processes for a short duration. In 2023, 8 bypass events (detailed in the WPCP Annual Performance Report) resulted in 1,900 m^3 bypassing at least one treatment step in the process, and therefore full treatment was not realized.

A total of 6,767,304 m^3 of sewage received full treatment in 2023. Refer to the 2023 WPCP Annual Performance Report for more details on the operation and maintenance of the Pollution Control Plant.

The peak day flow witnessed by the Collection System was 126,869 m^3 on April 4, 2023. This represents 232 % of the WPCP ECA peak day rating of 54,600 m^3/day and resulted in an overflow at the In-line Storage Facility of 87,775 m^3.

The average daily flow for the year witnessed by the Collection System in 2023 was 19,235 m^3/day. This represents 70% of the WPCP ECA average day rating of 27,300 m^3/day.

3 Operational Summaries:

The following sections provide a summary off operating problems encountered and corrective actions taken in response, as well as a summary of calibrations, major maintenance and repairs carried out, and any complaints received during the 2023 calendar year related to the operation and maintenance of the Collection System.

3.1 Operating Issues and Corrective Actions

Table 2 presents the operational issues that were experienced over the 2023 calendar year. Details of these events, including the resultant loading into the receiving water bodies is included in Section 5 Table 5(c) of this report.

Table 2 – Summary of Environmental Operating Issues

Date	Location	Event	SAC Report #	Causative Issue	Corrective Action
04-Mar-23	Sewer Collection System	Spill	1-329W4	MH at CSO was repaired and raised 6 feet week of Feb 27. Next manhole upstream (SAMH2543) is now lower. High flows causing surcharge of collection system due to full ISF tank	6-foot riser ordered for SAMH2543. To be installed March 13, 2023
17-Mar-23		Spill	1-32YBMG	Manhole (SAMH2543) surcharging due to high flows and full ISF tank.	Solid concrete cap ordered for Manhole SAMH2543. Review feasibility of removing manhole.
25-Mar-23		Spill	1-33PL8T	Manhole (SAMH2543) surcharging due to high flows and full ISF tank.	Solid concrete cap installed on SAMH2543 on March 27, 2023
31-Mar-23		Spill	1-344TUX	High Flow volume causing surcharge of collection system due to full ISF tank, dislodged new concrete cap on SAMH2543, allowing for discharge.	Plan to reseal and install cap and applying additional weight on top of cap. This was completed April 3, 2023.
04-Apr-23		Spill	1-34DOIU	Manhole (SAMH2543) surcharging due to high flows and full ISF tank. Seam between riser and cap leaked.	Re-sealed and parged manhole. .
04-Apr-23		Spill	1-34LGNM	NW Area 1 Sanitary Servicing Project Manhole SA10 surcharging	Sealed and parged manhole

				due to wet weather flows and full ISF tank	
27-Dec-23		Spill	1-4K3F93	NW Area 1 Sanitary Servicing Project Manhole SA10 leaking as a result of full ISF	Informed Project Manager of leaking manhole. Engineering has now sealed the manhole.
10-May-23	St. George P.S	Spill	1-3GD3O0	Pump 2 airlocked during Pump 1 scheduled repairs. Flows had to be diverted to overflow until vac trucks could arrive to protect from further damage	Vac Trucks arrived and removed volumes in order to facilitate pump repair and return station to normal operation.

3.2 Calibrations

The In-line Storage Facility (historically referred to as the CSO Facility) is equipped with a flow meter on the overflow line. This meter was calibrated during the 2023 operating year. See Instrument Verification Report in Appendix A.

3.3 Summary of Major Maintenance and Repair Items/ Project

Table 3(a) below outlines the major maintenance and repair items completed over the 2023 year within the Sanitary Sewer Collection System.

