

**THE FIRST MEETING OF THE 2023 ST. THOMAS AREA SECONDARY WATER
SUPPLY SYSTEM BOARD OF MANAGEMENT**

COMMITTEE ROOM #304

MARCH 23, 2023

5:03 p.m. The meeting convened.

ATTENDANCE

Members

Councillor Norm Watson, Municipality of Central Elgin
Councillor Jeff Kohler, City of St. Thomas
Councillor Steve Peters, City of St. Thomas

Regrets

Deputy Mayor Justin Pennings, Southwold Township

Staff

J. Lawrence, Director of Environmental Services, City of St. Thomas
C. Andrew, Manager Water & Sewer, City of St. Thomas
G. Brooks, Director of Infrastructure and Community Services, Municipality of Central Elgin
K. Kamerman, Compliance Coordinator, City of St. Thomas
A. VanOorspronk, Director of Infrastructure & Development Services, Township of Southwold
M. Smale, Legislative Services Coordinator, City of St. Thomas

Others

Patrick Buenbrazo, Broccolini

APPOINTMENT OF CHAIR AND VICE CHAIR

Motion by Councillor Kohler - Watson:

THAT: Steve Peters be appointed Chair of the St. Thomas and Area Secondary Water Supply System Board of Management.

Carried

Councillor Peters assumed the Chair

Motion by Councillor Peters - Kohler:

THAT: Norm Watson be appointed Vice Chair of the St. Thomas and Area Secondary Water Supply System Board of Management.

Carried.

DISCLOSURES OF INTEREST

Nil.

MINUTES

Motion by Councillor Kohler - Peters:

THAT: The minutes of the meeting held on October 13, 2022, be confirmed.

Carried.

NEW BUSINESS

REPORTS OF COMMITTEE

2022 Summary and Annual Report for St. Thomas Secondary Water Supply System
- Appendix "A"

CONFIRMED_____CHAIR

1st Meeting - 2023 St. Thomas Area Secondary Water Supply System Board of Management - 2

The members inquired whether a tour could be organized of the Elgin Area water treatment facility.

The Director of Environmental Services advised that tours could be arranged at the treatment facility as well as at the Elgin Middlesex Pumping Station.

Motion by Councillor Kohler - Watson :

THAT: Report SWB-01-23 relating to the St. Thomas and Area Secondary Water Supply System 2022 Annual Reports, be received for information.

Carried

Drinking Water Quality Management System Operational Plan and Policy Endorsement - Appendix "B"

The Director of Environmental Services advised that the operational plan and policy were mandated and were based on a set of key elements fixed by the Province.

The members inquired about the impacts of a recent ice storm on the system.

The Director of Environmental Services advised that both the primary and secondary systems had operated on backup generators due to power outages and that this equipment had performed well. He added that the communications plans were being reviewed to ensure expedited notification to affected municipalities when such an event occurs.

The members directed that a report be prepared detailing options for additional redundancies that may be put in place to reduce risk in the event of future outages.

Motion by Councillor Watson - Kohler:

THAT: Report SWB-02-23 relating to the Drinking Water Quality Management System Operational Plan and Policy Endorsement for the St. Thomas and Area Secondary Water Supply System, be received for information; and further,

THAT: The Board approve the Drinking Water Quality Management System Operational Plan and Policy for the St. Thomas and Area Secondary Water Supply System.

Carried.

Clinton Line/Wonderland Road Servicing - Appendix "C"

The members inquired whether additional water flow to the property was required.

Mr. Buenbrazo advised that the property had sufficient water flow to accommodate operations but that increased water flow was being requested for enhanced fire suppression and potential future development on the property.

The members inquired whether there were other users that could benefit from the proposed project and how costs would be apportioned.

The Director of Environmental Services advised that the requester was the only benefitting user and that there was no apportionment to be considered. He further advised that other users may benefit in future and that the Board could consider other apportionment or financing scenarios should additional development proposals be received.

The Director of Environmental Services advised that at this time approval was being sought from the members to allow relocating and installing a new chamber and meter that will allow Southwold and the developer to create a loop on their water distribution system. Any future capacity increases would be reviewed prior to Southwold approving a site plan or subdivision.

1st Meeting - 2023 St. Thomas Area Secondary Water Supply System Board of Management - 3

Motion by Councillor Watson - Kohler:

THAT: Report SWB-03-23 relating to Clinton Line/Wonderland Road Servicing, be received for information; and further,

THAT: The Board approve the project subject to City staff approval of design and construction methodology.

Carried.

Budget and Rates Consideration

Councillor Watson inquired when budgeting and rates were considered by the Board.

The Director of Environmental Services advised that the ensuing year's rates were considered in the fall.

CORRESPONDENCE

Letter from Dutton Dunwich to Southwold re: Back Feeding Scenario and Water Tower Implications

The members were in receipt of correspondence from the Municipality of Dutton Dunwich to Southwold Township regarding back-feeding of water between the two municipalities.

The members inquired whether there would be a benefit to Dutton Dunwich to allow back-feeding.

The Director of Environmental Services advised that water flowed to Dutton Dunwich the majority of the time. The back-feeding scenario would occur occasionally for shorter durations of time.

The members discussed the Board's rights and options to address these concerns.

The Director of Environmental Services advised that a report could be prepared for a future meeting relating to pump and water tower infrastructure needs. The impact of options would be incorporated into that report.

UNFINISHED BUSINESS

NEXT MEETING

The next meeting is scheduled for June 22, 2023.

ADJOURNMENT

The meeting adjourned at 5:40 p.m.



Appendix "A"

Report No.

SWB01-23

File No.

Directed to: Members of Board of Management for the St. Thomas Area Secondary Water Supply System

Date Authored: February 16, 2023
Meeting Date: March 23, 2023

Department: Environmental Services

Attachment

Prepared By: Chris Andrew, Manager of Water and Sewer

2022 Summary and Annual Report

Subject: 2022 Summary and Annual Report for St Thomas Secondary Water System

Recommendation:

THAT: Report SWB01-23, St. Thomas Area Secondary Water Supply System 2022 Annual and Summary Reports, be received for information.

Background:

The Safe Drinking Water Act, Regulation 170/03, Section 11, requires that owners and administrators of drinking water systems prepare Annual Reports by February 28th of each year. Under Schedule 22, the Regulation also requires the owner of a drinking water system to prepare a Summary Report no later than March 31st of each year

Analysis:

The City of St. Thomas, Township of Southwold and Municipality of Central Elgin owns the St. Thomas Area Secondary Water Supply System (STASWSS) and the STASWSS portion of the Elgin Middlesex Pumping Station (EMPS) that require that Annual and Summary Reports be prepared to abide by the Safe Drinking Water Act.

The Annual Reports have been completed by the required date of February 28, 2023, on standard Forms provided by the Ministry and will be filed as required. The Summary Report has been completed prior to the required submission date of March 31, 2023. The Annual and Summary Reports are attached as required by the regulations, arrangements have been made to post the reports on the City's web site and copies will be sent to the drinking water systems that receive water from the St. Thomas Area Secondary Water Supply System. Copies of the reports will be made available to the Public upon request at the Environmental Services Department.

Water systems are required to have a DWQMS in place to consistently deliver drinking water that meets applicable legislative, regulatory and owner requirements. This will ensure consumer protection and be a continual improvement tool.

The St. Thomas Area Secondary Water Supply System, which includes a portion of the Elgin Middlesex Pumping Station, is administered by the City of St. Thomas on behalf of the owner, the St. Thomas Area Secondary Water Supply Board. This system transmits water to Southwold, Central Elgin, Dutton Dunwich and St. Thomas. The Ontario clean Water Agency (OCWA) operates the pumping station on behalf of the board and the transmission main is operated by the City of St. Thomas. The system complies with the Ontario Safe Drinking Water Act, Regulation 170/03, and with the terms and conditions of the applicable Municipal Drinking Water Licences

Respectfully,

Chris Andrew
Manager of Water and Sewer

Approved By:
City Engineer

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2019

St. Thomas Secondary System

License Number: 190-101

Permit Number: 190-201

Provincial Regulation 170/03
Summary Report

For the Period
January 1, 2022 – December 31, 2022



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1 Summary Report Requirements

1.1 Introduction

The 2022 Summary Report for the St. Thomas Area Secondary Water Supply System (STASWSS) is being submitted to satisfy Schedule 22 of Ontario Regulation 170/03, the requirement to prepare and distribute a summary report of water system operations, outlining regulatory non-compliance with respect to water quality and water system management and administration and evaluating the water system infrastructure adequacy (with respect to its ability to continuing meeting the water demands of the serviced community).

As per Ontario Regulation 170/03, the summary report must:

- a. List the requirements of the Act, the regulations, the system's approval, drinking water works permit, municipal drinking water licence, and any orders applicable to the system that were not met at any time during the period covered by the report; and
- b. For each requirement referred to in clause (a) that was not met, specify the duration of the failure and the measures that were taken to correct the failure.

The report must also include the following information for the purpose of enabling the owner of the system to assess the capability of the system to meet existing and planned uses of the system:

- A summary of the quantities and flow rates of the water supplied during the period covered by the report, including monthly average and maximum daily flows.
- A comparison of the summary to the rated capacity and flow rates approved in the system's approval, drinking water works permit or municipal drinking water licence, or if the system is receiving all of its water from another system under an agreement, to the flow rates specified in the written agreement.

The information provided is for the purpose of enabling the owner of the system to assess the capacity of the system. This report covers the reporting period from January 1, 2022 to December 31, 2022.

1.2 System Description

The STASWSS is supplied water from the Elgin Middlesex Pumping Station (EMPS) and Reservoir. The EMPS reservoir is filled by the Elgin Area Primary Water Supply System (EAPWSS) which obtains its water from Lake Erie and provides water treatment at the Elgin Area Primary Water Treatment Plant, located on Dexter Line, East of Port Stanley Ontario.

Operation and Maintenance of the EMPS- St. Thomas section is currently under contract with the Ontario Clean Water Agency (OCWA). The operation and maintenance of the associated transmission main and distribution system of the STASWSS is currently conducted by the City of St. Thomas – Environmental Services Dept.

The STASWSS is considered a distribution-only system, providing water directly to the City of St. Thomas and sections of the Southwold and Central Elgin Water Distribution Systems.

1.3 System Approvals and Regulatory Requirements

Operation and Maintenance of the STASWSS is governed by the Safe Drinking Water Act, 2002, and the regulations established under this Act. In accordance with the Safe Drinking Water Act, The Joint Board of Management of the St. Thomas Area Secondary Water Supply System holds a Municipal Drinking Water Licence and Drinking Water Works Permit, which provide approval for the establishment of drinking water infrastructure and provide the authority to operate and maintain said water system.

During the reporting period, The St. Thomas Area Secondary Water Supply System was operated pursuant to the approvals, licences and permits listed below:

- MDWL No. 190-101, issue 3 to April 23, 2021, issue 4 to Sept 30, 2021, issue 5 to end of year
- DWWP No. 190-201, issue 2 to Sept 30, issue 3 to end of year

Ontario Regulation 170/03 – Drinking Water Systems, governs the operation, maintenance and water quality monitoring requirements for municipal drinking water systems in Ontario. Ontario Regulation 128/04 – Certification of Drinking Water System Operations and Water Quality Analysts sets out the requirements for persons performing operational or maintenance activities on the water system. The Safe Drinking Water Act, 2002 and the associated regulations are enforced by the Ministry of Environment, Conservation and Parks (MECP) and monitored through annual inspections by Ministry personnel. Any non-compliant conditions identified during the course of the annual inspection are listed in the Inspection Report issued at the conclusion of the inspection period and are summarized in section 4.1 of this report.

Ontario Regulation 169/03 – Ontario Drinking Water Quality Standards sets the limits for parameters of concern in drinking water. Drinking water quality is monitored by the Operating Authority and any exceedance of the Drinking Water Quality Standards must be reported to the MECP and Public Health Unit, verbally and in written form through the use of a Notice of Adverse Test Results and Issue Resolution Form. Any non-compliant conditions identified through water quality monitoring exercises over the reporting period have been documented on a Notice of Adverse Test Results and Issue Resolution Form and are summarized in section 4.2 of this report.

