



TOWNSHIP OF MELANCTHON ELECTRONIC MEETING THURSDAY, MARCH 2ND, 2023 - 5:00 P.M.

Council meetings are recorded and will be available on the Township website under Quick Links – Council Agendas and Minutes within 5 business days of the Council meeting.

Join Zoom Meeting

<https://us02web.zoom.us/j/85709960971?pwd=bkFvZmNCVVBjMWlyL1BsQ3JuM3FuUT09>

Meeting ID: 857 0996 0971

Passcode: 274429

One tap mobile

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+16473744685,,85709960971#,,,,*274429# Canada

Dial by your location

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+1 647 374 4685 Canada

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+1 780 666 0144 Canada

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+1 438 809 7799 Canada

Meeting ID: 857 0996 0971

Passcode: 274429

AGENDA

- 1. Call to Order**
- 2. Land Acknowledgement Statement**

We will begin the meeting by sharing the Land Acknowledgement Statement:

We would like to begin by acknowledging that Melancthon Township recognizes the ancestral lands and treaty territories of the Tionontati (Petun/Wyandot(te)), Haudenosaunee (Six Nations), and Anishinaabe Peoples. The Township of Melancthon resides within the lands named under the Haldimand Deed of 1784 and the Lake Simcoe-Nottawasaga Treaty (Treaty 18).

These territories upon which we live and learn, are steeped in rich Indigenous history and traditions. It is with this statement that we declare to honour and respect the past and present connection of Indigenous peoples with this land, its waterways and resources.

- 3. Announcements**
- 4. Additions/Deletions/Approval of Agenda**

- 5. Declaration of Pecuniary Interest and the General Nature Thereof**
- 6. Approval of Draft Minutes – February 16, 2023**
- 7. Business Arising from Minutes**
- 8. Point of Privilege or Personal Privilege**
- 9. Public Question Period** (Please visit our website under Agendas and Minutes for information on Public Question Period)
- 10. Public Works**
 1. Accounts
 2. Other
- 11. Planning**
 1. Applications to Permit
 2. SGL Planning & Design Inc. – County MCR and Settlement Expansion Adjacent to Shelburne (Mayor White)
 3. SGL Planning & Design Inc. – County MCR and Settlement Expansion Adjacent to Dundalk (Mayor White)
 4. Other
- 12. Strategic Plan**
- 13. Climate Change Initiatives**
- 14. Police Services Board**
- 15. Committee/Board Reports & Recommendations**
- 16. Correspondence**

Board, Committee & Working Group Minutes

1. Mulmur-Melancthon Fire Board – January 30, 2023
2. Police Service Board – October 11, 2022
3. Centre Dufferin Recreation Complex Board – November 3, 2022

Items for Information Purposes

1. Eowyn Spencer, Grand River Conservation Authority – Notification of GRCA By-law 1-2023
2. Bluewater Geoscience -2022 Monitoring Report for the Landfill
3. Letter from Bill Thompson, Project Manager, South Georgian Bay – Lake Simcoe Source Protection Region – Protection of Raw Sources of Municipal Drinking Water through the Drinking Water Source Protection Program
4. Town of Deep River – Motion to Support the resolution passed by the Town of Petrolia Council regarding Ontario School Board Elections
5. Spencer Fitzpatrick, Municipal Advisor, Ministry of Municipal Affairs and Housing – 2022 Municipal Elections Statistics
6. Dufferin County Museum- Exhibition Opening Event – Our Story Past & Present – Friday March 3rd, 2023
7. Township of Ashfield-Colborne-Wawanosh – Motion regarding the Future Accuracy of the Permanent Register of Electors

Items for Council Action

1. Dundalk Agricultural Society - Sponsorship of the 2023 Dundalk Fall Fair

17. General Business

1. Accounts
2. Notice of Intent to Pass By-law
 1. By-law to provide for the levying of the costs resulting from the maintenance and repair of the Henderson Drainage Works, 1975
3. New/Other Business/Additions
 1. Notice of Motion by Deputy Mayor McLean to rescind the Covid-19 Vaccination Staff Policy
4. Unfinished Business
 1. Melancthon Recreation Task Force Report – Further Discussion on the formulation of a Recreation Committee
 2. Draft 2023 Operating and Capital Budget (see Delegation – Public Meeting)
 1. Employee Cost of Living Pay Band Increase – Motion to approve

18. Delegations

1. 5:30 p.m. – Nancy Neale, Watson and Associates regarding Development Charges
2. 6:00 p.m. – Althea Ali, Dufferin County Multicultural Foundation - Introduce Members to the New Members of Council and ask for support
3. 6:30 p.m. – Public Meeting regarding the 2023 Draft Operating and Capital Budgets

19. Closed Session

1. Items for Discussion: Personal Matters about an Identifiable Individual, including municipal or local board employees – Review Applications received for the one vacancy on the Heritage Advisory Committee
2. Approval of Draft Minutes – February 16, 2023
3. Business Arising from Minutes
4. Rise With or Without Report from Closed Session

20. Third Reading of By-laws

21. Notice of Motion

22. Confirmation By-law

23. Adjournment and Date of Next Meeting – Thursday, March 16th, 2023 – 5:00 p.m.

**APPLICATIONS TO PERMIT FOR APPROVAL
March 2, 2023 COUNCIL MEETING**

PROPERTY OWNER	PROPERTY DESCRIPTION	SIZE OF BUILDING	TYPE OF STRUCTURE	USE OF BUILDING	DOLLAR VALUE	D.C.'s	COMMENTS
Mahlon Martin - Breezy Acres Agent - Simon Martin	E Pt Lot 12 & 13, Con 5 NE	258.27m2 (2780 sqft)	Dwelling Renovation	Dwelling Renovation	\$75,000	No	Approved

January 30, 2023

Project: RD.DU

Mayor Darren White
Township of Melancthon
157101 Highway 10
Melancthon, ON
L9V 2E6

VIA EMAIL

Re: County MCR and Settlement Expansion Adjacent to Shelburne

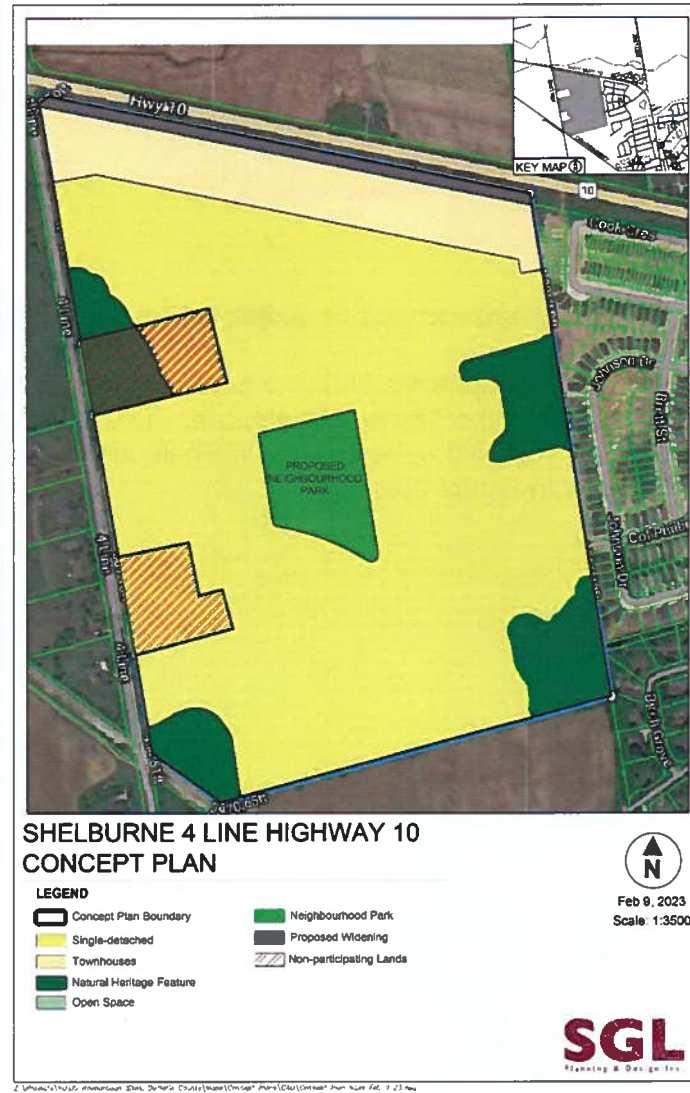
We represent Roxborough Developments Ltd. who controls lands in the Township, abutting the north-west corner of the Town of Shelburne. The lands are bound by Highway 10 to the north, 4th Line to the west, and the Shelburne municipal boundary to the south and east, as show in Figure 1.