Table 3 (a) – Summary of Maintenance and Repair Work Orders

Maintenance Type	Overview	Approximate Frequency
Sewer Cleaning		
Planned	weekly trouble spots	weekly
Planned	monthly trouble spots	monthly
Planned	flushing routes	Entire city completed over approximate 3-year cycle.
Unplanned	complaint or event based	10 Workorders
Manhole Maintenance		
Planned	inspection of manholes in ravines	Annually
Unplanned	frame and lid maintenance	4 Workorders
Unplanned	benching	1 Workorders
Unplanned	Work on SAMH2543 to stop spills	3 Workorders
Sewer Maintenance		
Unplanned	private drain repair	10 Workorders
Unplanned	main repair	1 Workorders
Video Inspections		
Unplanned	complaint or event based	10 Workorders
Station Maintenance		
Generators and Electrical		
Planned	test portable genset connection	annually
Planned	test generator	annually
Planned	run generator	monthly
Planned	test electrical panels	annually
Planned	check fuses	varies by station
Unplanned	repair genset	5 Workorders
		Battery replaced at Axford, Dalewood, Elm St and Woodworth; Spark Plug wires replaced at

		Burwell. Block Heater was replaced at Shaw Valley.
Other		
Planned	maintain valves	Varies by station
Planned	heaters	Varies by station
Planned	filters	Varies by station
Planned	inspect or maintain pumps	Varies by station
Planned	alarms and miscellaneous checks	Weekly
Planned	wet well cleaning	Varies by station - Harper SPS (1); Wolfe SPS (1); Woodworth SPS (1); Confederation SPS (2); Burwell SPS (1); Axford SPS (1); Shaw Valley (1); Elm SPS (1)
Unplanned	mechanical repair	7 Workorders
Unplanned	repair pump or motor	12 Workorders **Confederation SPS** - Pulled pump twice Rebuilt by Ampro new bearings & Installed rebuilt motor; **Burwell SPS** - Replaced Pump #2; **St George SPS** - Dehumidifier installed - belts and tensioners; Replaced rotating assembly, 100hp motor. **Woodworth SPS** - Pump 3 pulled and replaced with rebuild
Unplanned	replace valve	1 Workorder **St. George SPS** Flapper and 4-way Valves replaced

3.4 Collection System Complaints

In 2023, there were a total of 0 complaints received relating to Pumping Station Operations.

Complaints received related to the remainder of the Collection System were limited to blocked laterals, private drain replacement requests and suspected main blockages, as listed in Table 3(b) below. All were investigated and repaired as necessary.

Table 3 (b) – Summary of Complaints in Collection System

Complaints	# of Occurrences
Blocked Sewer Main - Flushed	2
Private Drain Repair – City Side	4
Blocked Lateral – City Side (Rodding Rebate Provided)	29
Construction / Rehab work Inquiries	6

4 Collection System Alterations:

Table 4 provides a summary of Alterations made to the Collection System over the course of 2023 that were authorized by CLI-ECA 057-W601.

According to the Assessment Reports for the Kettle Creek Source Protection Region, there are no circumstances wherein a significant drinking water threat can occur within the boundaries of the City of St. Thomas.

Table 4 – Collection System Alterations

Authorizing Form	Description of Alteration
SS1	Extension of existing sanitary sewers on Edgeware Line.

SS1	Replacement of existing 600mm & 900mm diameter gravity sanitary sewer on Talbot Street from Mary Street West to Ross Street including replacement of sanitary services and all associated appurtenances within the roads right of way.
SS1	Replacement of existing 150 and 250 mm combined, sanitary sewer and forcemain on Parkside Drive from Elm St. to South limit and Bell Ave from Parkside Drive to End with new gravity sanitary sewer, including services and all associated appurtenances within the road right of way. Overflow location SAMH189 was eliminated and flow to PS08 - Parkside Drive Sewage Pumping Station, as described in CLI-ECA 057-W601, was diverted and the asset taken out of service.
ECA 7462-CJB7K6	Replacement of existing sanitary sewers on Coyne (from Churchill Cres. North to Churchill Cres. South) and Simcoe Street (from Churchill Cres to First Avenue).