2 Evaluation of Water Quantities and Flow Rates

The EMPS is situated on a site owned by the Elgin Area Primary Water Supply System and includes the original St. Thomas pump station, constructed in 1966 that services St. Thomas, and sections of the Municipalities of Central Elgin and Southwold. Two additional pump stations were completed in 1994 and service the City of London, as well as the Municipality of Malahide, Town of Aylmer, and the Municipality of Central Elgin.

The St. Thomas pump station is comprised of three high-lift pumps that deliver water through a transmission main that services the St. Thomas Area Secondary Water Supply System. A gas re-chlorination system provides re-chlorination for water being directed to the St. Thomas Area Secondary Water Supply System.

The Ontario Clean Water Agency (OCWA) is currently the Operating Authority for all 3 pump stations located within the EMPS, and ultimately control the pumps directing water into the STASWSS.

OCWA has prepared a Summary Report for their operations at the EMPS for the reporting period, which evaluates the volumes of water delivered to the STASWSS. The report is attached as Appendix A.

3 Water Quality Summary

A summary of water quality testing completed by the City of St. Thomas – Environmental Services Dept. over the course of the reporting period is available in the Annual Report, attached as Appendix B.

A summary of water quality testing completed by OCWA over the course of the reporting period is available in the Annual Report included as an appendix to the Summary Report (Appendix A to this report).

4 Summary of Non-Compliant Conditions

4.1 Ministry of the Environment, Conservation and Parks Inspection

The Ontario Ministry of the Environment, Conservation and Parks (MECP) conducts an inspection of the St. Thomas portion of the Elgin-Middlesex Pumping Station, operated by OCWA, annually along with the St. Thomas Area Secondary Water System, operated by the City of St. Thomas.

An MECP inspection has been scheduled but not completed by the time the report was authored.

MECP Inspection Finding	O.A. Responsible	Action Taken
N/A	N/A	N/A

4.2 Adverse Test Results and Issue Resolution

Any non-compliant conditions identified through water quality monitoring exercises undertaken by St. Thomas Environmental Services over the reporting period, and actions taken are summarized in the table below.

Adverse Test Result (Date / Location)	O.A. Responsible	Action Taken
N/A	N/A	N/A

5 List of Appendices

Appendix A – OCWA EMPS – St. Thomas Secondary Water Supply System – 2022 Annual Report

Appendix B - St. Thomas Secondary Water Supply System – 2022 Annual Report

APPENDIX A

ELGIN-MIDDLESEX PUMPING STATION
ST. THOMAS AREA SECONDARY WATER SUPPLY
SYSTEM
2022 COMPLIANCE REPORT
(Schedule 22 Summary Report)

Facility Name: Elgin-Middlesex Pumping Station -
St. Thomas Area Secondary Water Supply System

Mailing Address: Elgin Area Primary Water Supply System
P.O. Box 220
Port Stanley, ON N5L 1J4



Average Daily Flow 7,744m³/day
Max. Daily Flow 15,062m³/day
Source Water Elgin Area Primary Water Supply System

CONTACT INFO:

Contract Administration:
City of St. Thomas, City Hall
Environmental Services
545 Talbot Street, St. Thomas, ON N5P3V7
Contact: Mr. Justin Lawrence
Director of Environmental
Services and City Engineer

Operator:
Ontario Clean Water Agency.
P.O. Box 220, Port Stanley, Ontario N5L 1J4
Contact: Mr. Greg Henderson - Senior Operations Manager
(226) 378-5154

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System Approvals:

The St. Thomas Area Secondary Water Supply System is supplied water through the Elgin-Middlesex Pump Station, which receives water from the Elgin Area Primary Water Supply System on Dexter Line, east of Port Stanley, Ontario. During the reporting period, The St. Thomas Area Secondary Water Supply System was operated pursuant to the approvals, licenses and permits listed below.

The supply and distribution of water to the system is governed by the following Municipal Drinking Water Licenses (MDWL) and Drinking Water Works Permits (DWWP):

- MDWL No. 190-101, issued on September 30, 2021
- DWWP No. 190-201, issued on September 30, 2021

The DWWP and MDWL were issued in accordance with the Safe Drinking Water Act (SDWA), 2002.

Treated Water Requirements:

The requirements fall under the Drinking Water Systems Regulation (O.Reg.170/03) and the Ontario Drinking Water Quality Standards (O.Reg.169/03) under the Safe Drinking Water Act, 2002.

Staff Complement and Training:

In 2022, the St. Thomas facility at the Elgin-Middlesex Pump Station (EMPS) was operated and maintained under the operating authority, Ontario Clean Water Agency. The operational and maintenance staff are based at the Elgin Area Primary Water Supply System (EAPWSS) located east of Port Stanley, Ontario, and share their time between the two facilities. Employees responsible for the operations and maintenance of the facility included one (1) Senior Operations Manager, two (2) Team Leads, eight (8) full time equivalent operations staff, four (4) full time equivalent maintenance staff and one (1) administrative assistant.

Regional staff shares their work hours between the EMPS Systems, Lake Huron Primary Water Supply System (LHPWSS) and the Elgin Area Primary Water Supply System (EAPWSS). They provides administrative support services to the EMPS, which includes the Regional Hub Manager, Regional Business Manager, Safety, Process and Compliance Manager, Technical Projects Coordinator and Asset Maintenance Specialist.

In 2022, all employees received Director Approved and practical on-the-job training, which contributed to annual MECF training requirements.

History of Facility:

The EMPS is an integrated booster station occupied by three secondary systems which are fed from two in-ground storage reservoirs, each having a capacity of 27.3 million liters. The two storage reservoirs and the site upon which the three booster stations are situated are owned by the Elgin Area Primary Water Supply System (EAPWSS). This includes the original St. Thomas pump station, constructed in 1966 that services St. Thomas, and sections of the Municipalities of Central Elgin and Southwold. Two additional pump stations were completed in 1994 and service the City of London, as well as the Municipality of Malahide, Town of Aylmer, and the Municipality of Central Elgin.

The St. Thomas pump station is comprised of three high-lift pumps that deliver water through a transmission main that services the St. Thomas Area Secondary Water Supply System. A gas re-chlorination system provides re-chlorination for water being directed to the St. Thomas Area Secondary Water Supply System.

In the event of a power failure, an on-site generator can provide sufficient standby power to operate the facility and the St. Thomas pumps.

Remote monitoring and control of all three pump stations is performed by staff at the Elgin Area Primary Water Supply System (EAPWSS) near Port Stanley, Ontario. Remote monitoring and control capabilities are made possible via the EAPWSS and the Elgin-Middlesex Pumping Station (EMPS) SCADA systems

Process Description:



The Elgin-Middlesex Pump Station (EMPS) receives treated water from the Elgin Area Primary Water Supply System, which treats water at the water treatment plant located on the shores of Lake Erie to the east of Port Stanley. Water from the plant is pumped into the EAPWSS reservoirs located at the EMPS where it is subsequently fed via a series of headers to each of the pumping stations serving the Aylmer Area Secondary Water Supply System, the City of London Distribution System, and the St. Thomas Area Secondary Water Supply System.



The St. Thomas pump station has two duty pumps and one standby pump. All three pumps are equipped with Variable Frequency Drives (VFD). However, the VFD's are presently configured to act as soft starts. Each pump has a rated capacity of 263 L/s.

Post-Treatment:

The St. Thomas Area and Aylmer Area Secondary Water Supply System pump stations both utilize a gas re-chlorination system. The system consists of two scaled 68kg gas chlorine cylinders and three chlorinators equipped with booster pumps.

The three chlorinators redundantly serve the Aylmer Area Secondary Water Supply System (AASWSS) and St. Thomas Area Secondary Water Supply System (STASWSS) and have a dosage capacity range of 1-60kg/h of chlorine gas.

High Lift Pump Station:

The three high lift pumps provide redundant pumping capacity into the St. Thomas Area Secondary Water Supply System. See Appendix B for 2022 Total Daily Flows and Appendix C for 2022 Daily Instantaneous Peak Flows.

Maintenance:

Site maintenance was carried out by Ontario Clean Water Agency field services staff based at the Elgin Area Primary Water Supply System. Specialty maintenance services are provided, on an as needed basis by external service providers. All maintenance scheduling is monitored through a computerized maintenance management system (Maximo).

In addition to the routine preventative maintenance program, a number of maintenance projects were completed at the EMPS in 2022. A summary of non-routine maintenance is available in Appendix D, the 2022 Annual Report.

Sampling Procedures:

All samples collected by licensed OCWA personnel are submitted to CALA (Canadian Association for Laboratory Accreditation) accredited laboratories for bacteriological and chemical analysis.

Distribution water samples are taken twice per week at the inlet to the reservoir and submitted for bacteriological analysis. The distribution water entering the St. Thomas Area Secondary Water Supply System is sampled weekly and submitted to an external laboratory for bacteriological analysis. Chlorine residual, for the water entering the St. Thomas Area Secondary Water Supply System, is monitored continuously from the Elgin Area Primary Water Supply System by means of the SCADA system.

On a quarterly basis the distribution water entering the reservoir, as well as the water entering the St. Thomas Area Secondary Water Supply System is sampled and submitted to an accredited laboratory for testing of Total Trihalomethanes (THMs) and Haloacetic Acids (HAA's), disinfection by-products. Twice annually, the distribution water entering the reservoir is sampled and submitted to an accredited laboratory for testing of lead concentrations.

All water quality sampling at the Elgin- Middlesex Pump Station is performed in accordance with Ontario Regulation 170/03.

Flow Measurement and Water Quality Monitoring:

Flow leaving the EMPS directed to St. Thomas Secondary System is measured utilizing a magnetic flow measuring device. See Appendix A for a summary of 2022 water quality data.

Statement of Comparison:

The previous Certificate of Approval and new Municipal Drinking Water License for the St. Thomas Area Secondary Water Supply System does not identify a rated capacity for the system. The pumping station has an available capacity of 68,169m³/day, whereby instantaneous peak flow is 789 L/s.

The maximum total daily flow witnessed by the system in 2022 was 15,062m³/day, approximately 22% of the capacity. The average total daily flow witnessed by the system in 2022 was 7,744m³/day, approximately 11% of the capacity.

The maximum instantaneous peak flow witnessed by the system in 2022 was 477 L/s, approximately 60% of the capacity. See Appendix B for 2022 total daily flow values and Appendix C for 2022 daily instantaneous peak flow rates.

Ministry of the Environment Conservation and Parks Inspections:

The Ontario Ministry of the Environment Conservation and Parks (MECP) conducts an inspection of the St. Thomas portion of the Elgin-Middlesex Pumping Station annually along with the St Thomas Area Secondary Water System operated by the City of St Thomas. A MECP inspection took place in February 16 2023. The final inspection report and inspection rating is still in review.

Benefiting Municipalities:

Following the adoption of the Municipal Water and Sewer Transfer Act in 1997, the Ontario Ministry of the Environment Conservation and Parks transferred the ownership of the three booster stations from the Province of Ontario to the water systems' benefiting municipalities. As a result, the Aylmer Area Secondary Water Supply System portion of the EMPS and associated equipment is owned by the Aylmer Area Secondary Water Supply System Joint Board of Management, the London portion of the EMPS is owned by the Corporation of the City of London, and the St. Thomas Area Secondary Water System portion of the EMPS and associated appurtenances are owned by the St. Thomas Area Secondary Water System Joint Board of Management. Jointly these water systems benefit, and are managed on behalf of, the communities of Aylmer, Central Elgin, London, Malahide, Southwold and St. Thomas. A list of municipalities that receive water directly and indirectly from the St. Thomas Area Secondary Water Supply System at the EMPS is provided in Appendix D. The Ontario Clean Water Agency operates and maintains the Elgin- Middlesex Pump Station, under contracts to the Aylmer Area Secondary Water Supply System, The Corporation of the City of London and the St. Thomas Area Secondary Water Supply System.

This report was prepared by Ontario Clean Water Agency, the Operating Authority for the St. Thomas portion of the EMPS, on behalf of the St. Thomas Area Secondary Water Supply System Joint Board of Management.