Figure 1



The lands represent a logical and natural extension of Shelburne through the extension of Col Phillips Drive and road connections to the future urban area to the south. A stand alone sewage treatment plant and a communal well system could service this area. A mix of housing forms and a central neighbourhood park could be incorporated as shown on the attached concept plan (Figure 2).

Figure 2



The County MCR has identified significant growth for Shelburne of 5,700 people and a growth in Melancthon of 1,100 people. It also identified a need for an additional 59 hectares of residential land in Shelburne. We understand this additional urban land needs can be accommodated within Shelburne’s current municipal boundary.

In our opinion, additional growth should be allocated to Melancthon adjacent to the Shelburne settlement area. Allocating additional growth to Melancthon will help ensure proper land use coordination with Shelburne including the advancement and expansion of Col Phillips Drive Extension to the 4th Line and connection of lands to the south which are currently isolated due to environmental features.

With a growth forecast of only 1,100 persons by the year 2051 for the Township, the implementation of Melancthon's Official Plan objectives including providing opportunities for a wide range of housing through a complete community approach to local planning, will be significantly limited. On the other hand, directing additional growth adjacent to Shelburne will help provide the opportunities to expand and diversify the municipality's economic base and ensure a sustainable community, over the planning horizon.

Accordingly, including the Subject Lands within a proposed Settlement Area Expansion is representative of good land use planning.

Yours very truly,
SGL PLANNING & DESIGN INC.



Paul Lowes, MES, MCIP, RPP
Principal

c.c. Eric Silverberg
Jamie Erlick
Ira Kagan



1547 Bloor Street West
Toronto, Ontario M6P 1A5
☎ (416) 923-6630
✉ info@sglplanning.ca

January 30, 2023

Project: RD.DU

Mayor Darren White
Township of Melancthon
157101 Highway 10
Melancthon, ON
L9V 2E6

VIA EMAIL

Re: County MCR and Settlement Expansion adjacent to Dundalk

We represent Roxborough Developments Ltd. who controls lands in the Township at the south-east corner of Highway 10 and Main Street East, abutting the community of Dundalk as show in Figure 1.

Figure 1



The lands represent a logical eastern extension of Dundalk. A stand alone sewage treatment plant and a communal well system could service this area. A mix of housing forms and a central neighbourhood park could be incorporated as shown on the attached concept plan (Figure 2).

Figure 2



The County MCR has identified a growth in Melancthon of 1,100 people. In our opinion, additional growth should be allocated to Melancthon adjacent to the Dundalk settlement area. Allocating additional growth to Melancthon will help ensure proper land use coordination with Dundalk.

With a growth forecast of only 1,100 persons by the year 2051 for the Township, the implementation of Melancthon's Official Plan objectives including providing opportunities for a wide range of housing through a complete community approach to local planning, will be significantly limited. On the other hand, directing additional growth adjacent to Dundalk will help provide the opportunities to expand and diversify the municipality's economic base and ensure a sustainable community, over the planning horizon.

Accordingly, including the Subject Lands within a proposed Settlement Area Expansion is representative of good land use planning.

Yours very truly,
SGL PLANNING & DESIGN INC.



Paul Lowes, MES, MCIP, RPP
Principal

c.c. Eric Silverberg
Jamie Erlick
Ira Kagan



MINUTES

MULMUR-MELANCTHON FIRE BOARD

Monday, January 30, 2023 at 7:00 p.m.

Present: Earl Hawkins, Chair – Mulmur Township
Ralph Moore, Vice Chair – Melancthon Township
Kim Lyon – Mulmur Township
Darren White – Melancthon Township
Mathew Waterfield – Fire Chief
Everhard Olivieri-Munroe – Deputy Fire Chief
Heather Boston – Secretary

1. **Call to Order** – meeting was called to order by the Chair at 7:01 pm
2. **Land Acknowledgement**

We begin this meeting by acknowledging that we are meeting upon the traditional Indigenous lands of the Tionontati (Petun) and Treaty 18 territory of the Anishinaabe peoples. We recognize and deeply appreciate their historic connection to this place and we also recognize the contributions Indigenous peoples have made, both in shaping and strengthening our community, province and country as a whole.

3. **Approval of the Agenda**

Motion by: Moore/White

THAT the January 30, 2023, agenda for the Mulmur-Melancthon Fire Board be approved as circulated.

CARRIED.

4. **Approval of Previous Meeting's Minutes**

Motion by: White/Moore

THAT the Minutes of the Mulmur-Melancthon Fire Board dated December 20, 2022, be approved as copied and circulated.

CARRIED.

5. **Declaration of Pecuniary Interest**

Chair Hawkins stated that if any member of the Board had a pecuniary interest, they could declare the nature thereof now or at any time during the meeting.

No Declarations of Pecuniary interest were stated at this time.

6. Treasury

a) Accounts

i. Motion by: Lyon/Moore

THAT the operating accounts in the amount of \$15,537.79 be approved as presented.

CARRIED.

b) 2023 Draft Budget

- Current cost per litre of Propane? Cost per litre \$0.57820
- Has it been tendered? No, doesn't meet threshold for tendering per Procurement By-law.
- What at the firehall uses the bulk of electricity? Breathing air compressor, cistern well pump, radio system, furnace, and lights. We are currently in the process of upgrading lights to LED.
- Lights being moved over to motion sensor where possible.
- How many hours spent doing bookkeeping and secretarial duties? Minimum of 7 hours a week.

Motion by: Lyon/White

THAT the Board approve the 2023 budget as presented.

CARRIED.

7. Administration

a) Emergency Shelter (Verbal)

Motion by: Moore/White

THAT the Emergency Shelter be deferred to allow individual council direction or discussion;

AND THAT the Board receive feedback to be discussed at a future meeting.

CARRIED.

b) Fire Chief General Update (Verbal)

- Working on getting three quotes via Canoe for a new pumper.

8. Information Items

a) FMPFSC Certification Grant Award Letter

- Grant given to Department to purchase new training materials.

b) Mulmur's Procedural By-Law

9. Adjournment

Motion by: Lyon/Moore

THAT we do now adjourn at 8:03 pm to meet again on March 21, 2023, at 7:00 pm or at the call of the Chair.

CARRIED.

Earl Hawkins

Roseann Knechtel

Chair

Secretary

TOWNSHIP OF MELANCTHON POLICE SERVICES BOARD

The Township of Melancthon Police Services Board held an electronic meeting on Tuesday, October 11, 2022, at 9:00 a.m. due to COVID-19. Those present: Municipal Member Darren White, Public Member Alan Blundell, Staff Sergeant Anton Jesich, Secretary, Sarah Culshaw. Absent with notice Inspector – Detachment Commander Terry Ward.

Call to Order

Chair Blundell called the meeting to order at 9:00 a.m. and welcomed all in attendance.

Land Acknowledgement Statement

Chair Blundell shared the Land Acknowledgement Statement.

Approval of the Agenda

Moved by White, Seconded by Blundell that the Agenda be approved as circulated.
Carried.

Declaration of Pecuniary Interest or Conflict of Interest

None declared.

Approval of Minutes – July 12, 2022

Moved by White, Seconded by Blundell that the minutes of the Police Services Board meeting held on July 12, 2022 be approved as circulated.
Carried.

Issues Arising from the Minutes

1. Email regarding PSB follow up discussion
Chair Blundell discussed his E-mail that he had forwarded to the board members regarding the July 11, 2022 meeting discussions with Staff Sergeant Jelich. The email is attached to the minutes

Presentations/Delegations

None.

Correspondence

None

Financial

None

Detachment Commander's Report

Due to Detachment Commander Terry Ward absence, Staff Sergeant Anton Jesich went through the 3rd Quarter Report to the Board. The report is attached with the minutes.

Committee Reports

None.