5 Collection System Overflows and Spills:

Tables 5(a), 5(b) and 5(c), below and on the following pages, provide details and environmental loadings from all forms of Collection System Overflow(s) and Spills of sewage that occurred during 2023. No disinfection is provided at the overflow locations.

Table 5(a) – Environmental Loadings From Collection System Overflows (Inline Storage Facility)

Inline Storage Facility Overflows										
Date	Ref. #	Duration (minutes)	Volume (m3)	Reason:	Rain (mm)	Loadings				E. Coli (cfu/ 100 mL)
						TP (kg)	TSS (kg)	TKN (kg)	BOD (kg)	
09-Feb-23	230209-000013	697	12,857.9	Weather	25	27.3	650.6	NR	511.7	NR
04-Mar-23	230304-000011	505	5,040.0	Weather	1	8.3	280.2	NR	282.7	1,600,000
05-Mar-23	230305-000005	99	278.0	Weather	1	0.5	11.8	NR	15.7	880,000
17-Mar-23	230317-000010	669	5,240.0	Weather	15	11.0	360.5	NR	NA[1]	1
25-Mar-23	230326-000000	504	3,884.0	Weather	NA	5.9	177.1	62.1	175.9	NR
31-Mar-23	230331-000002	3537	82,602.0	Weather	25	101.6	3,832.7	1,082.1	4,031.0	NR
04-Apr-23	230404-000000	4699	87,775.0	Weather	48	85.8	1,193.7	1,027.0	2,589.4	NR
02-Jul-23	230702-000001	118	2,051.0	weather	104	3.6	352.8	33.2	115.3	NR
03-Jul-23	230703-000004	922	27,718.0	weather	104	33.0	1,909.8	365.9	1,532.8	NR
06-Jul-23	230706-000009	38	140.0	Weather	24	0.1	2.3	1.4	2.1	NR
13-Jul-23	230713-000007	31	70.0	Weather	23	0.1	1.2	0.5	0.5	NR
29-Jul-23	230729-000003	610	19,737.0	Weather	55	26.1	2,210.5	225.0	604.0	NR
15-Aug-23	230815-000015	7	21.0	Weather	23	0.0	1.6	0.3	1.2	NR
27-Dec-23	231227-000013	526	5,027.0	Weather	17	9.2	361.9	84.5	286.5	NR
Total Inline Storage Facility Overflows			**252,440.9**			**312.5**	**11,346.8**	**2,882.0**	**10,361.1**	NA

- NR - Not required per the ECA being enforced at the time of sampling.
- NA – Not Available / Not Applicable
- NA[1] – Not Available - Lab Error

Table 5(b) – Environmental Loadings Resulting From Collection System Overflows (Pump Stations)

Pump Station Wet Weather Overflows										
Date	Reference #	Duration (minutes)	Volume (m3)	Reason:	Rain (mm)	Loadings				E. Coli (cfu/ 100 mL)
						TP (kg)	TSS (kg)	TKN (kg)	BOD (kg)	
Woodworth Pump Station										
09-Feb-23	230209-000014	51	1.9	Weather	25	0.0	0.3	0.0	0.1	NR
31-Mar-23	230331-000001	179	2,030.3	Weather	25	3.2	491.3	25.4	156.9	2,700,000
04-Apr-23	230404-000001	330	55.3	weather	27	0.0	1.4	0.2	0.7	87,000
05-Apr-23	230405-000016	266	1,358.7	weather	20	1.0	152.2	7.9	43.1	460000
03-Jul-23	230703-000006	149	717.8	Weather	104	1.0	79.7	7.7	37.8	>200000
Woodworth PS Overflows			**4,164.0**			**5.2**	**724.9**	**41.2**	**238.6**	**NA**
St. George Pump Station										
01-Apr-23	230401-000001	1334	16.0	weather	25	0.0	2.5	0.1	0.8	310,000
03-Jul-23	230703-000005	117	2.2	weather	104	0.0	0.3	0.0	0.1	>200000
29-Jul-23	230729-000004	14	0.1	Weather	55	0.0	0.0	0.0	0.0	5,400,000
St. George PS Overflows			**18.3**			**0.0**	**2.8**	**0.1**	**0.9**	
Wolfe Pump Station										
03-Jul-23	230703-000007	110	605.0	Weather	104	0.4	27.8	2.9	12.5	NDOG
Wolfe PS Overflows			**605.0**			**0.4**	**30.6**	**3.0**	**13.4**	**NA**
Total Pump Station Overflows			**4,787.3**			**5.6**	**758.3**	**44.3**	**252.8**	**NA**