**APPENDIX A – EMPS ST. THOMAS
WATER QUALITY SUMMARY 2022**

MONTH	POST TREATMENT	
	Free Cl ₂ mg/L	
January		
Minimum	0.88	
Maximum	1.65	
Average	1.46	
February		
Minimum	0.85	
Maximum	1.61	
Average	1.40	
March		
Minimum	0.81	
Maximum	1.63	
Average	1.43	
April		
Minimum	0.69	
Maximum	1.58	
Average	1.40	
May		
Minimum	0.75	
Maximum	1.65	
Average	1.40	
June		
Minimum	0.84	
Maximum	1.59	
Average	1.40	
July		
Minimum	0.79	
Maximum	1.55	
Average	1.37	
August		
Minimum	0.83	
Maximum	1.42	
Average	1.32	
September		
Minimum	0.93	
Maximum	2.53	
Average	1.57	
October		
Minimum	0.81	
Maximum	2.24	
Average	1.44	
November		
Minimum	0.92	
Maximum	2.32	
Average	1.51	
December		
Minimum	0.96	
Maximum	2.47	
Average	1.63	
Yearly Minimum	0.69	
Yearly Maximum	2.53	
Yearly Average	1.44	

Note: Chlorine residuals obtained from SCADA.

**APPENDIX B
ST. THOMAS TOTAL DAILY FLOW - 2022**

Date	January m ³	February m ³	March m ³	April m ³	May m ³	June m ³	July m ³	August m ³	September m ³	October m ³	November m ³	December m ³	
1	9376	9596	8889	9338	7182	7572	8881	8084	8756	6987	3411	4989	
2	9684	12139	8979	9847	6670	5440	7718	6960	9504	7356	3112	4438	
3	9685	11166	9041	10465	6279	7112	7657	7694	8994	6444	3096	3396	
4	9068	10745	9154	9067	6833	6340	9378	6680	7739	6255	3110	3921	
5	8942	10053	9307	8802	7164	7134	6953	6368	8586	6353	3934	2942	
6	9199	10687	9944	8790	6723	4887	7719	7356	7651	6316	3711	4199	
7	9426	9849	8855	8823	7288	5075	8118	6544	8034	6046	5062	7214	
8	9865	10161	8890	8651	7829	6267	8062	6363	9017	6442	3424	8482	
9	10882	9824	8489	9156	7932	6374	7798	6706	6684	5907	3526	6305	
10	9262	10021	8790	9530	7768	6852	9927	7071	7616	6995	6397	6674	
11	9392	9781	8135	9052	7635	7901	15062	7895	7780	6447	9301	7072	
12	9458	10261	8311	9441	8412	7137	12213	7168	7219	5505	11133	6119	
13	9220	9783	8441	9227	8217	7688	8189	7743	7622	5564	9490	6436	
14	9242	9346	8343	8391	8560	8339	8419	7571	7127	5665	4977	6287	
15	9882	8961	8133	8795	8206	8645	9170	8492	7492	4577	3956	4830	
16	10564	8691	8545	8551	6117	8152	9099	6145	7170	4098	4299	6117	
17	8773	9036	8655	8645	6034	8133	6567	8311	7247	3300	4817	7114	
18	9562	8298	8226	9060	5527	8094	7790	12887	7680	4795	5332	7446	
19	9541	8796	8398	9756	6477	9373	6868	9066	7680	4540	6006	7415	
20	9571	8681	9542	9051	6911	7535	6875	9132	8127	5004	6490	6513	
21	9595	9583	9231	9080	6762	9229	6938	6686	7695	4716	5532	6193	
22	9804	8093	9139	9945	5981	9801	7507	7161	7796	5230	6163	6674	
23	10493	8401	9923	10052	7760	9944	12772	7782	9084	5608	5091	6474	
24	9149	8521	8975	9244	7596	9647	13998	8142	7694	4432	5560	7741	
25	9268	7924	8385	4465	6711	8375	10610	7828	8956	4381	4854	6732	
26	9720	9153	9611	5276	6595	9710	7827	7222	7750	4732	5248	6745	
27	9254	8990	10239	6041	6507	10232	7170	7382	7885	5007	6152	6402	
28	9403	8446	9300	6135	6279	10261	8490	8035	7832	4640	5165	6180	
29	9711		9799	5543	7662	9555	8835	7562	7906	5634	4536	6539	
30	10208		9316	6891	9076	10597	8303	6806	7311	5632	5519	6229	
31	9534		9610		7006		7925	6990		3113		8029	
Total	296,733	264,986	278,595	255,110	221,699	241,401	272,838	235,832	237,634	167,721	158,404	191,847	2,822,800
Minimum	8,773	7,924	8,133	4,465	5,527	4,887	6,567	6,145	6,684	3,113	3,096	2,942	2,942
Maximum	10,882	12,139	10,239	10,465	9,076	10,597	15,062	12,887	9,504	7,356	11,133	8,482	15,062
Average	9,572	9,464	8,987	8,504	7,152	8,047	8,801	7,607	7,921	5,410	5,280	6,189	7,744

**APPENDIX C
ST. THOMAS DAILY INSTANTANEOUS PEAK FLOW - 2022**

Date	January L/s	February L/s	March L/s	April L/s	May L/s	June L/s	July L/s	August L/s	September L/s	October L/s	November L/s	December L/s	
1	299	302	304	285	304	273	272	275	264	271	269	272	
2	298	304	286	286	296	278	269	274	266	271	278	271	
3	477	280	301	301	308	276	270	270	267	268	278	269	
4	347	297	308	300	316	276	268	293	268	273	275	270	
5	300	285	305	313	305	273	269	288	269	268	278	273	
6	398	307	290	306	308	273	266	268	266	267	277	274	
7	364	299	300	301	305	280	268	268	277	274	278	273	
8	298	286	282	311	302	281	291	268	275	278	278	284	
9	306	295	296	294	282	274	286	268	274	276	274	282	
10	302	297	300	309	280	275	287	278	277	281	267	284	
11	295	285	296	298	274	273	272	277	279	279	277	286	
12	316	292	272	291	277	275	274	278	279	277	280	282	
13	282	296	299	307	278	273	281	275	279	279	276	286	
14	292	307	300	303	275	271	276	279	277	278	275	282	
15	274	300	295	288	275	274	276	277	277	276	274	281	
16	292	289	287	300	272	276	277	278	276	278	272	278	
17	272	310	287	297	277	276	277	273	273	275	275	278	
18	291	300	301	293	290	280	277	275	275	281	279	279	
19	312	306	296	294	268	278	276	271	277	274	276	276	
20	303	303	300	350	270	278	281	273	273	276	277	279	
21	321	309	299	296	269	280	279	272	276	274	277	275	
22	326	296	287	289	271	281	279	274	279	276	279	270	
23	301	296	290	296	272	272	280	273	278	273	276	273	
24	319	299	283	290	268	276	280	272	277	275	272	269	
25	313	309	298	306	276	275	276	272	279	273	277	268	
26	303	283	315	290	276	276	281	275	277	271	273	270	
27	307	312	299	288	276	274	273	271	277	270	276	272	
28	289	289	299	311	273	275	277	271	271	270	277	272	
29	282		287	298	280	272	274	274	270	270	277	274	
30	306		307	292	273	271	276	271	270	268	272	270	
31	284		302		288		275	274		270		270	
Minimum	272	280	272	285	268	271	266	268	264	267	267	268	264
Maximum	477	312	315	350	316	281	291	293	279	281	280	286	477
Average	312	298	296	299	283	276	276	274	274	274	276	276	284



Drinking-Water System Number:	260078897
Drinking-Water System Name:	Elgin Middlesex Pumping Station - St. Thomas Area Secondary Water Supply System
Drinking-Water System Owner:	St. Thomas Area Secondary Water Supply System Joint Board of Management
Drinking-Water System Category:	Large Municipal Residential
Period being reported:	January 1, 2022 through December 31, 2022

<p><u>Complete if your Category is Large Municipal Residential or Small Municipal Residential</u></p> <p>Does your Drinking-Water System serve more than 10,000 people? Yes [X] No []</p> <p>Is your annual report available to the public at no charge on a web site on the Internet? Yes [X] No []</p> <p>Location where Summary Report required under O. Reg. 170/03 Schedule 22 will be available for inspection.</p> <div style="border: 1px solid black; padding: 5px;"> <p>City of St. Thomas, City Hall Environmental Services 545 Talbot Street St Thomas, ON. N5P 3V7 www.city.st-thomas.on.ca</p> <p>Elgin Area Primary Water Supply System Treatment Plant 43665 Dexter Line, Union, ON N0L 2L0</p> </div>	<p><u>Complete for all other Categories.</u></p> <p>Number of Designated Facilities served:</p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin-left: 20px;">N/A</div> <p>Did you provide a copy of your annual report to all Designated Facilities you serve? Yes [] No []</p> <p>Number of Interested Authorities you report to:</p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin-left: 20px;">N/A</div> <p>Did you provide a copy of your annual report to all Interested Authorities you report to for each Designated Facility? Yes [] No []</p>
--	---

List all Drinking-Water Systems (if any), which receive all of their drinking water from your system:

Systems that receive their drinking water directly from the St. Thomas EMPS:

Drinking Water System Name	Drinking Water System Number
St. Thomas Area Secondary Water Supply System	260078897
St. Thomas Distribution System	260002187



Systems that receive their drinking water indirectly from the St. Thomas EMPS:

Drinking Water System Name	Drinking Water System Number
Dutton/Dunwich Distribution System	220002967
Municipality of Central Elgin	260004761
Southwold Distribution Supply	210001362

Did you provide a copy of your annual report to all Drinking-Water System owners that are connected to you and to whom you provide all of its drinking water?

Yes No

Indicate how you notified system users that your annual report is available, and is free of charge.

- Public access/notice via the web
- Public access/notice via Government Office
- Public access/notice via a newspaper
- Public access/notice via Public Request
- Public access/notice via a Public Library
- Public access/notice via other method

Describe your Drinking-Water System

The Elgin Middlesex Pumping Station (EMPS) receives water from the Elgin Area Primary Water Supply System (EAPWSS), which is located to the east of Port Stanley. Water from the EAPWSS is pumped into the EAPWSS site reservoirs located at the EMPS. The total capacity of the 2 reservoirs is 54,600m³. Through various secondary water supply systems, the EMPS serves the Cities of London, St. Thomas, Town of Aylmer, and Municipalities of Central Elgin, Malahide, Dutton-Dunwich and Southwold.

The EMPS is a shared facility. Booster pumps are dedicated to directing water to the City of London, St. Thomas Secondary and/or Aylmer Area Secondary Water Supply Systems. A gas chlorine system is utilized to provide re-chlorination for water being directed to the St. Thomas and Aylmer Area Secondary Water Supply Systems. The facility also houses a 600kW standby diesel generator that provides emergency power to support pumping of water into the St. Thomas and Aylmer systems during a power interruption.

Three pipelines exit the EMPS: one exits to the south of the EMPS property and extends west to service the St. Thomas Secondary Water Supply System; the second services the City of London distribution system; the third services the municipalities on the Aylmer Area Secondary Water Supply System.

List all water treatment chemicals used over this reporting period

Chlorine Gas

Were any significant expenses incurred to?

- Install required equipment
 Repair required equipment
 Replace required equipment

Please provide a brief description and a breakdown of monetary expenses incurred

- Replacement of chlorine booster pump
- Replacement of EMPS backflow
- Rebuilt discharge control valves surge and relief
- Completed EMPS PFD Consolidation

Notices submitted in accordance with subsection 18(1) of the Safe Drinking-Water Act or section 16-4 of Schedule 16 of O.Reg.170/03 and reported to Spills Action Centre

Incident Date	Parameter	Result	Unit of Measure	Corrective Action	Corrective Action Date
N/A	N/A	N/A	N/A	N/A	N/A

Microbiological testing done under the Schedule 10, 11 or 12 of Regulation 170/03, during this reporting period.

	Number of Samples	Range of E.coli Results (CFU/100 mL) (min #)-(max #)	Range of Total Coliform Results (CFU/100 mL) (min #)-(max #)	Number of Heterotrophic Plate Count (HPC) Samples	Range of HPC Results (CFU/1 mL) (min #)-(max #)
Distribution	57	(0) – (0)	(0) – (0)	57	(<10) - (10)

Operational testing done under Schedule 7, 8 or 9 of Regulation 170/03 during the period covered by this Annual Report.