Other Business

1. Letter re: Let's remember Adam

The Municipality of East Ferris forwarded a letter of concern regarding the lack of protection for children getting on and off school buses. Even though a new eight-light system as well as text added to the back of the bus to remind drivers not to pass when red lights are flashing, drivers have shown no change in their behavior. The board agreed that this should be high priority, and fully support any way to encourage safer driver behavior. It was asked that this letter be forwarded to the Council for endorsement.

2. Town of Orangeville – Towing By-law

Discussions ensued regarding The Town of Orangeville's By-law to regulate and license towing services operators, tow truck drivers and vehicle storage yard facilities. It was stated that although the Township of Melancthon opted out the option to get additional enforcement for Tow truck drivers, they would still enforce them under their own by-law.

3. MOU Horning's Mills Community Hall Shelter

Attached with the agenda for information purposes was the Memorandum of Understanding for the Horning's Mills Community Hall to use as an emergency Shelter when needed.

4. Additions to the Agenda, if any

None

Other/Additions

Chair Blundell noted that this was his last meeting with the board as his term ends concurrent with Council. He thanked the board for the opportunity and provided an appreciation letter to the board and to Council.

Public Discussion


None

Date of Next Meeting – To be Determined


Adjournment

10:00 a.m. - Moved by Blundell, Seconded by White that we adjourn this Police Services Board meeting to meet again at the call of the Chair or Council.

Carried.



CHAIR



SECRETARY

CENTRE DUFFERIN RECREATION COMPLEX

BOARD OF MANAGEMENT

Minutes of the Regular meeting held November 3, 2022 via ZOOM

Attendance: Lindsay Wegener Shelburne
Steve Anderson Shelburne
Heather Foster Amaranth
Melinda Davie Mono
Darren White Melancthon

Kim Fraser Facility Administration Manager
Marty Lamers Facility Maintenance Manager
Emily Francis Recreation Program Coordinator

Absent: Chris Gerrits, Margaret Mercer, Dan Sample and Geer Harvey

Meeting called to order by Board Vice-Chair, Melinda Davie at 6:30pm.
A quorum was present.

Land Acknowledgement:

Vice-Chair, Melinda Davie read the land acknowledgement

Declaration of Pecuniary Interests:

Vice-Chair, Melinda Davie stated that if any member of the board had a disclosure of pecuniary interest that they could declare the nature thereof now or at any time during the meeting.

Agenda:

MOTION #1 – Moved by H. Foster seconded by D. White. Be it resolved we approve the agenda dated November 3, 2022 as circulated and presented. Carried

Discussion & Approval of Minutes of Previous Meeting September 28, 2022:

MOTION #2 – Moved by L. Wegener seconded by H. Foster. That the minutes of the CDRC Board of Management regular board meeting held virtually on September 28, 2022 be approved as circulated and presented. Carried

Financial Report:

Second payment installment made for roof replacement project.
Due to the looming teachers strike, discussion weather to offer a camp program. After discussion the Board chose not to offer camp program, instead offer public skate and shinny hockey opportunities.
After review of the CDRC financial reports and accounts, the following motion was presented.

MOTION #3 – Moved by L. Wegener seconded by D. White. That the CDRC Board of Management receive the financial reports and paid accounts in the amount of \$376,897.57, as presented by the Facility Administration Manager. Carried

Human Resource – Job Placement Interviews:

After acceptance of employment offers the following candidates were hired.

MOTION #4 Moved by S. Anderson seconded by D. White. Be it resolved that the CDRC of Management hires the following for the 2022-2023 seasonal contract positions:

- Maintenance Attendant: Cole Alexander, Brody Armstrong and Cal Stinson
 - Concession Booth Attendant: Shannon Kinsman, Leah Bennington, Gabrielle Spencer and Becca Walsh
- Carried

Facility Administration Manager and Recreation Program Coordinator Reports:

See Schedule A

See Schedule B

MOTION #5 – Moved by L. Wegener seconded by D. White. That we receive the reports from the Facility Administration Manager and the Recreation Program Coordinator.

Carried

Facility Maintenance Manager’s Report:

See Schedule C

MOTION #6 Moved by S. Anderson seconded by H. Foster. That we receive the report from the Facility Maintenance Manager.

Carried

Old Business:

Review Respect and Responsibility (RZone Policy):

From the last meeting a link to the RZone Policy was shared. Suggest increase display and signage in the facility to bring awareness.

<https://www.shelburne.ca/en/town-hall/r-zone-policy---respect-and-responsibility.aspx#Staff-is-receiving-inappropriate-written-or-verbal-communication>

New Business:

Facility Bookings, Program Registration and Point of Sale Solutions

See Schedule D – Report

MOTION #7 – Moved by D. White seconded by H. Foster. That we CDRC Board of Management receives the report from the Recreation Program Coordinator regarding facility bookings, program registration and point of sale solutions; And further that the CDRC Board approves the purchase of the ACTIVE Network platform at the cost of \$30,638.00 plus applicable taxes. Carried

Confirmation by By-law:

MOTION #8 – Moved by L. Wegener seconded by H. Foster. Be it resolved that leave be given for the reading and enacting of by-law #09-2022 being a by-law to confirm certain proceedings of the CDRC Board of Management for its regular board meeting held November 3, 2022. Carried

Adjournment:

MOTION #9- Moved by H. Foster seconded by S. Anderson. That we now adjourn at 8:16pm to meet again on January 25, 2023 at 6:30pm. Carried

Secretary - Treasurer

Chairperson

Dated

SCHEDULE 'A'

Facility Administration Managers Report – November 3, 2022

General Information:

- Continual day-to-day administrative duties that include phone calls and walk-in inquiries, invoicing and collections, payables and disbursements, rental contracts, bookings, monitoring the rental schedule and payroll administration.
- Completed seasonal ice schedules and contracts
- Ongoing, receiving and responding to numerous and various facility rental booking requests.
- Fielding numerous rink board and wall sign advertising inquiries
- Need to complete the request from the Melancthon Recreation Task Force to provide user data information
- Completed Canada Summer Jobs payment claim report

Old Business:

- Met with ACTIVE Net representative to review proposal.
- Prepared and sent offers of employment to fill openings for Arena Operator-Maintenance Attendant, Youth Maintenance Attendant and Concession Booth Attendant positions. All Youth Maintenance Attendant and Concession Booth Attendant offers are accepted. Arena Operator-Maintenance Attendant position remains vacant.

New Business:

- SMHA addressed concerns between Penetang and SMHA spectators (see attached email)
- Will begin preparation for the CDRC 2023 Draft Budget

Kim Fraser
Facility Administration Manager

SCHEDULE 'B'

Submitted By: Recreation Program Coordinator Emily Francis
To: CDRC Board of Management
Date: Thursday November 3, 2022
Subject: Recreation Program Coordinator Report

October Overview

- Continuing to assist with day-to-day operations including phone inquiries, email inquiries etc.
Completing invoices for upcoming programs.
- Continuing to make updates to the CDRC information on the Town of Shelburne website and actively creating graphics and posting on the CDRC social media.
- Preparation for the Home Alone Safety for Kids course and PA Day Camp on Monday October 24, 2022
 - Home Alone Safety for Kids: 19 participants
 - PA Day Camp: 25 campers
- Free Skate sponsored by the Shelburne Air Cadets Sunday October 2, 2022
- **Public Skating (\$3.00 per skater)**
 - Friday October 7, 2022 6:30-7:30pm (77 skaters)
 - Monday October 24, 2022 2:30-3:30pm (50 skaters)
 - Friday October 28, 2022 5:30-6:30pm Halloween Public Skate with special guests from Haunt in the Park (117 skaters)
 - Additional dates available soon.
- New PA Day Camp added Friday December 23, 2022
- Preparation, execution and clean up the **Halloween Trick or Treat Drive Thru on Saturday October 29, 2022, from 1:00-3:00pm**
 - Registrations: 325 (250 arrived)
 - Businesses: 17
 - Rural Rescue
 - Local Home Finder
 - Ken Bennington Real Estate
 - Go with Crowe
 - Dufferin Mutual Insurance
 - Shelburne Fair
 - Dominos Pizza
 - Marge McCarthy Realty
 - Shelburne Minor Hockey Association
 - McDonald's Shelburne
 - 164 Squadron Air Cadets
 - Nicol Insurance
 - Skate Canada Shelburne
 - Tim Hortons Shelburne
 - Country 105
 - Sylvia Joneses Office
 - Shelburne Lions
 - Donations: 3
 - Foodland Shelburne
 - Tim's No Frills

- Fix N List
 - Volunteers: 14
- Meeting on Friday October 21, 2022, with the Lifesaving Society to discuss the CDRC Pool transition for the summer of 2022. They will be sending through a contract over the coming weeks to begin offering their programs from May-September.
- **Active Network Software**
 - Meeting with Active Network Software representative to discuss the software fees and answer any additional questions.
- Upcoming in November: Transfer course for Lifesaving Society Trainer Certification
 - With the elimination of Red Cross Swim programs, all Red Cross certifications must be transferred over to Lifesaving Society. I will be attending a 2-day (half day) course to complete this transition.