- NR Not required per the ECA being enforced at the time of sampling.
- NA – Not Available / Not Applicable
- NA[1] – Not Available - Lab Error
- NDOG – No Data – Lab Analysis Plate Overgrown

Table 5(c)– Environmental Loading Resulting From Collection System Spills

Date	Type of Event	Reference #	Description/ Details	Duration (min)	Volume (m3)	Loadings				
						TP (kg)	TSS (kg)	TKN (kg)	BOD (kg)	E. Coli (cfu/ 100 mL)
04-Mar--23	Spill	1-329WY4	MH at CSO was repaired and raised 6 feet week of Feb 27. Next manhole upstream (SAMH2543) is now lower. High flows causing surcharge of collection system due to full ISF tank	2521	3,025	7.0	235.9	NA[1]	293.2	1,710,000
17-Mar-23	Spill	1-32YBMG	Manhole (SAMH2543) surcharging due to high flows and full ISF tank.	1378	413	1.3	88.1	9.3	67.4*	1,430,000
25-Mar-23	Spill	1-33PL8T	Manhole (SAMH2543) surcharging due to high flows and full ISF tank.	615	738	1.2	83.34	12.8	54.1	NA
31-Mar-23	Spill	1-344TUX	High Flow volume causing surcharge of collection system due to full ISF tank, dislodged new concrete cap on SAMH2543, allowing for discharge.	3575	4,290	10.7	1,287	95.2	256.9	1,600,000
04-Apr-23	Spill	1-34DOIU	Manhole (SAMH2543) surcharging due to high flows and full ISF tank. Seam between riser and cap leaked.	499	299	0.1	2.5	0.9	2.0	NA
04-Apr-23	Spill	1-34LGNM	NW Area 1 Sanitary Servicing Project Manhole SA10 surcharging due to wet weather flows and full ISF tank	6039	3,623	1.4	68.4	11.4	15.9	NA[1]
27-Dec-23	Spill	1-4K3F93	NW Area 1 Sanitary Servicing Project Manhole SA10 leaking as a result of full ISF	960	576	0.8	32.8	10.0	20.1*	1,840,000
10-May-23	Spill	1-3GD3O0	Pump 2 airlocked during Pump 1 scheduled repairs. Flows had to be diverted to overflow until vac trucks could arrive to protect from further damage	225	53	0.4	4.8	4.1	6.4	NDOG
Total Collection System Spills				**15812**	**13,018**	**22.9**	**1803.2**	**143.8**	**716.1**	**NA**

- NR - Not required per the ECA being enforced at the time of sampling.
- NA – Not Available / Not Applicable
- NA[1] – Not Available - Lab Error
- NA[2] – Not Available – Sampling Error
- * - Value based on CBOD result obtained from lab.

6 Efforts to Reduce Overflows, and Spills, STP overflows and Bypasses:

Table 6(a) below outlines the projects undertaken in 2023 to reduce collection system overflows and spills, including the costs of each project. The table also lists the future projects that are planned that will reduce overflows and spills.