Parameter	Number of Grab Samples (Continuous Monitoring)	Min	Max	Avg
Free Chlorine Residual (mg/L)	8760	0.69	2.53	1.44

Note:



Summary of Organic parameters sampled during this reporting period or the most recent sample results

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
THM (NOTE: result value is based on one sample)	January 5, 2022 April 6, 2022 July 5, 2022 October 11, 2022	14 13 19 22	µg/L µg/L µg/L µg/L	NO
THM Running Annual Average (RAA)	2022	17.0	µg/L	NO
HAA (NOTE: result value is based on one sample)	January 5, 2022 April 6, 2022 July 5, 2022 October 11, 2022	5.5 ND 7.5 13.9	µg/L µg/L µg/L µg/L	NO
HAA Running Annual Average (RAA)	2022	8.05	µg/L	NO

ND= Non-detect

APPENDIX E	
EMPS Chemical Consumption - 2022	
Month	Total Chlorine Gas Usage - Kg
January	219
February	164.6
March	168
April	149.2
May	138.2
June	156.6
July	203.6
August	211.5
September	201.4
October	178.6
November	158.9
December	172.6
Yearly Total	2122.2

Please note: Aylmer and St.Thomas combined cl2 usage

APPENDIX B



Drinking-Water System Number:	260078897
Drinking-Water System Name:	St. Thomas Area Secondary Water Supply System
Drinking-Water System Owner:	Joint Board of Management of the St. Thomas Area Secondary Water Supply System
Drinking-Water System Category:	Large Municipal Residential
Period being reported:	January 1, 2022 through December 31, 2022

<p><u>Complete if your Category is Large Municipal Residential or Small Municipal Residential</u></p> <p>Does your Drinking-Water System serve more than 10,000 people? Yes [] No [X]</p> <p>Is your annual report available to the public at no charge on a web site on the Internet? Yes [X] No []</p> <p>Location where Summary Report required under O. Reg. 170/03 Schedule 22 will be available for inspection.</p> <table border="1" style="width: 100%;"> <tr> <td>City of St. Thomas, City Hall Environmental Services 545 Talbot Street St Thomas, Ontario</td> </tr> </table>	City of St. Thomas, City Hall Environmental Services 545 Talbot Street St Thomas, Ontario	<p><u>Complete for all other Categories.</u></p> <p>Number of Designated Facilities served:</p> <table border="1" style="width: 100%;"> <tr> <td>NA</td> </tr> </table> <p>Did you provide a copy of your annual report to all Designated Facilities you serve? Yes [] No []</p> <p>Number of Interested Authorities you report to:</p> <table border="1" style="width: 100%;"> <tr> <td>NA</td> </tr> </table> <p>Did you provide a copy of your annual report to all Interested Authorities you report to for each Designated Facility? Yes [] No []</p>	NA	NA
City of St. Thomas, City Hall Environmental Services 545 Talbot Street St Thomas, Ontario				
NA				
NA				

List all Drinking-Water Systems (if any), which receive all of their drinking water from your system:

Drinking Water System Name	Drinking Water System Number
City of St. Thomas Water Distribution System	260002187
Municipality of Central Elgin	260004761
Township of Southwold	210001362
Dutton/Dunwich Distribution System	220002967

Did you provide a copy of your annual report to all Drinking-Water System owners that are connected to you and to whom you provide all of its drinking water? Yes [X] No []



Ontario Drinking-Water Systems Regulation O. Reg. 170/03

Indicate how you notified system users that your annual report is available, and is free of charge.

Public access/notice via the web

City of St. Thomas Website – www.st.thomas.ca

Public access/notice via Government Office

Public access/notice via a newspaper

Public access/notice via Public Request

Public access/notice via a Public Library

Public access/notice via other method _____

Describe your Drinking-Water System

The system consists of an Elevated Water Tower storage tank and trunk water mains. A 750 mm diameter watermain is connected to the Primary System at the East Chamber on South Edgeware Road. The watermain follows along South Edgeware Road to Water Works Park, where the West Chamber is located. The watermain then connects to the Elevated Storage Tank, a 0.76 ML (200,000 gallon) steel teardrop elevated tank, that is located just off Water Tower Line Road near Waterworks Park in the City of St. Thomas. The pipeline then extends west for approximately 2.6 km along Edgeware Road to County Road 26 and then along Ford Road/Wonderland Road before turning northwesterly for approximately 3.6 km. to the Ford Chamber located at the northwest corner of Clinton Line (Concession Road 11) and Wonderland Road. At the intersection of Ford Road and Talbotville Road, the diameter of the pipeline is reduced to 500 mm.

List all water treatment chemicals used over this reporting period

12% Sodium Hypochlorite	Chlorine Gas (EMPS)
Sodium Metabisulphite	

Were any significant expenses incurred to?

Install required equipment

Repair required equipment

Replace required equipment

Please provide a brief description and a breakdown of monetary expenses incurred

Valve chamber repairs	\$10,000
-----------------------	----------

Provide details on the notices submitted in accordance with subsection 18(1) of the Safe Drinking-Water Act or section 16-4 of Schedule 16 of O.Reg.170/03 and reported to Spills Action Centre

Incident Date	Parameter	Result	Unit of Measure	Corrective Action	Corrective Action Date
NA	NA	NA	NA	NA	NA



Microbiological testing done under the Schedule 10, 11 or 12 of Regulation 170/03, during this reporting period.

	Number of Samples	Range of E.Coli Or Fecal Results (min #)-(max #)	Range of Total Coliform Results (min #)-(max #)	Number of HPC Samples	Range of HPC Results (min #)-(max #)
Raw	NA	NA	NA	NA	NA
Treated	NA	NA	NA	NA	NA
Distribution	161	(0)-(0)	(0)-(0)	161	(<10)-(1170)

Operational testing done under Schedule 7, 8 or 9 of Regulation 170/03 during the period covered by this Annual Report.

	Number of Grab Samples	Range of Results (min #)-(max #)
Chlorine (Grab Samples)	161	(0.77)-(1.85)
Chlorine (Continuous Monitoring)	8760	(0.20)-(2.27)

NOTE: For continuous monitors use 8760 as the number of samples.

NOTE: The value of 0.00 mg/L was recorded on the continuous chlorine sampler as a result of equipment abnormality/SCADA issue/maintenance work or calibration.

Summary of additional testing and sampling carried out in accordance with the requirement of an approval, order or other legal instrument.

Date of legal instrument issued	Parameter	Date Sampled	Result	Unit of Measure
NA	NA	NA	NA	NA

Summary of Inorganic parameters tested during this reporting period or the most recent sample results

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
NA	NA	NA	NA	NA

Summary of lead testing under Schedule 15.1 during this reporting period

(applicable to the following drinking water systems; large municipal residential systems, small municipal residential systems, and non-municipal year-round residential systems)

Location Type	Number of Samples	Range of Lead Results (min#) – (max #)	Number of Exceedances
Plumbing	NA	NA	NA
Distribution	NA	NA	NA



Summary of Organic parameters sampled during this reporting period or the most recent sample results

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
HAA5	Mar 10, 2022 Jun 17, 2022 Oct 17, 2022 Dec 19, 2022	6.1	ug/L	no
THM (NOTE: show latest annual average)	Mar 10, 2022 Jun 17, 2022 Oct 17, 2022 Dec 19, 2022	28.5	ug/L	no

List any Inorganic or Organic parameter(s) that exceeded half the standard prescribed in Schedule 2 of Ontario Drinking Water Quality Standards.

Parameter	Result Value	Unit of Measure	Date of Sample
NA	NA	NA	NA
NA	NA	NA	NA



Directed to: Chairman and Members of the Board of Management of the St. Thomas Area Secondary Water Supply System

Date Authored:

March 2, 2023

Meeting Date:

March 23, 2023

Department: Environmental Services

Attachment

Prepared By: Nathan Bokma, P. Eng.
Manager of Development and Compliance

- #1 – DWQMS Policy
- #2 – STASWSS Operational Plan
- #3 – QEMS Policy (EMPS)
- #4 – QEMS Commitment and Endorsement (EMPS)

Subject: Drinking Water Quality Management System Operational Plan and Policy Endorsement

Recommendations:

THAT: Report No. ES 02-23, Drinking Water Quality Management System Operational Plan and Policy Endorsement for the St. Thomas Area Secondary Water Supply System (STASWSS), be received for information; and further,

THAT: The Board approve the Drinking Water Quality Management Operational Plan and Policy for the STASWSS.

Origin:

Ontario has established a strong regulatory framework for drinking water systems in the province. This framework under the *Safe Drinking Water Act, 2002* (SWDA) and related regulations focuses on compliance-based results which are verified through the Ministry of the Environment, Conservation, and Parks' (MECP) compliance and abatement programs. The regulations stipulate the detailed requirements for drinking water systems, testing services, quality standards, certification of drinking water system operators and drinking water quality analysts, as well as compliance and enforcement.

As the operating authority for the STASWSS, the City has developed the Drinking Water Quality Management System (DWQMS) to integrate quality management through a proactive and preventative approach to assuring drinking water quality. The SDWA requires each Owner of a municipal drinking water system to obtain a Municipal Drinking Water Licence for the operation of their waterworks. A prerequisite of the municipal drinking water licensing program is to have the water system operated by an accredited Operating Authority. The City has maintained accreditation through SAI-Global, one of the external auditors retained by MECP to carry out audits for the DWQMS program.

In February 2017, MECP released DWQMS Version 2.0 that implemented several changes over the original DWQMS Version 1.0. Some of the more significant changes relate to timing between audits or management review meetings from 12 months to within the next calendar year, and implementing risks associated to climate change into the City's risk assessment framework.

As per the DWQMS, it was noted that every new Council or Board of Management should be provided with an overview of their responsibilities and obligations under the SWDA, and that Board of Management should reaffirm their commitment to the DWQMS.

Analysis:

The members of the Joint Board of Management for the STASWSS are the Municipality of Central Elgin, Township of Southwold, and the City of St. Thomas, with the City acting as the operating authority for the STASWSS while the Ontario Clean Water Agency (OCWA) is the operating authority for the Elgin Middlesex Pumping Station (EMPS). Equipment at the EMPS make up part of the STASWSS that this Board oversees.

The Sewer and Water Service Area of the Environmental Services Department is the operating authority that operates and maintains the following systems:

- City of St. Thomas Water Distribution System
- St. Thomas Area Secondary Water Supply System (on behalf of the Joint Board)
- Township of Southwold Water Distribution System (Lynhurst Area)
- Municipality of Central Elgin Water Distribution System – St. Thomas Suburban Area

The City has developed DWQMS Operational Plans for all four systems, which commit the City to the following:

- providing the customer with clean, safe drinking water,
- meeting all relevant legislative and other requirements,
- And continually improve the quality management system.

The Operational Plans are the overarching documents that describe the Drinking Water Quality Management System and are based on a number of guiding elements:

- Element 1 – *The Quality Management System*
- Element 2 – *The Quality Management System Policy*
- Element 3 – *Commitment and Endorsement*
- Element 4 – *QMS Representative*
- Element 5 – *Document and Records Control*
- Element 6 – *Drinking Water System*
- Element 7 and 8 – *Risk Assessment and Risk Assessment Outcomes*
- Element 9 – *Organizational Structure, Roles, Responsibilities and Authorities*
- Element 10 – *Competencies*
- Element 11 – *Personnel Coverage*
- Element 12 – *Communications*
- Element 13 – *Essential Supplies and Services*
- Element 14 – *Review and Provision of Infrastructure*
- Element 15 – *Infrastructure Maintenance, Rehabilitation and Renewal*
- Element 16 – *Sampling, Testing and Monitoring*
- Element 17 – *Measurement and Recording Equipment Calibration and Maintenance*
- Element 18 – *Emergency Management*
- Element 19 – *Internal Audits*
- Element 20 – *Management Review*
- Element 21 – *Continual Improvement*

Element 3 of the Operational Plans requires a written endorsement of its contents by the organization's top management and owner representative. Copies of the Drinking Water Quality Management System Policy (*Attachment #1*) and the STASWSS Operational Plan (*Attachment #2*) are provided. The Operational Plan and Policy have been updated to reflect changes implemented by MECP's recently released DWQMS Version 2.0.

Role and Responsibility of Board of Management

The owner of a public water system is responsible for meeting all of the public responsibilities that apply to the water supply. An owner is a person, municipal council, or board of commissioners who owns a public water system. The owner may designate a manager, operator, or operators to conduct the day-to-day operations of a water supply, but the owner is ultimately responsible for providing safe drinking water and meeting regulatory requirements.