SCHEDULE 'C'

Facility Maintenance Managers Report – November 3, 2022

GENERAL INFORMATION

Circulating pump replacing dressing room 7 leaking. (Waiting on pump.) \$1888.65

Scheduling of operation staff.

Volume of facility usage and general building maintenance has increased.

Youth orientation training.

CDRC repairing south side siding to resolve some issue before roofers capped edge of building. (Not a roofer issue.)

Kore mechanical diagnosing and troubleshooting ammonia alarm sensor fault, life of sensor head depleted, replacement recommended part on order.

Restrung a set of nets \$891.00 nets and safety pads

Co-op student working out well

New Roof replacement issues.

Roof installation completed October 17, 2022, flashing of roof completed October 28, 2022.

Roof truss site visit. Waiting for quote for repair. I believe this will be an issue. No longer are they talking a simple fix possibly building towers to support roof and a week worth of repairs to replacing up to 8 braces. Was this not part of the reason we had SBA, to do a check for structure integrity prior to installing roof. I am not an engineer, but I do believe this is an over kill fix.

Overseeing damaged antenna from roofer informed SBA and Town of Shelburne water department. (Water meter repeater) repaired Oct 31, 2022

THR roofing company, deficiency interim site inspection.

Staffing

Left posting up as operator declined employment Sept 26, 2022, had 4 applicants that applied after leaving messages only one returned my call. Had a working interview orientation with a candidate on Sunday, Oct 23, 2022, for the PT operator. Has not signed or returned offer of employment. Also had a working orientation with a candidate on Saturday, Oct 29, 2022, for a youth position and would like to send offer of employment.

Like to discuss additional operation and capital expenditures for 2023.

Marty Lamers

Facility Maintenance Manager

Centre Dufferin Recreation Complex

REPORT

Meeting Date:	November 3, 2022
To:	CDRC Board of Management
From:	Kim Fraser, Facility Administration Manager and Emily Francis, Recreation Program Coordinator
Subject:	Facility Bookings, Program Registration and Point of Sale Solutions

Recommendation

That the Centre Dufferin Recreation Complex Board of Management receives the report from the Recreation Program Coordinator regarding facility bookings, program registration and point of sale solutions.

And Further That the CDRC Board approves the purchase the ACTIVE Network platform at the cost of \$30, 638.00

Background

Currently, facility bookings and registration requests are made by completing an online form through the Town of Shelburne website. Once the form is completed and submitted, it is emailed to CDRC staff who need to manually create an invoice for the request, transfer data to necessary spreadsheets or create a manual rental contract. Invoices and rental contracts are then sent to the customer and the CDRC is required to follow up and ensure that payments are being made.

As the CDRC continues to grow with increase in recreation programs, facility bookings and concession sales, a better and efficient solution is required.

Analysis

Four (4) different online solutions were reviewed by the Facility Administration Manager and Recreation Program Coordinator. Virtual demonstrations of each took place and inquiries were made to other municipalities using these solutions.

List of online solutions reviewed

1. Catch Corner

2. Perfect Mind
3. Book King
4. ACTIVE Network

Other municipalities using ACTIVE Network software

1. Town of Minto (population 8, 671)
<https://anc.ca.apm.activecommunities.com/minto/reservation/landing>
2. City of Orillia (population 31, 166)
3. Saugeen Shores (population 13, 715)
4. Kincardine (population 11, 389)

Cons of our current registration process:

- Very manual process (participants fill out a registration form, after it is received at the CDRC we move the information to a spread sheet, send through an invoice, follow up for payment).
- Forms do not always come through and there is no tracking as to what happened to them.
- Participants are not required to pay at the time of registration so there is no commitment.
- Room for errors as we are transferring information from different spread sheets.
- Lack of communication from participants: participants do not communicate when they will not be attending programs after completing the registration form and invoices being sent.

The features and functionality of the ACTIVE Network suits the needs of the growing CDRC. Using this platform, we will have the following options:

- Participants will be able to book and pay for programs directly online.
- POS system to be used for all drop-in programs and concession sales. This will help to track inventory in our concession booth as well as the accurate numbers for our drop-in programs.
- Facility rentals can be entirely booked online: There is an option for the CDRC to approve all rental inquiries before they are made official.
- Send out quick mass emails is there is a new program, ice available for rent etc.
- Pull off instant reports for our programs instead of manually creating group lists.
- Communicate using trigger emails – if there is an hour of ice available you can send an email to anyone who has booked ice around that time in the last month.
- Facility calendar – which will eliminate the excel spreadsheet we are currently using.
- In the future it can be connected with our dressing room assignment board to automatically assign dressing rooms to rentals if necessary.

Overall benefits

- ACTIVE Network is a marketing tool for new CDRC programs: it will display all offerings in one space as well as group them based on age, date etc.
- See an increase in revenue through rentals and programs as it is convenient for the user and does not require contacting the facility.
- Increase efficiency for both the CDRC and facility users.
- ACTIVE Network will allow the CDRC to accurately track our facility usage (# of participants from each municipality).

Implementation time

- Step 1 Sign the contract with ACTIVE Network: once the contract is signed the project will start in 5-6 weeks.
- From the project start date, 8-10 weeks before the software will go live. During this time, weekly training will be held for staff to build and learn the system.
- Our ideal go live date in order to open summer registration is April 1, 2023.

Financial Impact

The total price in 2023 is \$30, 638.00

The annual subscription cost onward will be \$5,000.00 plus HST

Based on the 2022 Revenue the annual projected contract value is \$13, 834.00 (this includes the annual subscription \$5,000.00).

Supporting Documentation and Information

Attachment 1: Active Network Proposal

Respectfully Submitted:

Kim Fraser Facility Administration Manager and Emily Francis Recreation Program Coordinator



Schedule

Company Address Active Network Ltd.
Suite 2600
Three Bentall Center
595 Burrard St
PO Box 49314
Vancouver BC V7X 1L3

Created Date 11/2/2022
Quote Number 00127306
Currency CAD

Prepared By Molly Mueller
Opportunity Owner Melinda Miller
Owner Email melinda.miller@activenetwork.com

Contact Name Kim Fraser
Phone 5199252400
Email kfraser@shelburne.ca

Bill To Name Centre Dufferin Recreation Complex
Bill To Contact Kim Fraser
Bill To Address 200 Fiddle Park Lane
Shelburne, ON L9V 3C9 Canada

Ship To Contact Kim Fraser
Ship To Address 200 Fiddle Park Lane
Shelburne, ON L9V 3C9 Canada

Product	Product Type	Description	Quantity	Fee %	Total Price
ACTIVENet - (credit card refunds - flat fee)	SaaS		1		0.10
ACTIVENet - ACH Remittance- Every 1 week	Service	ACTIVENet - ACH Remittance- Every 1 week	1		
ACTIVENet - Annual Subscription Fee - Essentials Tier	SaaS	The ACTIVENet - Annual Subscription Fee - Essentials Tier includes the following modules and functionalities: - Program & Activity Registration - POS (Point-of-sale) -Marketing & Communications -Standard Reports -Facilities	1		5,000.00
ACTIVENet - Canadian Debit Card refunds - flat fee	SaaS		1		0.10
ACTIVENet - Functionality: Facilities	SaaS	ACTIVENet - Functionality: Facilities	1		
ACTIVENet - Functionality: POS (Point-of-sale)	SaaS	ACTIVENet - Functionality: POS (Point-of-sale)	1		
ACTIVENet - Functionality: Program & Activity Registration	SaaS	ACTIVENet - Functionality: Program & Activity Registration	1		
ACTIVENet - Public Interface - Online Transaction Fee	SaaS	Rates for organizations under \$1,500,000 in annual revenue through ACTIVE Net.	1	2.95	
ACTIVENet - Public Interface Fee Set up - passed to online registrant	SaaS		1		
ACTIVENet - SaaS		ACTIVE Net Service Package STANDARD 3 consists of the following Services: • remote business process review • remote functionality review & data collection preparation • remote data collection review • remote data entry (system inventory and policy controls) • remote user testing • LMS training			