Table 6(a) - Efforts Completed and Planned to Reduce Collection System Overflows and Spills

Efforts Completed to Reduce Collection System Overflows	
Combined Sewer Separations:	
Parkside Ave Reconstruction Project:	A single catchbasin on Bell Avenue was discovered to be discharging to Sanitary and was redirected to the Stormwater System as part of the project. Overflow location SAMH189 was eliminated as part of this project. ~$ 1.5 million.
Sunset Drive Pump Station Upgrade and Forcemain Redirection:	In preparation of development in the North-West of the City, the Sunset Drive Pump Station was upgraded. As part of this project, the forcemain was redirected to discharge into the In-line Storage Facility, located immediately upstream of the WPCP. This work was completed as recommended within the Pollution Prevention Control Plan and was completed in support of upcoming work to reduce bottlenecks and ensure optimal flow through the WPCP during high flow events. Sunset Pump Station and Sewer from Station to In-line Storage Facility ~ $5.6 million.
Other Projects	
Basement Flooding Grant Program:	$55,916.99 total grants provided in 2023: 12 sump homes redirected foundation drains and installed sump pumps at $48,200 9 BWV installations at $6218. Building Permit Fees waived 15 at $1500.
City Owned Parking Lot CB Outlet Review:	All City owned parking lot manholes were surveyed, and discharge locations were verified to be directed to the Stormwater Collection System.
Efforts Completed to Reduce Collection System Spills	
Manhole SAMH2543	Manhole was raised and sealed to stop spills from this location.
Manhole SA10 (NW1 Servicing Project)	Manhole was sealed and Engineering is considering further solutions.
Projects Planned to Reduce Collection System Overflows and Spills	
Combined Sewer Separations (2024 – 2025)	
2024 – East and Elysian	Nominally separated in 1997 but provides a drainage outlet for u/s combined sewers on Pearl St
2024 – Meehan and Dieppe	Redirection of single catchbasin to sanitary at corner of Dunkirk Dr. and Dieppe Dr.
2024- Kains and St. Catherine	Permanent elimination of plugged overflow location.
2025 - Centre Street	Stanley to Elgin removal of 2 catchbasins at Queen Street, 2 catchbasins between Elgin and Metcalfe
2025 – Forest Avenue	Ross Street to Fifth Avenue
Other Projects (2024)	
2024 - Maintenance Hole Data Verification	Assessment and Measurement of all 4700+ sanitary manholes in support of development of a Collection System Model. ~$450,000

A Pollution Prevention Control Plan (PPCP) was completed in January of 2022, the following table provides a summary of the recommendations made within the PPCP and their status as of December 31, 2023.

Table 6(b) - Status of Action items Specified in the PPCP

Status of Action Items Specified in the PPCP	
PPCP Recommended Action	**Status December 31, 2023**
Sunset Drive (Walnut) SPS and Collection System Improvements Upgrade SPS and reroute forcemain to In-line Storage Facility	SPS is built and currently undergoing commissioning exercises. Forcemain for new SPS has been redirected to the In-line Storage Facility.
Woodworth Ave SPS and Collection System Improvements	Given recent boundary adjustments additional options are being reviewed to account for additional flows.
Burwell Rd SPS and Downstream Collection System Improvements	Given recent boundary adjustments additional options are being reviewed to account for additional flows.
Annual Sanitary Sewer Lining Program	City has included sanitary sewer lining in future budgets.
Optimization of CSO (in-line storage facility) Operation	Currently addressing bottlenecks at the WPCP, which will allow for In-line Storage Facility optimization. Project is currently at 95% design.
Upsizing Plant 3 Influent Flow Meter and Plug Valve	Currently addressing bottlenecks at the WPCP, which will allow for In-line Storage Facility optimization. Project is currently at 95% design.
UV System Upgrade	Currently addressing bottlenecks at the WPCP, which will allow for In-line Storage Facility optimization. Project is currently at 95% design.
Effluent Pumping System Upgrades	Currently addressing bottlenecks at the WPCP, which will allow for In-line Storage Facility optimization. Project is currently at 95% design.
Inter-Plant Flow Distribution Optimization	Currently addressing bottlenecks at the WPCP, which will allow for In-line Storage Facility optimization. Project is currently at 95% design.
Installation of a Permanent Rain Gauge with 5-minute interval resolution	A weather station is on-site at the WPCP. Frequency is daily, future budgets to include additional stations and higher frequency
Annual Flow Monitoring Program	Project on hold
Annual Updating of the Hydraulic Model	Modelling software is currently requested for 2024, with plans to have the system modelled and staff trained completed by year end 2024.