Section 19 of the *Safe Drinking Water Act, 2002* sets out the legal responsibilities and duties of persons who oversee municipal drinking water systems. This section requires that those who are in a position of oversight of municipal drinking water systems apply a statutory standard of care to their oversight activities. Anyone to whom the standard of care applies is expected to exercise the level of care, diligence, and skill in respect of a municipal drinking water system that a reasonably prudent person would be expected to exercise in a similar situation.

The SDWA expressly extends regulatory responsibility to people with decision making authority over the drinking water system. Depending on specific circumstances and individual responsibilities, this responsibility may extend to individual board members and other municipal officials and employees.

To assure that their responsibilities have been carried out diligently, the Board of Management must:

- understand their obligations under the *Safe Drinking Water Act, 2002* and associated regulations;
- be aware of the conditions outlined in the system's Drinking Water Works Permit
- assign competent and certified management and operators
- allocate sufficient financial resources for the operation and maintenance of the system
- require and review periodic and annual reports from senior management on the operation of the municipal drinking water system
- be satisfied that appropriate steps are taken to address any issues

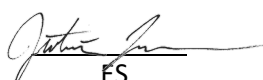
Therefore, it is recommended that Board reaffirm their commitment to the obligations under the *Safe Drinking Water Act, 2002* through approval of the Drinking Water Quality Management Policy.

Respectfully,



Nathan Bokma, P. Eng.
Manager of Development and Compliance

Reviewed By:


ES



Drinking Water Quality Management System Policy

St. Thomas Area Secondary Water Supply System

EFFECTIVE DATE: JANUARY 1, 2023

REVISION: 2.1

TO BE REVIEWED: FOLLOWING SIGNIFICANT CHANGE TO BOARD

The St. Thomas Area Secondary Joint Board of Management is the owner and provides governance for the St. Thomas Area Secondary Water Supply System.

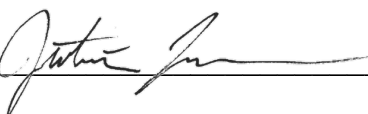
The City of St. Thomas, as the administering municipality for the Joint Board of Management, provides management oversight for the St. Thomas Area Secondary Water Supply System (STASWSS), approves and monitors policy for continual improvement and also provides the necessary resource support for the successful implementation and ongoing viability of the Drinking Water Quality Management System (DWQMS).

The STASWSS is comprised of the Elgin Middlesex Pumping Station (EMPS) located in Central Elgin, chambers, water tower, associated distribution water mains, hydrants, services and other appurtenances. The Ontario Clean Water Agency (OCWA) is the contracted operating authority for the EMPS, who maintain a separate DWQMS for their operations.

The City of St. Thomas currently utilizes the services of the Environmental Services Department as its operating authority to operate and maintain the chambers, water tower, distribution water mains, hydrants, services and other appurtenances for the STASWSS on behalf of the Joint Board of Management. Under the provisions of the Safe Drinking Water Act, 2002, the Environmental Services Department is responsible for implementing and maintaining the DWQMS in partnership with the Joint Board of Management.

Together, The STASWSS Joint Board of Management and City of St. Thomas Environmental Services Department are committed to providing our customers with clean, safe drinking water through the operation and maintenance of The St. Thomas Area Secondary Water Supply System in a manner that adheres to all applicable legislation and regulations. We are committed to the adoption of the Drinking Water Quality Management Standard and as such, make a commitment to the maintenance and continual improvement of the Quality Management System (QMS).

Furthermore, we have reviewed the Operational Plan, endorse its application, and are committed to ensuring the QMS is regularly assessed to confirm its ongoing applicability and relevance.

Signed: 

Owner Representative
Justin Lawrence, P. Eng.
Director, Environmental Services & City Engineer
City of St. Thomas

Signed: 

Operating Authority
Nathan Bokma, P. Eng.
Quality Management System Representative
City of St. Thomas

Date: Jan 17, 2023

Date: January 13, 2023

***St. Thomas Area Secondary Water Supply System
(Excluding the Elgin- Middlesex Pumping Station)***

***DRINKING WATER QUALITY
MANAGEMENT SYSTEM
OPERATIONAL PLAN***

REVISION 2.5

January 1, 2023

Prepared by:

Operating Authority

***The City of St. Thomas
Environmental Services Department***

Owner:

***St. Thomas Area Secondary Water Supply System Board of
Management***



OPERATIONAL PLAN – ST. THOMAS SECONDARY

EFFECTIVE DATE: JANUARY 1, 2023

REVIEW FREQUENCY: ANNUALLY

REVISION 2.5

APPROVED BY: MANAGER OF DEVELOPMENT AND COMPLIANCE



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22. Public Disclosure of Operational Plans and Procedures

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- Appendix A** St. Thomas Secondary Quality Management System Policy
Subject System Description Form
- Appendix B** Document Control Procedure (DW-ADMIN-100)
- Appendix C** Record Control Procedure (DW-ADMIN-200)
- Appendix D** Mapping of the Secondary System
Drinking Water Operations and Billing Responsibility Delineation Map
- Appendix E** Risk Assessment Procedure (DW-ADMIN-300)
Hazard Identification Form (DWF-ADMIN-300)
Hazard Analysis Spreadsheet (DWF-ADMIN-301)
St. Thomas Secondary Low Pressure Control Procedure (DW-CCP-1000)
St. Thomas Secondary Discolouration Prevention Procedure (DW-CCP-2000)
St. Thomas Secondary Disinfection Control for Repairs Procedure (DW-CCP-3000)
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- Appendix F** St. Thomas Secondary Roles, Responsibilities and Authority Procedure (DW-ADMIN-400)
- Appendix G** Competency and Training Procedure (DW-ADMIN-500)
On-site Training Form (DWF-ADMIN-500)
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Training Needs Matrix (DWF-ADMIN-502)
- Appendix H** Personnel Coverage Procedure (DW-ADMIN-600)
OIC Designation Table (DWF-ADMIN-600)
- Appendix I** Communications Procedure (DW-ADMIN-700)
- Appendix J** Essential Supplies and Services Procedure (DW-ADMIN-800)
New Construction Sign-off Form (DWF-ADMIN-800)
Supplier and Contractor Sign-off Form (DWF-ADMIN-801)
- Appendix K** Review and Provision of Infrastructure Procedure (DW-ADMIN-850)
Maintenance, Rehabilitation and Renewal Procedure (DW-ADMIN-900)
- Appendix L** Sampling, Testing and Monitoring Procedure (DW-ADMIN-1000)
- Appendix M** Equipment Calibration Procedure (DW-ADMIN-1100)
Equipment Listing (DWF-ADMIN-1100)
- Appendix N** Emergency Management – See Emergency Plan Binder
- Appendix O** Internal Auditing Procedure (DW-ADMIN-1200)
Internal Audit Plan Template (DWF-ADMIN-1200)
Internal Audit Opening/Closing Meeting Form (DWF-ADMIN-1201)
Internal Audit Checklist (DWF-ADMIN-1202)
- Appendix P** Management Review Procedure (DW-ADMIN-1300)
- Appendix Q** Continual Improvement and Corrective Action Procedure (DW-ADMIN-1400)
Corrective and Preventative Action Form (DWF-ADMIN-1400)
Root Cause Codes (DWF-ADMIN-1401)
- Appendix R** Procedure Listing and Disclosure Status

1. Quality Management System

Preface

This Operational Plan describes the content of the Drinking Water Quality Management System (DWQMS) in place for the St. Thomas Area Secondary Water Supply System (STASWSS). The contents of this Operational Plan are based upon the requirements of the Drinking Water Quality Management Standard:

- a) To facilitate the Operating Authority’s ability to consistently deliver drinking water that meets applicable legislative, regulatory and Owner requirements and
- b) To enhance consumer protection through the effective application and continual improvement of the Quality Management System.

Abbreviation/Definitions

ADWQI or AWQI	Adverse Drinking Water Quality Incident
AMC	Asset Management Coordinator
ARBS	Albert Roberts Booster Station
CC	Compliance Coordinator
CCP	Critical Control Point
DWQMS	Drinking Water Quality Management System
EMPS	Elgin Middlesex Pumping Station
MCEWDS	Municipality of Central Elgin Water Distribution System - St. Thomas Suburban Area
MMC	Maintenance Management Coordinator
OA	Operating Authority, the current authority operating the System
OCWA	Ontario Clean Water Agency
QMS Representative	Quality Management System Representative
SOP	Standard Operating Procedure
STASWSS	St. Thomas Area Secondary Water Supply System
STWDS	St. Thomas Water Distribution System
TSWDS	Township of Southwold Water Distribution System - Lynhurst Area
Applicable Legislative and Regulatory Requirements	the Safe Drinking Water Act, 2002 (SDWA), the Ontario Water Resources Act, 1990 and all regulations and instruments issued under these Acts which are associated with drinking water.
Audit	a systematic and documented verification process that involves objectively obtaining and evaluating documents and processes to determine whether a Quality Management System conforms to the requirements of the DWQMS.
Calendar Year	A period of one year beginning and ending with the dates conventionally accepted as marking the beginning and end of a year (January 1st to December 31st).
Consumer	the drinking water end user.
Corrective Action	Action to eliminate the cause of a detected nonconformity of the QMS with the requirements of the DWQMS or other undesirable situation.
Critical Control Limit	The point at which a Critical Control Point response procedure is initiated.
Critical Control Point	an essential step or point in the Subject System at which control can be applied by the Operating Authority to prevent or eliminate a Drinking Water Health Hazard or to reduce it to an acceptable level.

Director	Means the director appointed for the purposes of s.15 of the SDWA.
Distribution System	Has the same meaning as “distribution system” defined in s. 2(1) of the SDWA.
Document	Has the same meaning as “document” defined in s. 2(1) of the SDWA.
Drinking Water Health Hazard	Has the same meaning as “drinking water health hazard” defined in s. 2(1) of the SDWA.
Drinking Water Quality Management Standard (DWQMS)	Has the same meaning as Quality Management Standard for Drinking Water Systems approved under s. 21 of the SDWA.
Drinking Water System	Has the same meaning as “drinking water system” defined in s. 2(1) of the SDWA.
Environmental Bill of Rights Registry	Has the same meaning as “Registry” defined in s.2(1) of the SDWA.
Municipal Drinking Water System	Has the same meaning as “municipal drinking water system” defined in s. 2(1) of the SDWA.
Municipal Residential Drinking Water System	Has the same meaning as “large municipal residential system” or “small municipal residential system” defined in s. 1(1) of O. Reg. 170/03.
Operating Authority	Means, in respect of a Subject System, the person or entity that is given responsibility by the Owner for the operation, management, maintenance or alteration of the Subject System.
Operational Plan	Means, in respect of a Subject System, the Operational Plan required by the Director’s Direction.
Operational Subsystem	Means a part of a Municipal Residential Drinking Water System operated by a single Operating Authority and designated by the Owner as being an Operational Subsystem.
Owner	Has the same meaning as “owner” defined in s. 2(1) of the SDWA.
Preventive Action	Action to prevent the occurrence of nonconformity of the QMS with the requirements of the DWQMS or other undesirable situation.
Primary Disinfection	Has the same meaning as “primary disinfection” defined in s. 1(1) of O. Reg. 170/03.
Public	Subject System consumers and stakeholders.
Quality Management System (QMS)	A system to: <ul style="list-style-type: none"> o establish policy and objectives, and to achieve those objectives, and o direct and control an organization with regard to quality.
Quality Management System Policy	means the policy described in Element 2 developed for the Subject System or Subject Systems
Record	A document stating results achieved or providing proof of activities performed.
SCADA	Supervisory Control and Data Acquisition software
Secondary Disinfection	Has the same meaning as “secondary disinfection” defined in s. 1(1) of O. Reg. 170/03.
Subject System	Means: <ul style="list-style-type: none"> o a municipal residential drinking water system where the system is operated by one operating authority, or o an operational subsystem where two or more parts of a municipal residential drinking water system are operated by different operating authorities.

Supplier	An organization or person that provides a product or service that affects drinking water quality.
Top Management	A person, persons or a group of people at the highest management level within an Operating Authority that makes decisions respecting the QMS and recommendations to the Owner respecting the Subject System or Subject Systems.
Treatment System	Has the same meaning as “treatment system” defined in s. 2(1) of the SDWA.