Schedule

ACTIVENet - Service Package Standard 3	Service	<ul style="list-style-type: none"> • remote supplemental training • remote Go Live preparation • remote go live support • remote hardware configuration • remote system optimization training <p>The scope of Services is contained to the 3 functionalities of choice.</p> <p>50% of total Service costs will be billed at Service initiation, payable within 30 days of the date of invoice.</p> <p>50% of total Service costs will be billed at Service completion, payable within 30 days of the date of invoice.</p>	1	23,734.00
ACTIVENet - Staff Interface - Canadian Debit Transaction - flat fee	SaaS		1	0.15
ACTIVENet - Staff Interface - Payment Processing Fee - Credit Card	SaaS	Rates for organizations under \$1,500,000 in annual revenue through ACTIVE Net.	1	2.05
ACTIVENet - Staff Interface - Payment Processing Fee - Electronic Cheque/Check Processing	SaaS		1	0.50
ACTIVENet - Staff Interface - Technology Fee	SaaS	Rates for organizations under \$1,500,000 in annual revenue through ACTIVE Net.	1	0.70
ACTIVENet - Support Standard Package	Maintenance	Support package for organizations under \$1,500,000 in annual revenue through ACTIVE Net.	1	0.20
ACTIVENet - Technical Services: Financial Export	Service	ACTIVE Net Technical Services: Financial Export consists of the following Services: <ul style="list-style-type: none"> • remote configuration, testing & training 	1	1,904.00
Total Price				CAD 30,638.00
Annual Projected Contract Value				CAD 13,834.00

Active reserves the right, and may take additional measures to verify Client's account which may consist of reviewing publicly available data and/ confirmation of Client provided information. Such verification measures will be completed in advance of remittance.

All fees described herein are in consideration of the Software and Services that Active provides. Active and Client acknowledge that certain credit card network rules and laws prohibit imposing a surcharge that is based on the type of payment method used (e.g., having a different fee for the use of a credit card vs. debit card), and therefore, each agree not to impose such a surcharge on any End User.

The payment options we offer may include MasterCard, Visa, American Express and Discover.

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Schedule

Client

Active Network Ltd.

Signature:

Signature:

Name:

Name:

Title:

Title:

Date:

Date:

PO# (if applicable):

Kaitlin Chessell

From: Denise Holmes
Sent: Tuesday, February 14, 2023 1:31 PM
To: Kaitlin Chessell
Subject: FW: Notification of GRCA By-Law 1-2023

Denise B. Holmes, AMCT
CAO/Clerk, Township of Melancthon
519-925-5525 Ext. 101

From: Eowyn Spencer <espencer@grandriver.ca>
Sent: Tuesday, February 14, 2023 12:09 PM
To: ca.office@ontario.ca; minister.mnrf@ontario.ca
Cc: Angela Coleman <acoleman@conservationontario.ca>; 'bfox@conservationontario.ca' <bfox@conservationontario.ca>; admin@puslinch.ca; Amanda Knight - Township of Guelph/Eramosa (aknight@get.on.ca) <aknight@get.on.ca>; Andrea Holland (clerk@hamilton.ca) <clerk@hamilton.ca>; acarter@pertheast.ca; Chloe Senior <cSenior@oxfordcounty.ca>; County of Brant Clerk's Office <clerks@brant.ca>; Denise Holmes <dholmes@melancthontownship.ca>; Evelyn Eichenbaum <eeichenbaum@haldimandcounty.on.ca>; Graham Milne (Graham.Milne@halton.ca) <Graham.Milne@halton.ca>; Karren Wallace <KWallace@wellington-north.com>; Kerri O'Kane <KOKane@centrewellington.ca>; Larry Wheeler <lwheeler@mapleton.ca>; Lindsay Cline (lcline@northperth.ca) <lcline@northperth.ca>; lgreen@southgate.ca; Lisa Campion <Lisa.Campion@erin.ca>; mtownsend@townofgrandvalley.ca; nmartin@amaranth.ca; Office of the Clerk (clerks@brantford.ca) <clerks@brantford.ca>; Regional Clerk <RegionalClerk@regionofwaterloo.ca>; Stephen.O'Brien@guelph.ca; Susan Stone (sstone@eastgarafraxa.ca) <sstone@eastgarafraxa.ca>; Teresa Olsen <teresa.olsen@norfolkcounty.ca>
Subject: Notification of GRCA By-Law 1-2023

To: Ministry of Natural Resources and Forestry, Conservation Ontario, and Grand River watershed participating municipal Clerk's offices:

Please be advised that at the regular meeting held on January 27, 2023, the General Membership of the Grand River Conservation Authority passed the following resolution:

THAT By-law 1-2023 be read a first, second, and third time and adopted by the General Membership, to take effect on January 27, 2023;

AND THAT By-law 1-2022 be repealed on January 27, 2023;

AND THAT a copy of By-law 1-2023 be forwarded to the Ministry of Natural Resources and Forestry, and posted publicly on the Grand River Conservation Authority's website.

[GRCA By-law 1-2023](#) has been made available to members of the public and can be viewed on our Governance webpage.

Kind regards,

Eowyn Spencer

Executive Assistant | Grand River Conservation Authority
400 Clyde Road, P.O. Box 729, Cambridge ON N1R 5W6
519-621-2763, ext. 2200
www.grandriver.ca

Eowyn Spencer

Executive Assistant

Grand River Conservation Authority

400 Clyde Road, PO Box 729

Cambridge, ON N1R 5W6

Office: 519-621-2763 ext. 2200

Toll-free: 1-866-900-4722

www.grandriver.ca | [Connect with us on social](#)

Denise Holmes

From: BRET LEMIEUX <blemieux@rogers.com>
Sent: Wednesday, February 15, 2023 8:32 AM
To: Denise Holmes
Subject: 2022 Landfill Monitoring Report
Attachments: BG-817-Township of Melancthon Landfill - 2022 Groundwater Monitoring Report - February 2023.pdf

Good morning, Denise: Hope all is well on your end. i have attached the completed 2022 monitoring report for the landfill.

Please let me know if you have any questions,

Bret

Breton Lemieux, M.Sc., P.Geo., QP
Bluewater Geoscience
519-502-8947

SEMI-ANNUAL GROUNDWATER MONITORING AND SAMPLING REPORT 2022

**Township of Melancthon Landfill Site
Lot 12, Concession 4
Melancthon Township, Ontario**

Project No. BG-817

Prepared for:

**The Corporation of the Township of Melancthon
157101 Highway 10,
Melancthon, ON.
L9V 2E6
ATTN: DENISE HOLMES, CAO/CLERK**

FEBRUARY 2023



BLUEWATER GEOSCIENCE CONSULTANTS INC.

42 Shadyridge Place
Kitchener, Ontario
N2N 3J1

Tel: (519) 744-4123
Fax: (519) 744-1863
E-mail: blemieux@rogers.com

February 13, 2023

The Corporation of the Township of Melancthon
157101 Highway 10,
Melancthon, Ontario L9V 2E6
Attn: Ms. Denise Holmes, CAO/Clerk

Dear Ms. Holmes:

**Re: 2022 Semi-Annual Groundwater Monitoring and Sampling Report,
Township of Melancthon Landfill Site, Lot 12, Concession 4
Melancthon Township, Ontario**

Bluewater Geoscience Consultants Inc. (Bluewater) was retained by The Corporation of the Township of Melancthon to complete the 2022 Semi-Annual Groundwater Monitoring and Sampling Report for the Melancthon Township landfill property located on Lot 12, Concession 4 in Melancthon Township, Ontario. The Township operates a municipal landfill site at the property and requires the Groundwater Monitoring and Sampling Program for their MECP Certificate of Authorization (C of A) for the operation.

The scope of work, observations, analytical test results, and our conclusions and recommendations for the 2022 Semi-Annual Groundwater Monitoring and Sampling Report are presented in the following report.

We trust that this report is complete within our terms of reference and suitable for your present requirements. If you have any questions or require further information, please do not hesitate to contact our office.