Policy F-5-5 is a guidance document created by the Ministry of Environment, Conservation and Parks (MECP) and provides the rules and objectives for collecting and treating municipal and private combined and partially separated sewage systems. An assessment of the St. Thomas and Area Collection System's ability to meet Policy F-5-5 objectives is provided in Appendix B. The table below provides a summary statement on the systems Conformance to MECP Policy F-5-5.

Table 6(c)- Conformance to MECP Policy F-5-5

F-5-5 Objective(s)*	St. Thomas
6.1. Eliminate CSOs during dry-weather periods except under emergency conditions.	Based upon a detailed review of overflow events as reported in the St. Thomas Water Pollution Control Plant Annual Performance Reports from 2012 to 2023, all overflow events are associated with wet weather events or equipment malfunctions (which were addressed). The St. Thomas collection system can adequately address dry weather flows and meets sections 6.1 (a) and (b) of Policy F-5-5.
6.2. Each municipality shall demonstrate that the combined sewer system, including the regulators, and associated treatment facilities are adequate for the transmission and treatment of all peak dry weather flows from the service area. An emergency condition would exist when e.g., basement flooding, damage to equipment at treatment works or pumping stations, or treatment process washout was occurring or was imminent.	
6.9. During a seven-month period commencing within 15 days of April 1, capture and treat for an average year all the dry weather flow plus 90% of the volume resulting from wet weather flow that is above the dry weather flow. The volumetric control criterion is applied to the flows collected by the sewer system immediately above each overflow location unless it can be shown through modelling and on-going monitoring that the criterion is being achieved on a system-wide basis. No increases in CSO volumes above existing levels at each outfall will be allowed except where the increase is due to the elimination of upstream CSO outfalls. During the remainder of the year, at least the same storage and treatment capacity should be maintained for treating wet weather flow.	The St. Thomas sanitary collection system is set up to convey flows to the WCPC via pumping stations and gravity trunk sewers to the WPCP with the In-line Storage Facility immediately upstream of the WPCP being used as the control point for wet weather events. The table in Appendix B summarizes the overflow volumes noted from 2012 to 2023 over the seven-month period noted in MECP policy F-5-5 and calculated as described in CLI-ECA 057-W601. As can be seen in the table, the overall collection system meets Section 6.9 of Policy F-5-5.

*Note F-5-5 Policy objectives 6.3 to 6.8 are included within the scope of work of the Water Pollution Control Plant optimization project. This project is at the 95% design stage and is awaiting Environmental Approvals from the MECP.

Notice of the availability of this report will be advertised on the City's various social media accounts and on the City's website. This report will be made available to the public on the City's website www.stthomas.ca and made available free of charge in hardcopy to any resident of St. Thomas upon request at the City of St. Thomas City Hall, Environmental Services Office, located at 545 Talbot Street, St. Thomas, Ontario.