Ownership and Operation

The St. Thomas Area Secondary Board of Management is the Owner and provides governance for the St. Thomas Area Secondary Water Supply System. Benefiting member municipalities currently receiving water from the STASWSS include the City of St. Thomas, Municipality of Central Elgin and the Township of Southwold, and the Municipality of Dutton-Dunwich (through Southwold).

The St. Thomas Area Secondary Board of Management utilizes the services of the Ontario Clean Water Agency (OCWA) for the operation and maintenance of the Elgin-Middlesex Pumping Station (EMPS) and the City of St. Thomas Environmental Services Department for the Operation and Maintenance of the St. Thomas Area Secondary Water Supply System (excluding the EMPS). Under the provisions of the *Safe Drinking Water Act, 2002*, each Operating Authority is responsible for implementing and maintaining a DWQMS in partnership with the Board.

As required by the *Directors Directions: Minimum Requirements for Operational Plans*, a Subject System Description Form has been completed for the drinking water system and can be found in Appendix A.

2. Quality Management System Policy

The Quality Management System Policy is posted at the main entrance of the Environmental Services Department, City Hall (545 Talbot Street) and at the entrance to the Public Works Service Centre (100 Burwell Road) and is made available to the public via the Cities website.

A copy of the Quality Management System Policy can be found in **Appendix A**.

3. Commitment and Endorsement

This Operational Plan has been reviewed and approved by the Operating Authority and the Owner, who are committed to ensuring the Quality Management System is regularly assessed to confirm its ongoing applicability and relevance, as attested through the endorsement of the DWQMS Policy.

Top Management ensures the Operating Authority is aware of all applicable legislative and regulatory requirements.

Top Management ensures that the Drinking Water Quality Management System (DWQMS) is communicated according to procedure, by following the Communication Procedure attached in Appendix I. The Internal Audit Procedure and the Management Review Procedure describe how proper communication is monitored.

Top Management determines, obtains and provides the resources needed to maintain and improve the DWQMS, as demonstrated through records created under the DWQMS, and through the Management Review Process. The Review and Provision of Infrastructure Procedure (DW-ADMIN-850) describes how a need for resources may be identified, documented and followed through.

4. Quality Management System Representative

The Quality Management System (QMS) Representative is appointed and authorized by Top Management: Owner Representative. This appointment is made through the issuance of a letter to the QMS Representative and circulated to all pertinent staff.

5. Document and Records Control

Procedures are in place for Document Control and Record Control describing how documents and records are controlled.

The Document Control Procedure describes the activities required to ensure that all documents are identifiable, kept current, legible, retrievable, stored, protected, retained and disposed of. Documents that are required by the DWQMS are within the scope of this procedure.

The Record Control Procedure has been established and maintained to identify the controls needed for the identification, legible, retrievable, storage, protection, retention time and disposition of records. Records that are required by the DWQMS are within the scope of this procedure.

The Document Control Procedure (DW-ADMIN-100) can be found in **Appendix B**. The Record Control Procedure (DW-ADMIN-200) can be found in **Appendix C**.

6. Drinking- Water System***Description of the St. Thomas Area Secondary Water Supply System***

The St. Thomas Area Secondary Water Supply System receives water at the Elgin-Middlesex Pumping Station (EMPS) and is directed to the transmission main through one of three high-lift pumps, equipped with variable frequency drives.

The EMPS is jointly owned by the City of London, the Aylmer Area Secondary Water Supply System (AASWSS) Board of Management, and the STASWSS Board of Management. The re-chlorination process at EMPS is jointly owned by AASWSS and STASWSS. Operations and Maintenance of the EMPS has been contracted to the Ontario Clean Water Agency (OCWA), who have developed and implemented a separate Operational Plan for the station.

The approximate 11.2 km long transmission main is of concrete pressure pipe (CCP) construction, and consists of a 9.2 km segment of 750 mm diameter water main and a 2.0 km segment of 500 mm diameter water main, arranged predominantly in a looped, grid based system with all efforts being made to minimize dead ends.

A 763 m³ capacity elevated storage tank, referred to as the “Ford Tower” is located on Water Tower Line and is of steel construction and a steel pedestal. The tower water level is monitored through SCADA at the EMPS and currently controls the EMPS St. Thomas pumps.

After water leaves the EMPS along the transmission main, there is a take-off to supply the City of St. Thomas through the East Chamber, regulated through valves and monitored through the SCADA system.

The West Chamber is the second take-off point from the transmission main to provide water to the City of St. Thomas. The West Chamber is regulated and monitored through the same equipment as the East Chamber.

The St. George Chamber is the third take-off point from the transmission main to provide water to the City of St. Thomas. However, water is provided through this chamber only when pressures in the immediate vicinity fall below 55 psi or 380 kPa. A map of the St. Thomas Area Secondary Water Supply System can be found in **Appendix D**. A Drinking Water Operations and Billing Responsibility Delineation Map is also included in **Appendix D**.

Description of Water Source

Treated water for the City of St. Thomas is supplied from the Elgin Area Primary Water Supply System, which takes its source water from Lake Erie.

The Elgin Area Primary Water Supply System is responsible for ensuring that measures are in place to provide water to the EMPS that meets or exceeds Ministry of Environment, Conservation and Parks (MECP) requirements.

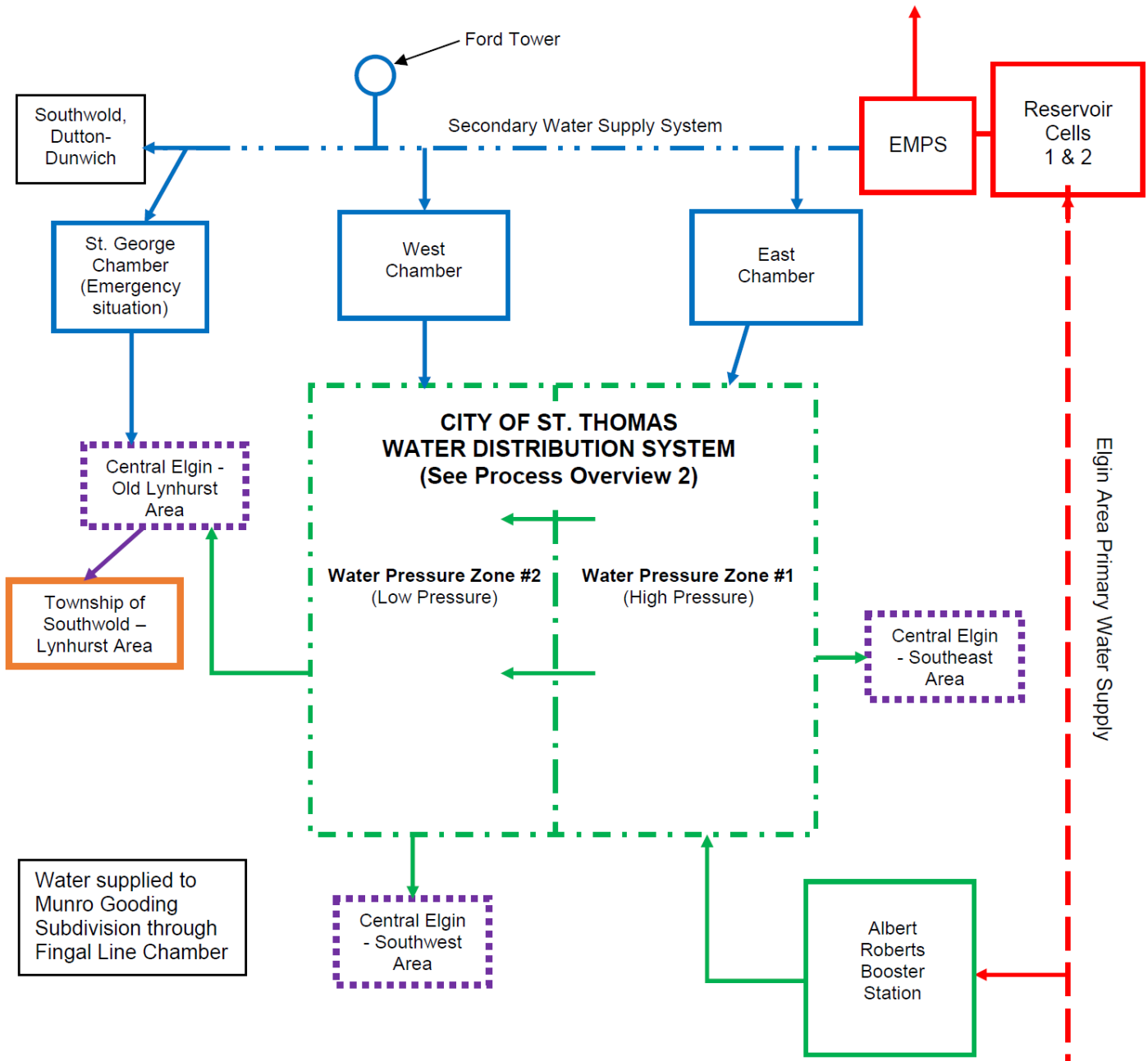
Under emergency circumstances, water can be supplied from the City of London Southeast Reservoir and Pumping Station, which receives water from the same source, the Elgin Area Primary Water Supply System, through the EMPS.

Lake Erie raw water can be treated effectively using conventional processes to produce water meeting Ontario Drinking-Water Quality Standards. Great Lakes water is considered to pose low risk for the formation of disinfection by-products (DBP's).

The Elgin Area Primary Water Supply System analyzes treated water for Dissolved Organic Carbon, an indicator for DBPs and distribution water for Trihalomethanes (THMs), the most common DBP.

General Characteristics of Lake Erie Treated Water Supply can be viewed on the Elgin Area Primary Water System website at www.watersupply.london.ca.

The Elgin Area Primary Water Supply System provides the City, as a member of the Elgin Area Primary Water System, quarterly reports on the operations of the Primary Water Supply System and water quality.



Legend

- City of St. Thomas Water Distribution System
- St. Thomas Area Secondary Water Supply System
- Central Elgin Water Distribution System (St. Thomas Suburban Area)
- Southwold Water Distribution System (Lynhurst Area)
- Elgin Area Primary Water Supply System

Colour/Linetype



Common Event-Driven Fluctuations:

During winter, late spring and late fall when changes in water and soil temperatures are occurring, there is typically a higher proportion than normal of water main breaks.

In early fall, algae-die off and lake-turnover events that can make effective treatment a challenge for the Elgin Area Primary Water Supply System can lead to odour and colour events for the STASWSS.

Threats to Ongoing Water Quality:

The main threats to ongoing water quality are: cross-contamination from industry back-flow, illegal connections or back siphonage from water main breaks. Building inspections, by-laws, back-flow preventers and proper construction minimize the potential for accidental back-flow or other contaminants, which may impact the water quality.

Challenges

Low Chlorine Residual: During the summer, higher water temperatures increase microbial activity increasing chlorine demand. In addition, long, low flow pipelines and dead end sections increases the likelihood of a low chlorine residual water sample, which may result in an adverse water quality incident.

Discolouration: Discolouration can occur due to the age of some of the Secondary system's piping and as a result of preventative maintenance driven flushing programs and occasional water main breaks. These events can cause rapid changes in flow velocity and/or cause the water in the pipeline to change direction, resulting in a disturbance in the natural flow of the pipe and stirring up any sediment residing in the pipes.

In early fall, algae-die off and lake-turnover events that can make effective treatment a challenge for the Elgin Area Primary Water Supply System can lead to odour and colour events for the STASWSS.

7. Risk Assessment

A risk assessment procedure has been developed and implemented. The procedure defines the process used to rank potential hazards to the STASWSS and identify Critical Control Points, to which control measures may be applied to further reduce risks to the degradation of water quality within the system. Control measures, where they exist are defined. Procedures for critical control points (CCP's) include measures to: monitor, respond to document and to limit exceedances. The Risk Assessment Procedure also describes the process for staff to bring forward real or perceived risks to water quality for consideration.

The Risk Assessment Procedure (DW-ADMIN-300) and Hazard Analysis Spreadsheet (DWF-ADMIN-301) can be found in **Appendix E**.