Sincerely,
BLUEWATER GEOSCIENCE CONSULTANTS INC.



Breton J. Lemieux, M.Sc., P.Geo. QP_{ESA}
President, Senior Geoscientist

BLUEWATER GEOSCIENCE

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1.0 INTRODUCTION

The Corporation of The Township of Melancthon (Township) retained Bluewater Geoscience Consultants Inc. (Bluewater) to complete the 2022 landfill (LF) groundwater monitoring and sampling program and to generate the annual report detailing the findings. The landfill site monitoring was undertaken to continue to assess any environmental impacts to surface and groundwater created by the LF operations. This landfill monitoring report was completed in accordance with the requirements of the Ministry of the Environment, Conservation and Parks (MECP) Certificate of Approval for the LF site.

The site monitoring included completing two site inspections, measuring groundwater levels in all 34 observation wells during the Spring and Fall of the year and determination of the resulting groundwater flow patterns in and around the LF. Groundwater sampling was conducted on 19 selected sampling wells during both the Spring and Fall of each year. The groundwater samples for 2022 were submitted to a CAEAL-accredited analytical laboratory for analysis. The results of the completed laboratory analyses were compared to MECP's Ontario Drinking Water Standards (ODWS) (for on-site monitors) and the Reasonable Use Policy (RUP) for off-site monitors.

2.0 PREVIOUS INVESTIGATIONS

2.1 R.J. Burnside & Associates Limited – Annual Groundwater Monitoring Reports 1993-2000

Annual groundwater monitoring reports for the LF were completed by R.J. Burnside & Associates Limited (Burnside) from 1993 – 2000. These reports included the sampling and analysis of groundwater samples from seventeen existing monitoring wells located in and around the LF site. Eleven of the monitors are located in the overburden aquifer while six are installed within the underlying bedrock aquifer. A summary of these reports indicates that no exceedance of the MOE RUP had been determined during the groundwater sampling events. In general, on-site monitoring locations indicated that exceedance of the MOE's ODWS for on-site monitors were rare and not sustained.

2.2 Rubicon Environmental Inc. – Groundwater Monitoring and Hydrogeological Investigations – Spring 2001

During 2001 Rubicon added another fourteen groundwater monitors to the existing network of monitors in and around the LF site. Eight of these monitors were installed in the overburden aquifer while six were installed in the bedrock aquifer.

During the 2001 investigations, the existing monitoring wells installed by Burnside were sampled and analysed. The additional monitoring wells were tied into the site survey, but not sampled.

2.3 Rubicon Environmental Inc. – Groundwater Monitoring and Hydrogeological Investigations – Spring 2002

This report included results of the Spring and Fall 2002 site monitoring and groundwater sampling and analysis program. The monitoring and sampling included the new monitors added during 2001.

2.4 Rubicon Environmental Inc. – Landfill Monitoring – March 24, 2004

This report provides details of the 2003 LF groundwater monitoring and sampling program completed at the site. The report details that some minor exceedances of the ODWS were determined for on-site monitoring wells.

2.5 Bluewater Geoscience Consultants Inc. – Annual Groundwater Monitoring and Sampling Reports 2004 - 2021

These reports detail the 2004 - 2021 LF groundwater monitoring and sampling program completed at the site. The report details that some minor exceedances of the ODWS were determined for on-site and off-site monitoring wells.

3.0 SITE BACKGROUND

The LF site has been in operation since ~1973 at its current location at Lot 12, Concession 4, Township of Melancthon, County of Dufferin. The LF serves the population of ~2,400 people in the Township. The nearest residence is located ~450 m south of the LF site. The location of the LF is remote and distant from any significant population centres.

The LF presently operates under Provisional Certificate of Approval (C of A) A180703. The total LF property comprises an area of ~33.038 ha., of which 6.1 ha. has been approved for landfilling. During 2013 the County of Dufferin assumed waste collection and disposal services in the Township of Melancthon. Further waste disposal at this landfill is not anticipated should County of Dufferin services be found adequate.

3.1 Site Inspection

During both Spring and Fall monitoring events, a site inspection was completed. The main refuse disposal area has been covered with soil and grades have been established to reduce the amount of rainwater infiltration into the waste pod. Temporary fencing has been placed around portions of the fill area to control windblown waste. There was no waste placement at this landfill during 2022.

During the Spring 2006 inspection it was noted that OW-4S had been destroyed, likely by equipment working in the area. OW-4S is located within the current filling are. During the Fall inspection it was noted that OW-4D had been destroyed during the summer months. OW-4D was also located within the current filling area. During 2015, monitor OW-17 was destroyed and is no longer part of the monitoring network.

4.0 GROUNDWATER MONITORING WELLS AND METHODOLOGY

4.1 Existing Monitoring Wells in 2022

Thirty-four groundwater-monitoring wells were in existence at the commencement of the 2022 monitoring period. All wells were inspected and found to be in good order, with the exceptions noted just above.

Seventeen monitoring wells had been installed by Burnside pre-2001. Six of these were installed in the deeper bedrock aquifer (denoted “D” for deep) while eleven were installed in the shallow overburden aquifer (denoted “S” for shallow). All existing monitoring wells were constructed of 50 mm diameter Schedule 40 PVC pipe and are fitted with steel protective casings and locks. The locations of all monitoring wells are presented on the Base Site Plan (Figure 1B, Appendix A). A brief description of each monitor locations is provided below:

- OW 1 is installed in the overburden aquifer and is located between two former refuse disposal areas
- OW 2S and OW 2D are located downgradient (east) of the current refuse disposal area
- OW 3S and OW 3D are located immediately downgradient (east) of the current refuse disposal area
- OW 4S and OW 4D are no longer present
- OW 5S is installed in the overburden aquifer and is located north of the disposal area, near the northern property boundary. This monitor is frequently dry in Fall
- OW 6S and OW 6D are located near the south property boundary and had been intended to represent background water quality
- OW 7S and OW 7D are located near the northeast property corner, northeast of the former refuse disposal area
- OW 8 is installed in the overburden aquifer and is located in the main refuse area. OW 8 is considered a ‘leachate’ well
- OW 9S and OW 9D are located off-site, northeast of the landfill and in the east ditch of the 4th Line
- OW 10S and OW 10D are located east of the main refuse disposal area
- OW 11S and OW 11D are located northwest of the main refuse disposal area. These monitors were intended to provide further clarification of groundwater flow patterns and are not included in the sampling program
- OW 12S and OW 12D are located west of the main refuse disposal area. These monitors were intended to provide further clarification of groundwater flow patterns and have been included since the 2006 sampling program;
- OW 13S and OW 13D are located immediately south of the main refuse disposal area. These wells were located to provide better delineation of the groundwater mounding in the refuse area and provide chemical data south of the refuse area;
- OW 14S is located southeast of the main refuse disposal area and was intended to help clarify groundwater flow patterns distant from the refuse disposal area;
- OW 15S and OW 15D are located southeast of the main refuse disposal area and were intended to help clarify groundwater flow patterns distant from the main refuse disposal

- area. These monitors were sampled for the first time during 2006;
- OW 16S and OW 16D are located along the north property boundary. These monitors were intended to provide clarification of groundwater flow patterns and provide chemical analysis of groundwater at the north property boundary. These monitors were sampled for the first time during the 2006 program;
 - OW 17S is located off-site in the overburden aquifer. The monitor is located in the east ditch of the 4th Line. This monitor was intended to provide better information on shallow groundwater flow patterns and potentially provide chemical data regarding the contribution of road salt to noted groundwater impacts. This monitor was destroyed in 2015 and has not been replaced;
 - OW 18S and OW 18D are located off-site east of the 4th Line. These monitors were intended to help refine groundwater flow patterns in the overburden and bedrock aquifers and provide chemical data in that area.