Appendix A

SCG FLOWMETRIX

Instrument Verification
Certificate of Completion

CLIENT CITY OF ST. THOMAS

LOCATION ST. THOMAS WWPCP

Summary - Equipment List

#	LOCATION	DESCRIPTION	MANUFACTURER	MODEL	SERIAL NUMBER	FIT #	TECH	CSE	VERIFICATION INFO.		
									DATE	FREQ.	DUE
	EQUIPMENT LIST - PASS										
1	St. Thomas WWPCP	Primary Raw Sludge #2 Flow Meter	Krohne	IFC 100W	10634441	DG-Q16	PM	-	3-Oct-23	Annual	Oct-24
2	St. Thomas WWPCP	Effluent Flow Plants 2&3S	Milltronics	OCMIII	041102102PB	FIT-211	PM	-	4-Oct-23	Annual	Oct-24
3	St. Thomas WWPCP	Effluent Flow Plants 4&3N	Milltronics	OCMIII	041102103PB	FIT-212	PM	-	4-Oct-23	Annual	Oct-24
4	St. Thomas WWPCP	Plant #2 Flow Meter	Endress+Hauser	Prosonic 91W	C4061B02000	N/A	PM	-	3-Oct-23	Annual	Oct-24
5	St. Thomas WWPCP	Plant #3 Flow Meter	Endress+Hauser	Prosonic 91W	C4061C02000	N/A	PM	-	3-Oct-23	Annual	Oct-24
6	St. Thomas WWPCP	Plant #4 Flow Meter	Endress+Hauser	Prosonic 93W	C407CE02000	N/A	PM	-	3-Oct-23	Annual	Oct-24
7	St. Thomas WWPCP	Primary Raw Sludge #1 Flow Meter	Krohne	IFC 100W	A19317875	DG-Q7	PM	-	3-Oct-23	Annual	Oct-24
8	St. Thomas WWPCP	Plant #4 East Flow DP Meter	Vega	VEGADIF 85	43627448	FIT-1-3	PM	-	4-Oct-23	Annual	Oct-24
9	St. Thomas WWPCP	Plant #4 West Flow DP Meter	Vega	VEGADIF 85	43627447	FIT-1-4	PM	-	4-Oct-23	Annual	Oct-24
10	St. Thomas WWPCP	Plant #3 Flow DP Meter	Vega	VEGADIF 85	43627445	FIT-1-1	PM	-	4-Oct-23	Annual	Oct-24
11	St. Thomas WWPCP	Plant #2 Flow DP Meter	Vega	VEGADIF 85	43627446	FIT-1-2	PM	-	4-Oct-23	Annual	Oct-24
12	St. Thomas WWPCP	Centrate Wet Well Flow	Rosemount	8750	14886682	LI 193	PM	-	3-Oct-23	Annual	Oct-24
13	St. Thomas WWPCP Gallery #2	RAS/WAS Flow #2	Greyline	DFM-IV Doppler	17729	N/A	PM	-	5-Oct-23	Annual	Oct-24
14	St. Thomas WWPCP Gallery #2	RAS/WAS Flow #1	Greyline	DFM-IV Doppler	17730	N/A	PM	-	5-Oct-23	Annual	Oct-24
15	St. Thomas WWPCP - CSO Site	CSO - Overflow Meter	Vega	VEGAMET 625	40053229	N/A	PM	-	4-Oct-23	Annual	Oct-24
16	St. Thomas WWPCP - Lystek Bld.	Reactor Discharge Flow	Endress+Hauser	Promag 400	M80BB116000	FT-40-608	PM	-	3-Oct-23	Annual	Oct-24
17	St. Thomas WWPCP - Lystek Bld.	Truck Loading Flow	Endress+Hauser	Promag 400	M80B2C16000	FT-06-204	PM	-	3-Oct-23	Annual	Oct-24
18	St. Thomas WWPCP - Lystek Bld.	Untility Water Flow	Endress+Hauser	Promag 400	M80BB216000	FT-40-101	PM	-	3-Oct-23	Annual	Oct-24
19	St. Thomas WWPCP - Lystek Bld.	Untility Water Flow	Endress+Hauser	Promag 10D	MA0B5319000	FQT-30-201	PM	-	3-Oct-23	Annual	Oct-24
20	St. Thomas WWPCP - Lystek Bld.	Potable Water Flow	Endress+Hauser	Promag 400	MA097516000	FIT-41-100	PM	-	3-Oct-23	Annual	Oct-24
21	St. Thomas WWPCP - Lystek Bld.	Dry Sludge Flow	Siemens	Mag 5000	N1J5020133	N/A	PM	-	3-Oct-23	Annual	Oct-24
22	St. Thomas WWPCP - Lystek Bld.	Dewatering Biosolids Flow	Endress+Hauser	Promag 55S	MA0B5319000	FT-31-603	PM	-	3-Oct-23	Annual	Oct-24

This Instrument Verification Certificate of Completion summary sheet identifies all instruments tested that PASSED verification/calibration testing during our service contract. Any instrument that does not PASS verification or cannot be calibrated during this contract is highlighted for quick identification.
Further information should be identified within the body of our report.