8. Risk Assessment Outcomes

The results of the Risk Assessment are documented in the Hazard Analysis spreadsheet. The spreadsheet identifies:

- General Areas or major features of the water distribution system
- Process steps or major operational activities
- Types of hazards
- Description of potential hazards
- Ranking calculations and risks
- Control Measures to address hazards
- Designated CCPs
- References to CCP Procedures (which describe procedures to monitor, respond, report and record deviations)

The Hazard Analysis Spreadsheet, and the CCP procedures, designated by a 'DW-CCP' in their title can be found in **Appendix E**.

9. Roles, Responsibilities and Authorities

The organizational structure, roles, responsibilities and authorities for the systems Owner and Operating Authority personnel is described in the Roles, Responsibilities and Authorities Procedure (DW-ADMIN-400) and can be found in **Appendix F**.

10. Competency and Training

The Competency and Training Procedure (DW-ADMIN-500) describes the required and desired competencies established for each role within the Owners and Operating Authorities structure whose duties may have the ability to directly affect drinking water quality. The procedure also describes the process for requesting/scheduling and tracking training, as well as methods used to ensure staff members establish and/or maintain a satisfactory level of competence in their duties.

The Competencies and Training Procedure (DW-ADMIN-500) can be found in **Appendix G**.

11. Personnel Coverage

The Personnel Coverage Procedure describes how sufficient personnel meeting identified competencies are available for duties that may directly affect drinking water quality.

The Personnel Coverage Procedure (DW-ADMIN-600) can be found in **Appendix H**.

12. Communications

The Communication Procedure describes how the DWQMS is communicated between Top Management and the Owner, Operating Authority personnel, Suppliers, and the public.

The Communications Procedure (DW-ADMIN-700) can be found in **Appendix I**.

13. Essential Supplies and Services

A list of all supplies and services deemed essential to the delivery of safe drinking water is provided in the Essential Supplies and Services Procedure (DW-ADMIN-800). The list includes the means to ensure the procurement of critical supplies and services and methods used by the Operating Authority to ensure the quality of essential services and supplies.

The Essential Supplies and Services Procedure (DW-ADMIN-800) can be found in **Appendix J**.

14. Review and Provision of Infrastructure

A process for the annual review of the adequacy of the infrastructure is described in Review and Provision of Infrastructure Procedure (DW-ADMIN-850). The procedure describes the programs in place to help assess the adequacy of infrastructure and how funds are secured for infrastructure related projects.

The Review and Provision of Infrastructure Procedure (DW-ADMIN-850) can be found in **Appendix K**.

15. Infrastructure Maintenance, Rehabilitation and Renewal

A procedure has been developed and implemented for the Maintenance, Rehabilitation and Renewal of Infrastructure. This procedure describes the various programs in place to maintain/rehabilitate and replace aging infrastructure.

The Infrastructure Maintenance, Rehabilitation and Renewal Procedure (DW-ADMIN-900) can be found in **Appendix K**.

16. Sampling, Testing and Monitoring

The Sampling, Testing and Monitoring Procedure describes the sampling, testing and monitoring in place for drinking water process control based on the most challenging conditions and how results are recorded and shared between the Operating Authority and the Owner.

The Sampling, Testing and Monitoring Procedure (DW-ADMIN-1000) can found in **Appendix L**.

17. Measurement and Recording Equipment Calibration and Maintenance

The calibration and maintenance of measurement and recording equipment is described in the Measurement and Recording Equipment and Maintenance Procedure.

The Measurement and Recording Equipment and Maintenance Procedure (DW-ADMIN-1100) can be found in **Appendix M**.

18. Emergency Management

Emergency preparedness is achieved by following requirements described in the Emergency Response Plan. In the Emergency Response Plan, the table of contents lists response procedures for the potential emergency situations or service interruptions. The response procedures describe planned responses for the identified potential emergencies, including Owner and Operating Authority responsibilities. A protocol for notification of customers and adjacent municipalities supplied by the system, initiates the necessary municipal emergency planning measure described in the Emergency Response Plan. A protocol for all emergency notification is also included, along with an up to date contact list.

The Emergency Response Plan and contact list (DW-ERP-1 to DW-ERP-800) can be found in **Appendix N**.

19. Internal Audit

The Internal Audit Procedure describes how conformity of the DWQMS is evaluated on an annual basis. The procedure describes how audit criteria, frequency, scope, methodology and records are identified, referencing previous internal and external audits. It also describes how corrective actions are initiated as a result of an internal audit and provides references to the Continual Improvement and Corrective Action Procedure (DW-ADMIN-1400).

The Internal Audit Procedure, (DW-ADMIN-1200) can be found in **Appendix O**.

20. Management Review

The Management Review Procedure describes the procedure for management reviews, which are to occur at least once per calendar year, including instructions related to all of the required inputs to the meeting. The procedure also describes how Top Management considers results, identifies deficiencies, and record and forwards results to the Owner and to other key personnel.

The Management Review Procedure (DW-ADMIN-1300) can be found in **Appendix P**.

21. Continual Improvement

The Operating Authority and Owner of the St. Thomas Area Secondary Water Supply System are committed to continually improving the Quality Management System by following the Continual Improvement and Corrective Action Procedure (DW-ADMIN-1400). This procedure describes how the Operating Authority responds to identified non-conformances/non-compliances, Opportunities for Improvement. The procedure also requires that the OA take into consideration industry best practices, as published by the MECP, or discovered through interaction with industry contacts.

The Continual Improvement and Corrective Action Procedure (DW-ADMIN-1400) can be found in **Appendix Q**.

22. Public Disclosure of Operational Plans and Procedures


Requests for viewing of all or part of the Operational Plan for the St. Thomas Area Secondary Water Supply System shall be directed to the Compliance Coordinator for consideration of disclosure on a per request basis.

Requests from the public to share Operational Plans and/or Procedures, in whole or in part, will be fulfilled by the Compliance Coordinator. A listing of SOP's that are incorporated into the Operational Plan through reference is maintained in **Appendix R**. The listing identifies any procedures that are not to be shared with the public for

the purposes of protecting personal information and/or release of such information could threaten the safety and/or quality of the drinking water.

Table of Revisions

Revision	Date	Description of Revision
14	January 30, 2018	Change in City logo
15	April 18, 2018	Added clarification of EMPS ownership
2.0	January 1, 2019	Inserted definitions, reworded several sections to improve clarity. Significant change in policy statement during transition to DWQMS 2.0. Removed extraneous commitments, inserted statement allowing for OP commitment and Endorsement on policy. Inserted system overview schematic.
2.1	January 1, 2020	Updated references to Continual Improvement and Corrective Action Procedure (DW-ADMIN-1400)
2.2	January 1, 2021	Updated references to ERP procedures.
2.3	January 1, 2022	Inserted Subject System Description Form (App A), inserted Water System Operations Responsibility Delineation Map, Inserted section on public disclosure of operational plans and Water System SOP listing.
2.4	June 6, 2022	Minor grammatical corrections made, updated ERP procedure listing. Removed WT and QC definitions as no longer roles in DWQMS.
2.5	January 1, 2023	Inserted Dutton Dunwich as a consumer of STASWSS water, inserted into on lake turnover events as a challenge to the system. Updated reference to ERP procedures.

 <small>Ontario Clean Water Agency</small>	OPERATIONAL PLAN St. Thomas Area Secondary Water Supply System Joint Board of Management – Elgin-Middlesex Pumping Station (St. Thomas Portion)	QEMS Proc.: OP-02 Rev Date: 2018-07-11 Rev No: 0 Pages: 1 of 1
QUALITY & ENVIRONMENTAL MANAGEMENT SYSTEM (QEMS) POLICY		
Reviewed by: SPC Manager		Approved by: Senior Operations Manager

1. Purpose

To document a QEMS Policy that provides the foundation for OCWA's Quality & Environmental Management System.

2. Definitions

Quality Management System Policy – means the policy described in Element 2 developed for the Subject System or Subject Systems

3. Procedure

3.1 The Ontario Clean Water Agency, as the contracted Operating Authority for the Elgin-Middlesex Pumping Station (St. Thomas Portion), is committed to

- *the maintenance and continual improvement of the Quality Management System (QMS)*
- *supplying safe drinking water to its consumers,*
- *complying with applicable legislation and regulations.*

This policy shall serve as a foundation for our QMS.


This QMS Policy has been reviewed with all OCWA personnel who operate this facility. The Owner has reviewed this Policy and the Policy is in a format that can be readily communicated to the public and available upon request. The Policy is currently posted at the facility and documented within this Operational Plan.

4. Related Documents

- Current QEMS Policy (Posted on OCWA's intranet and internet)
- QEMS Policy Revision History (Posted on OCWA's intranet)
- OP-05 Document and Records Control
- OP-13 Essential Supplies and Services

5. Revision History

Date	Revision #	Reason for Revision
2018-07-11	0	Procedure issued – Section 3.4, 3.5 and 3.6 were added to the information originally set out in the main body of OCWA's Operational Plan (last revision #6 dated 2016-08-25). The full revision history for the QEMS policy is available on OCWA's intranet.

	OPERATIONAL PLAN St. Thomas Area Secondary Water Supply System Joint Board of Management – Elgin-Middlesex Pumping Station (St. Thomas Portion)	QEMS Doc: OP-03A Rev Date: 2022-12-22 Rev No: 1 Pages: 1 of 1
SIGNED COMMITMENT AND ENDORSEMENT		

This Operational Plan sets out the framework for OCWA' Quality & Environmental Management System (QEMS) that is specific and relevant to your drinking water system(s) and supports the overall goal of OCWA and the St.Thomas Area Secondary Water Supply System Joint Board of Management (Owner) to provide safe, cost-effective drinking water through sustained cooperation. OCWA will be responsible for developing, implementing, maintaining and continually improving its QEMS with respect to the operation and maintenance of the Elgin-Middlesex Pumping Station (St.Thomas Portion) and will do so in a manner that ensures compliance with applicable legislative and regulatory requirements.

Through the endorsement of this Operational Plan, the Owner commits to work with OCWA to facilitate this goal.

**OCWA Top Management
Endorsement**


Owner Endorsement



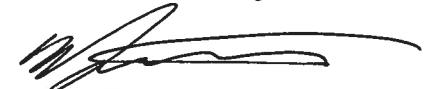
 Greg Henderson
 Senior Operations Manager,

12/28/2022

 Date



 Justin Lawrence,
 Director of Environmental Services & City
 Engineer



 Matt Bender
 Regional Hub Manager

12/28/2022

 Date Date

The endorsement above is based on the Operational Plan that was current as of the revision date of this document (OP-03A).



OPERATIONAL PLAN

St. Thomas Area Secondary Water Supply System
Joint Board of Management – Elgin-Middlesex
Pumping Station (St. Thomas Portion)

QEMS Proc.: OP-03
Rev Date: 2022-10-17
Rev No: 1
Pages: 1 of 2

COMMITMENT AND ENDORSEMENT

Reviewed by: SPC Manager

Approved by: Senior Operations Manager

1. Purpose

To document the endorsement of the Operational Plan for the Elgin-Middlesex Pumping Station - St.Thomas Portion by OCWA Top Management and the St.Thomas Area Secondary Water Supply System Joint Board of Management (Owner) and to set out when re-endorsement would be required.

2. Definitions

Top Management – a person, persons or a group of people at the highest management level within an Operating Authority that makes decisions respecting the QMS and recommendations to the Owner respecting the Subject System or Subject Systems

3. Procedure

3.1 The Operational Plan is provided to OCWA Top Management and to the Owner for endorsement. The signed written endorsement is presented in Appendix OP-03A. At a minimum, two members of Top Management must endorse the Operational Plan; however, the Operational Plan is made available to all members of Top Management in the specified document control location (refer to OP-05 Document and Records Control). Endorsement by OCWA's Top Management is represented by the Senior Operations Manager and the Regional Hub Manager.

3.2 This plan shall be required to be re-endorsed:

- By the Owner a minimum every 4 years,
- If Top Management changes, or
- Change of Operating Authority

Any other changes would be considered a minor change and would not require the Operational Plan to be re-endorsed.