4.2 Wells Installed in 2006

During 2006 an additional six monitoring wells were installed at the landfill. The six new wells consisted of three sets of two wells (OW-19S and 19I, OW20S and 20D and OW-21S and 21D). The locations of the new wells are shown on Figure 1B, Appendix A. A description of the location and rationale for each of the new wells is presented below:

- OW-19S and OW-19I are located in the southeast corner of the landfill property, just west of the 4th Line. These wells were installed to provide additional points for determining groundwater flow patterns and to provide chemical data at this downgradient property boundary. OW-19S is set in the shallow till overburden while OW-19I (intermediate) is set in a lower till unit. These two wells were included in the 2007 sampling and lab analysis program for the first time;
- OW-20S and OW-20D are located just southeast of the ‘old closed landfill’ in the northeast portion of the landfill property. These wells will provide further groundwater flow data as well as providing additional chemical data. OW-20S is set in the shallow overburden, just above the bedrock. OW-20D is sealed into the bedrock. These two wells were included in the 2007 sampling and lab analysis program for the first time;
- OW-21S and OW-21D are located along the north landfill property boundary, well west of the active landfilling area. These wells will be utilized to provide additional groundwater flow information as well as providing chemical data at locations well upgradient of the fill area. OW-21S is set in the shallow overburden, just above the bedrock. OW-21D is sealed into the dolostone bedrock. These two wells were included in the 2007 sampling and lab analysis program for the first time;

All groundwater-monitoring wells have been surveyed relative to a geodetic datum and ground surface and top of monitoring well pipe elevations have been recorded. During 2006, waste placement was taking place in the immediate area of OW-4S and OW-4D. These wells were destroyed by the heavy equipment. OW-17 was destroyed during the winter of 2014-2015 and is no

longer part of the monitoring network.

4.3 Water Level Monitoring

On May 3 and October 24, 2022 groundwater levels were measured in all 34 existing monitoring wells installed at the LF. The depth to water relative to the top of monitoring well pipe was measured using a Solinst water level gauge. The determined water depths were recorded and the resulting groundwater elevations were determined. Table 1, Appendix B provides the tabular representation of the groundwater elevation data, including historic groundwater levels.

After completion of the water level measurements, the monitors selected for sampling were thoroughly purged of a minimum of 3 casing volumes of water in anticipation of the groundwater sampling.

4.4 Groundwater Sampling

The 2022 groundwater sampling and analysis program consisted of sampling 19 selected groundwater monitoring locations at and around the LF property. Samples were obtained from both overburden and bedrock aquifer wells. Prior to obtaining the groundwater samples, the selected monitors had been purged of a minimum of three casing volumes of water in order to facilitate provision of representative samples.

Groundwater samples from the selected monitoring wells were obtained using dedicated Waterra tubes and foot valves and were placed directly into the laboratory-supplied sample bottles. The groundwater samples were obtained and submitted for analysis of the volatile organic compounds (VOC's), general water chemistry and heavy metals parameters. The heavy metal samples were field filtered and preserved. The groundwater samples were chilled in coolers prior to being submitted under Chain of Custody to ALS Laboratories of Waterloo, ON for analysis. ALS is a CAEAL (Canadian Association of Environmental Analytical Laboratories) accredited laboratory.

4.5 Surface Water Sampling

Surface water sampling was not completed during the 2022 monitoring program at location SW-3 (Figure 1). This location is a small dugout (possible former gravel extraction pit) located on the property adjacent to the north. It is our understanding that the Township has now purchased this property.

4.6 Groundwater Flow

The determination of groundwater flow patterns in both overburden and bedrock aquifers are essential in determining the potential for off-site impacts and contaminant distribution. In general, groundwater levels in both overburden and bedrock aquifers were lower (~1m) in the Fall than the Spring monitoring. The measured groundwater elevations for each aquifer were determined and plotted on the site plan. The resulting groundwater flow patterns were determined based on this

distribution. Figures 2 and 3 present the groundwater flow patterns for the Spring monitoring while Figures 4 and 5 provide the Fall 2022 aquifer flow patterns.

As may be noted from these Figures, mounding of groundwater in both aquifers within the refuse disposal area is occurring. This phenomenon is typical of landfill sites and should be expected to continue. The mounding creates radial flow, outwards, apparently in all directions away from the refuse disposal area. The flow then comes under the influence of background flow patterns. Based on the findings of this, and previous, monitoring events, the overburden groundwater flow is towards the northeast while the bedrock groundwater flow is more-directly eastwards.

Groundwater flow is driven by the gradient of the groundwater. This produces head differences between locations creating the conditions for groundwater movement. The horizontal hydraulic gradient in the overburden aquifer has been determined to be on the order of 0.007 m/m. Based on this gradient, and the characteristics of the overburden, the lateral groundwater flow velocity may be approximately 74 m/yr. The horizontal hydraulic gradient in the bedrock aquifer is lower; approximately 0.002 m/m. Based on this gradient and the characteristics of the aquifer, velocities of approximately 0.03 m/yr are estimated.

Vertical hydraulic gradients between the overburden and bedrock aquifers create the conditions for downward migration of groundwater impacted in the refuse disposal area. Downward vertical gradients allow downward movement of water into the bedrock aquifer. Downward vertical gradients are found in the refuse disposal area allowing shallow impacted groundwater to potentially enter the bedrock aquifer. This is significant because the bedrock aquifer is utilized as a potable water source within the Township and the bedrock aquifer is less able to attenuate groundwater contaminants.

5.0 GROUNDWATER QUALITY

5.1 Groundwater

Groundwater sampling and analysis for the LF site has been undertaken since 1993. Additional wells were added to the sampling regime in 1999 and selected monitoring wells installed in 2001 were added to the sampling list during 2002. Groundwater quality data for the 2022 program are provided in the Tables in Appendix B along with chemistry data from 2015 - 2021. Copies of the detailed Certificates of Analysis for the 2022 monitoring data are provided in Appendix C.

Inorganic parameters such as chloride, sulphate, hardness and alkalinity are frequently utilized to determine the extent of landfill leachate impacts in groundwater. Hardness and alkalinity are naturally elevated at the landfill property and throughout Melancthon Township. Chloride levels in both overburden and bedrock aquifers are elevated in the refuse disposal area. In general, concentrations in the bedrock aquifer are slightly higher than in the associated overburden wells. This is a reflection of the downward gradient from the overburden to the bedrock coupled with the lower attenuation capabilities in the bedrock. None of the on-site or off-site monitors exceeded the MECP ODWS concentration for chloride during the 2021 monitoring events. None of the wells sampled during 2021 exceeded the MOE RUP for chloride (125.5 mg/L) concentration. Elevated

chloride concentrations in this vicinity of the 4th Line, east of the LF, may be partially attributable to the application of road salt during winter.

In general, the background groundwater quality at the LF site consists of hard water with elevated hardness, alkalinity, manganese and iron content. During the 2022 monitoring, alkalinity concentrations in excess of the ODWS were noted at OW's 2S, 2D, 3D, 7S, 7D, 9D, 16D and 20D. Iron concentrations in excess of the ODWS were determined at all sampled wells including upgradient locations. Manganese concentrations in excess of the ODWS were determined for OW's 2S, 2D, 3D, 7S, 7D, 10S, 10D, 13D, 16D, 20S and 20D. As this list includes most sampled location these elevated concentrations are likely reflective of background groundwater quality in the area. The lack of significantly elevated manganese concentrations at OW-8, which is considered a leachate well and displays elevated sulphate concentrations, further suggests that elevated manganese concentrations are not landfill related.

The sulfate concentration at OW 8 of 444 mg/L in Spring 2022 was just below the ODWS of 500 mg/L and above the RUP of 253.9 mg/L. During the Fall 2022 monitoring, OW 8 was determined to be dry and was not sampled. The elevated concentration of sulfate is likely related to leachate groundwater impacts in the main refuse disposal area. No other on-site or off-site monitor exceeded the RUP for sulphate.

Parameter concentration trends through time for sulphate, chloride and manganese for selected off-site, property boundary and downgradient wells reviewed. Manganese concentrations trends do not suggest rising levels as would be expected if landfill related. Chloride trends do not suggest rising concentrations for these wells. In fact, several locations have shown slightly declining levels over the last few years. This is likely reflective of an effort on Township personnel's behalf to reduce salting in the area of the landfill entrance after several elevated chloride concentrations were detected in past years. As suggested at that time, those past elevated chloride concentrations appear to have been affected by these road salting activities.

The sulfate concentration trends for the selected wells show generally rising concentrations at OW-2S and OW-2D. Sulfate concentrations at the other selected wells do not indicate any discernible rising trends. Sulfate concentrations are generally higher in Fall than Spring. A site plan showing concentration distribution during Spring 2022 for shallow groundwater wells is provided in Figure 6 and for deep groundwater wells is provided in Figure 8, Appendix A. A site plan showing concentration distribution for Sulfate during Fall 2022 for shallow wells is provided on Figure 10 and for deep groundwater wells is provided on Figure 12, Appendix A.