X-AC Summary Equipment List

"If we don't measure it, how do you manage it?"

Appendix B

Assessment of Conformance to Section 6.9 of Policy F-5-5 (including overflows from the 7-month Period - Beginning April 1 resulting from Non-Significant Storm Events)												
	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Plant Influent (m3)	**3,150,424**	**3,415,039**	**3,714,705**	**3,018,292**	**3,028,170**	**3,096,853**	**3,384,512**	**3,755,561**	**3,186,472**	**3,778,638**	**3,383,810**	**3,704,983**
# of Days	214	214	214	214	214	214	214	214	214	214	214	214
Inline Storage Facility Overflow Volume (m3)	236	-	3,625	-	15,436	-	65,643	156,830	-	4,098	7,829	231
# of Events	1	-	2	-	2	-	4	5	-	2	1	3
PS / Collection System Overflow Volume (m3)	808	6,564	513	33	23	1	418	63	11	499	14	1,412
# of PS Overflow Events	4	6	7	1	3	1	8	4	2	3	1	2
Total Collection System Overflows Volume (m3)	**1,044**	**6,564**	**4,138**	**33**	**15,459**	**1**	**66,061**	**156,893**	**11**	**4,597**	**7,843**	**1,643**
Total Flow directed to Sanitary System (m3)	**3,151,468**	**3,421,603**	**3,718,843**	**3,018,325**	**3,043,629**	**3,096,854**	**3,450,573**	**3,912,454**	**3,186,483**	**3,783,235**	**3,391,653**	**3,706,626**
WPCP Bypass Volume	-	-	-	-	-	-	-	18,901	547	-	-	-
# of Events	-	-	-	-	-	-	-	2	3	-	-	-
Total Flow Receiving Full Treatment	**3,150,424**	**3,415,039**	**3,714,705**	**3,018,292**	**3,028,170**	**3,096,853**	**3,384,512**	**3,736,660**	**3,185,925**	**3,778,638**	**3,383,810**	**3,704,983**
% Overflow of Total Flow	**0.03%**	**0.19%**	**0.11%**	**0.00%**	**0.51%**	**0.00%**	**1.91%**	**4.01%**	**0.00%**	**0.12%**	**0.23%**	**0.04%**
DW Flow (ADWF) m3/day	12,736	12,876	13,242	10,763	11,975	10,679	11,325	11,997	12,449	12,463	12,800	14,744
Total DW Flow for the 7-month period (m3)	**2,725,469**	**2,755,475**	**2,833,808**	**2,303,255**	**2,562,549**	**2,285,362**	**2,423,589**	**2,567,315**	**2,664,020**	**2,667,182**	**2,739,302**	**3,155,157**
Total of WW Flow above DW Flow for 7-month period (m^3)	425,998	666,129	885,035	715,070	481,079	811,492	1,026,984	1,345,139	522,462	1,116,053	652,352	551,469
% Overflow of WWF above DW Flow	**0.24%**	**0.99%**	**0.47%**	**0.00%**	**3.21%**	**0.00%**	**6.43%**	**11.66%**	**0.00%**	**0.41%**	**1.20%**	**0.30%**
5-year Average % Overflow of WWF above DW Flows	**---**	**---**	**---**	**0.43%**	**0.98%**	**0.93%**	**2.02%**	**4.26%**	**4.26%**	**3.70%**	**3.94%**	**2.72%**