4. Related Documents

OP-03A Signed Commitment and Endorsement
OP-05 Document and Records Control
OP-06 Drinking Water System



Ontario Clean Water Agency

OPERATIONAL PLAN

St. Thomas Area Secondary Water Supply System
Joint Board of Management – Elgin-Middlesex
Pumping Station (St. Thomas Portion)

QEMS Proc.: OP-03
Rev Date: 2022-10-17
Rev No: 1
Pages: 2 of 2

COMMITMENT AND ENDORSEMENT

Reviewed by: SPC Manager

Approved by: Senior Operations Manager

5. Revision History

Date	Revision #	Reason for Revision
2018-07-11	0	Procedure issued – Information within OP-03 was originally set out in the main body of OCWA’s Operational Plan (last revision #6 dated 2016-08-25).
2022-10-17	1	Resigned Operational Plan – OCWA Top Management change, and minimum 4 year review.

Directed to: Members of Board of Management for the St. Thomas Area Secondary Water Supply System

Date Authored: March 6, 2023
Meeting Date: March 23, 2023

Department: Environmental Services

Attachment Map of phasing

Prepared By: Chris Andrew, Manager of Water and Sewer

Subject: Clinton Line/Wonderland Rd servicing

Recommendation:

THAT: Report SWB 03-23, Clinton Line/Wonderland Road Servicing, be received for information.

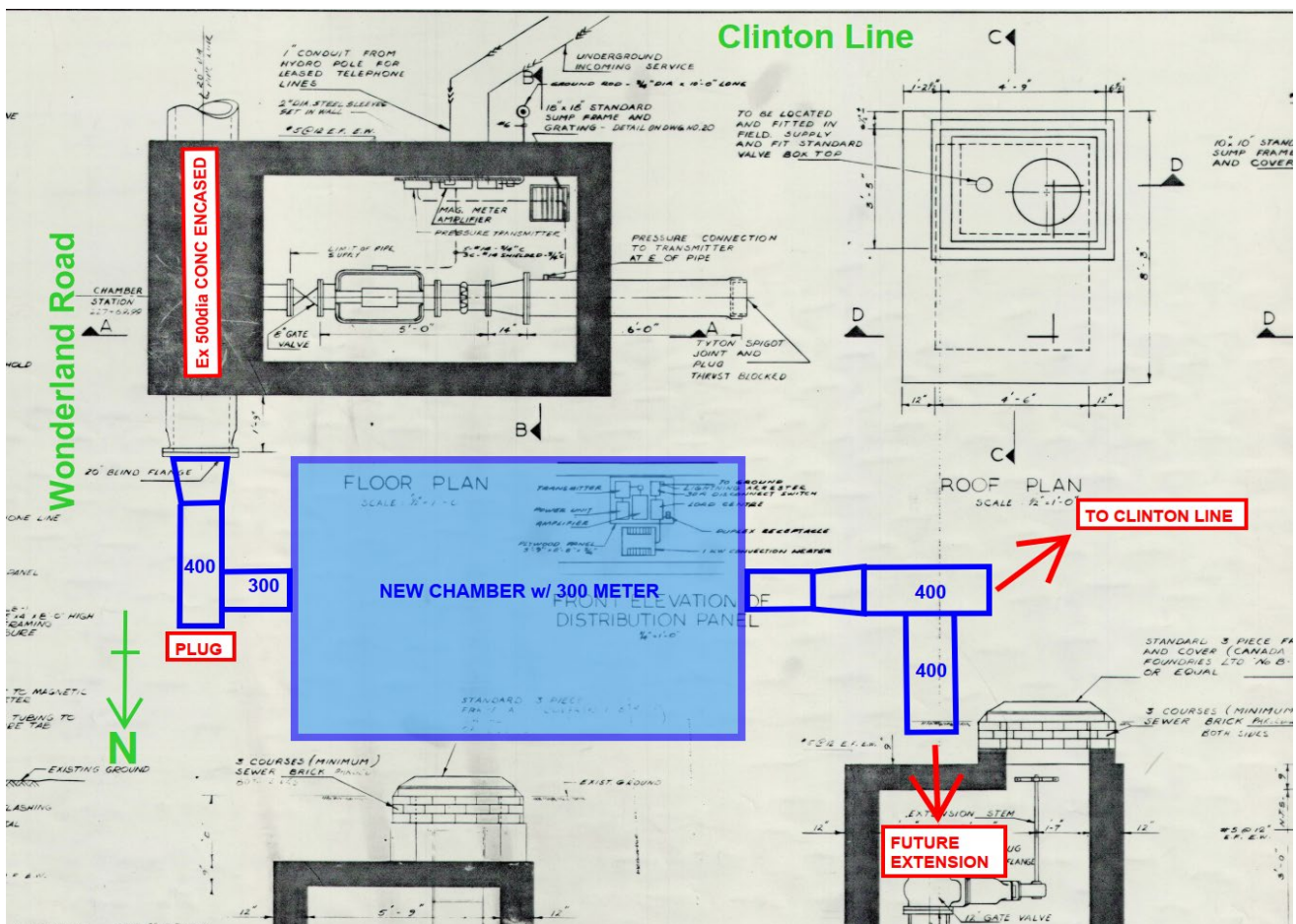
Background:

The St Thomas area secondary system supplies the Twp of Southwold through three connection points, the farthest point to the north is through the "Ford chamber". Currently the chamber is supplied by a 200mm connection off the 500mm transmission main and services west down Clinton line with an unused 500mm connection point heading North that is capped. 2022 volume through the chamber was 130,746m³ which averages out to approx. 4L/s. The historical Ford Plant agreement allowed for approximately 100L/s.

Analysis:

The Township of Southwold is proposing a phased plan to increase the watermain size down Clinton Line and install additional large volume watermain north on wonderland and replace the existing chamber and upsize existing metering and valving to accommodate a future proposed flow of 100L/s.

The proposed concept plan by an engineering consultant working for the developer is shown below over top of the original as-built plans. In general, the plan includes; removing 2 old chambers, building a new chamber, new meter, new valves, new water test hardware, and new system control hardware. The removal and reconstruction of these chambers will involve shutting down the water supply past this point temporarily. This will only affect the development in question fed from the Southwold mains and will not affect other users on the St.Thomas Secondary system.



The construction of these works would be generally undertaken by the developer however the City would be required to complete any operation and testing of the Secondary water pipeline. If the board approves the connection in principle, then City staff will work with the proponent to approve final design drawings.

Financial Impacts:

The following clause from the STAWSS Transfer order defines capacity financing.

New Capacity Capital Budget

- 24. The Joint Board will provide new capacity to the St. Thomas Area Secondary Water Supply System on an as-required basis sufficiently in advance of growth as to not impede development in any Municipality, and will establish a New Capacity Capital Budget as required for this purpose.
- 25. Prior to any capital expansion of the St. Thomas Area Secondary Water Supply System, an optimization study will be undertaken for the possible re-rating and extending the capacity of the existing facilities.
- 26. One or more of the Municipalities may request, at any time, that the Joint Board prepare, or have prepared, a New Capacity Capital Budget. The apportionment, among the Municipalities, of costs for the New Capacity Capital Budget will be incorporated in the System Rate, or as decided by the Joint Board. Where proposed new capacity will benefit municipalities in addition to the requesting municipalities, the requesting municipalities may ask that a portion of the costs of the new capacity be allocated to and paid for by other benefitting municipalities. The costs of planning, obtaining environmental approvals and providing new capacity will be included in the New Capacity Capital Budget.
- 27. The Joint Board may decide how to finance the costs of providing new System capacity.
- 28. No municipality will make changes or permit changes to be made to works connected to the System that will have an adverse effect on the System or result in a larger demand being placed on the System than the System is designed to meet, and for the purposes of this section, the Joint Board may, from time to time, allocate and reallocate any unused capacity in the System among the Municipalities.

Clause 26 allows for new growth costs, if required, to be funded via the System Rate or “as decided by the Joint Board.

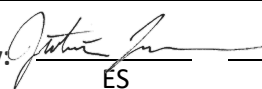
The current Elgin Primary Board – New Growth policy does not apportion costs other than via the rate structure.

This modified connection in itself does not trigger any new capacity requirements. If any significant new growth is approved via Southwold through Plan of Subdivision or Site Plan process, then consultation should occur with the St.Thomas Secondary Board and the Primary Board to analyze if upsizing of pumps or pipelines is required and if so, how that growth would be paid for.

Respectfully,



Chris Andrew
Manager of Water and Sewer

Reviewed By:  _____
ES

- PHASE 1
- PHASE 2
- PHASE 3



SOUTHMINSTER BOURNE

300mm \emptyset OR 400mm \emptyset WTM

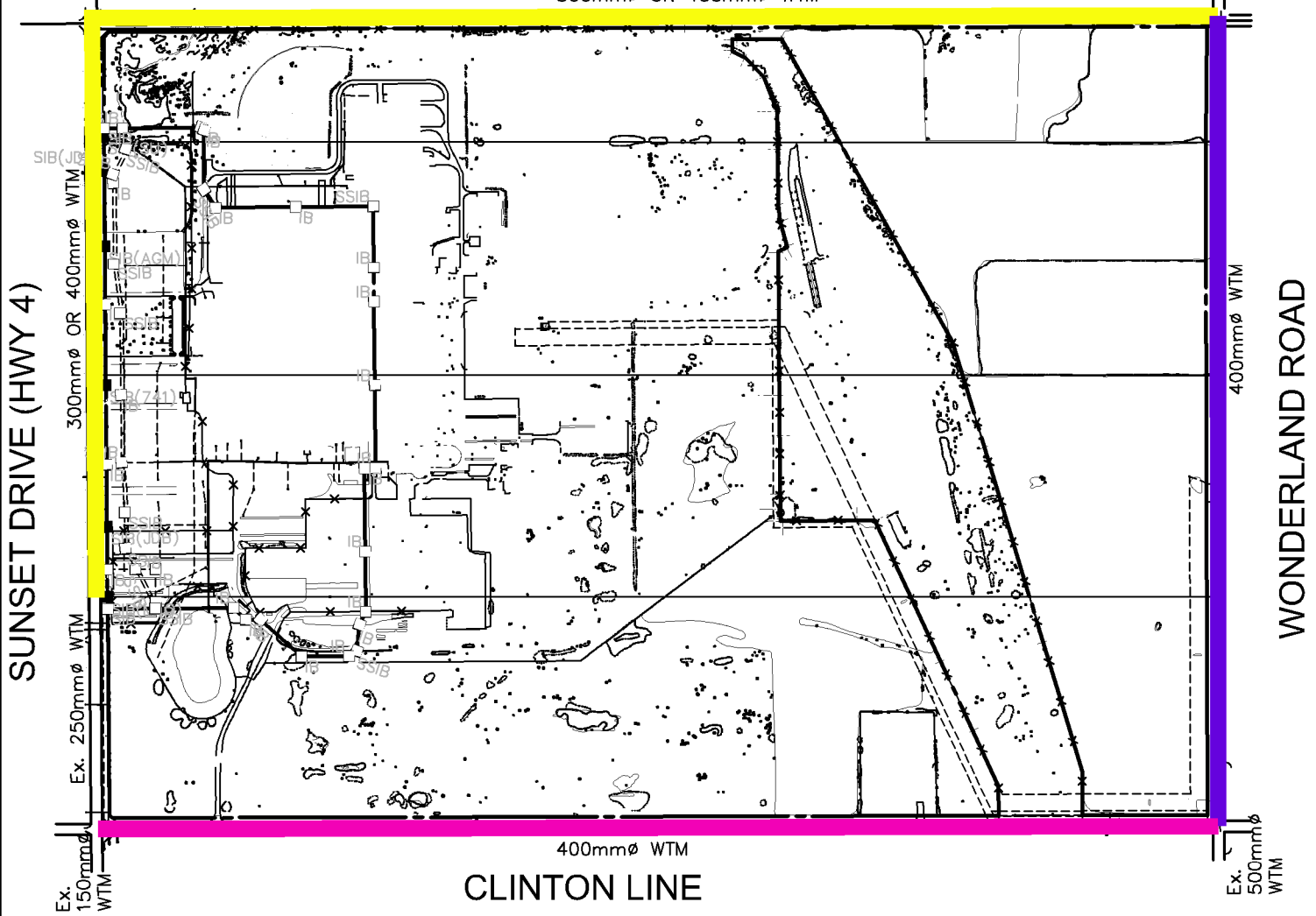



FIGURE 3.0 Date: FEB.22/23
Scale: NTS

**CONTEMPLATED
CONSTRUCTION PHASING**

 **MTE**

Engineers, Scientists, Surveyors

Project No.: 48949-200