A site plan showing chloride distribution during Spring 2022 is provided in Figure 7 for shallow groundwater wells and in Figure 9 for deep groundwater wells. A site plan showing chloride distribution during Fall 2022 is provided in Figure 11 and for shallow groundwater wells and in Figure 13 for deep groundwater wells.

Trace concentrations of VOC parameters, well below ODWS's and close to method detection limits, were determined for the 2022 monitoring at OW's 2D, 3D, 7S, and 10S. While these VOC concentrations are likely landfill related, they are not considered to be of significance at this landfill.

There was a general trend towards higher parameter concentrations during the Fall monitoring compared to Spring concentrations. This is a continuing trend, consistent with past findings and normal groundwater conditions.

Bluewater has evaluated the long-term trends in groundwater quality at the LF site. Most parameter concentrations have remained fairly steady over the past several years suggesting that dilution and attenuation are dealing adequately with the refuse area derived leachate impacts.

5.2 Surface Water

Surface water sampling was not completed during the Spring or Fall 2022 monitoring.

5.3 Methane Monitoring

Methane gas is a by-product of waste decomposition and will be generated in the waste unit until all the organic matter is completely decayed. Methane, while it is a potential explosion hazard, is not a major concern provided that no building is ever permitted within approximately 30 meters of the refuse disposal area. The shallow water table and relatively permeable cover material at the Melancthon landfill are expected to prevent significant migration of methane. Gas produced by the landfill is expected to vent naturally to the atmosphere. It should be noted however, that ice, snow cover, and frozen ground in the winter may prevent methane gas from venting and cause methane gas to migrate laterally from the refuse disposal area.

If methane is present in concentrations between 5% and 15% in air it can become explosive. Below this range, there is an inadequate amount of methane for explosion. Above this range, there is an inadequate amount of oxygen for explosion. Therefore, 5% is considered the Lower Explosive Limit (LEL) and 15% is considered the Upper Explosive Limit (UEL) for methane.

Headspace methane monitoring was completed on all wells during both Spring and Fall 2022 monitoring events. The results of the methane monitoring are presented in Table 2 Appendix B. A slight detectable methane concentration was determined for OW-8 however no other of the monitors had detectable methane concentrations during the Spring or Fall 2022 monitoring events. On-going methane monitoring should be incorporated in future monitoring events.

6.0 LANDFILL VOLUMES AND CAPACITY

The Melancthon landfill has a current design capacity of 297,000 m³ on the approved 6.1 ha area. At the completion of 2012, 89,326 m³ of the total volume had been filled. The volume survey completed during October 2013 determined that the landfill volume used during 2013 was 10,636 m³ meaning the total volume used to the end of 2015 is 99,962 m³. The 2013 volume included the importation of ~ 2,000 m³ of clean fill to cover the current fill area based on the end of waste receiving at the site. No waste was added during 2022. Based on this figure, the remaining fill volume for this design is 197,038 m³.

7.0 SUMMARY AND CONCLUSIONS

The following section summarizes the findings of the 2022 Annual Groundwater Monitoring Report:

- The Township of Melancthon operates a ‘natural attenuation’ landfill site in a remote, sparsely populated area of the Township. Surrounding land use is predominantly agricultural and the nearest residence is located ~450 m south of the site;
- During 2013 The County of Dufferin assumed waste collections and disposal responsibilities for Melancthon Township. No waste was imported to the landfill during 2022. At this time, further waste placement at this landfill is not anticipated given adequate service is maintained by the County;
- Two main hydrogeological units exist in the subsurface of the site. The upper unit, referred to as overburden, consists of sand and gravel and silty sand soils. The groundwater level in the overburden is unconfined and shallow (<2m) and shows seasonal fluctuations with Spring levels generally higher than those in Fall. This fluctuation is likely the result of the addition of snow melt water during the Spring. The second, deeper hydrogeological unit is the underlying dolostone bedrock aquifer. The water level in the bedrock is generally lower than in the overburden. This creates a downward vertical hydraulic gradient that allows landfill-generated impacts to potentially enter the bedrock aquifer;
- Mounding of groundwater occurs within both hydrogeological units within the refuse disposal area. This mounding creates a radial flow pattern in the refuse area that drives flow in all directions away from the mound. The groundwater then comes under the influence of the background (natural) flow regime. Groundwater flow in the overburden aquifer is northeast towards the entrance to the landfill in the northeast corner of the property. Flow in the bedrock aquifer is more-directly to the east and the eastern property boundary;
- Comparison of the laboratory analytical data from the Spring and Fall 2022 monitoring events to the applicable ODWS and RUP objectives indicates that background water quality exceeds ODWS Standards for alkalinity, iron and manganese;
- Exceedance of the MOE RUP objectives for parameters such as hardness, alkalinity, manganese and iron were determined at most sampled locations during 2022. These concentrations are likely at least partially unrelated to landfill impacts and reflect general water quality in Melancthon Township. No chloride RUP exceedance was noted for any off-site or on-site wells. Exceedance of the RUP for other leachate-indicators such as sulfate was not noted during 2022 near property boundaries. Exceedance of the RUP and ODWS for sulfate occurred at OW-8, located immediately downgradient of the principal fill area.
- Significant methane concentrations were not determined during 2022;
- The site is currently in compliance with the terms and conditions of its C of A.

8.0 RECOMMENDATIONS

The following recommendations are made regarding the future Groundwater Monitoring and Sampling Program at the Township of Melancthon landfill site:

- Continuation of the semi-annual groundwater monitoring and sampling program including a routine site inspection, recording of static water levels at all 34 monitoring locations and groundwater sampling and laboratory analysis of the selected monitoring wells in both Spring and Fall;
- Preparation and submission of an Annual Monitoring Report to MECP for review.
- Natural dilution of contaminants derived in the refuse disposal area coupled with natural attenuation in the overburden appears to be dealing with derived groundwater impacts adequately at this time. The widespread occurrence, including upgradient locations, of ODWS and RUP exceeding manganese, iron, hardness and alkalinity concentrations appears to be more a function of natural geologic conditions than landfill-derived impacts. Lab results for monitors downgradient of the principal fill areas show more elevated chloride and sulphate concentrations, which are not similar to findings in the northeast corner of the property.
- Monitoring for headspace methane concentration in all wells should be continued for the 2023 program.

9.0 REFERENCES

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10.0 LIMITATIONS

This report was prepared for the exclusive use of The Township of Melancthon. This report is based on information and data collected during the completion of an environmental investigation of the Site carried out by Bluewater Geoscience Consultants Inc., and is based solely on the site conditions encountered at the time of the assessment and the applicable guidelines in place at the time of this investigation.

It should be noted that the observations and recommendations presented in this report are limited to the actual locations explored and laboratory parameters analyzed. The information presented in terms of the thickness and types of the sub-soils encountered, groundwater levels and chemical testing results, etc., are only applicable to the actual locations explored. Variations may be present between these locations. Should significant variation become apparent during later investigations, it may be necessary to re-evaluate the recommendations of this report. The results of an investigation of this nature should, in no way, be construed as a warranty that the site is free from any and all contamination from past or current practices since conditions may be different from the locations tested. This assessment was carried out using existing historical information as available from various agencies and no assurance is made regarding the accuracy or completeness of this information.

If new information is discovered during future work, including excavation, borings or other studies, Bluewater Geoscience Consultants Inc. should be requested to re-evaluate the conclusions presented in this report and to provide amendments as required. The analytical test results are assumed to be correct and performed according to all current regulations. No audit of the laboratory's methods or procedures was performed.

This assessment does not include, nor is it intended to include, any option regarding the suitability of any structure on the site for any particular function, the integrity of the on-site buildings or the

geotechnical conditions on the site. Inspections of buildings do not include compliance with building, gas, electrical or boiler codes, or any other federal, provincial or municipal codes not associated with environmental concerns. Should concerns regarding any issue other than environmental matters arise as a result of our investigations, appropriately qualified professionals should address them.

This report is not to be reproduced or released to any other party, in whole or in part, without the express written consent of Bluewater Geoscience Consultants Inc.

11.0 CLOSURE

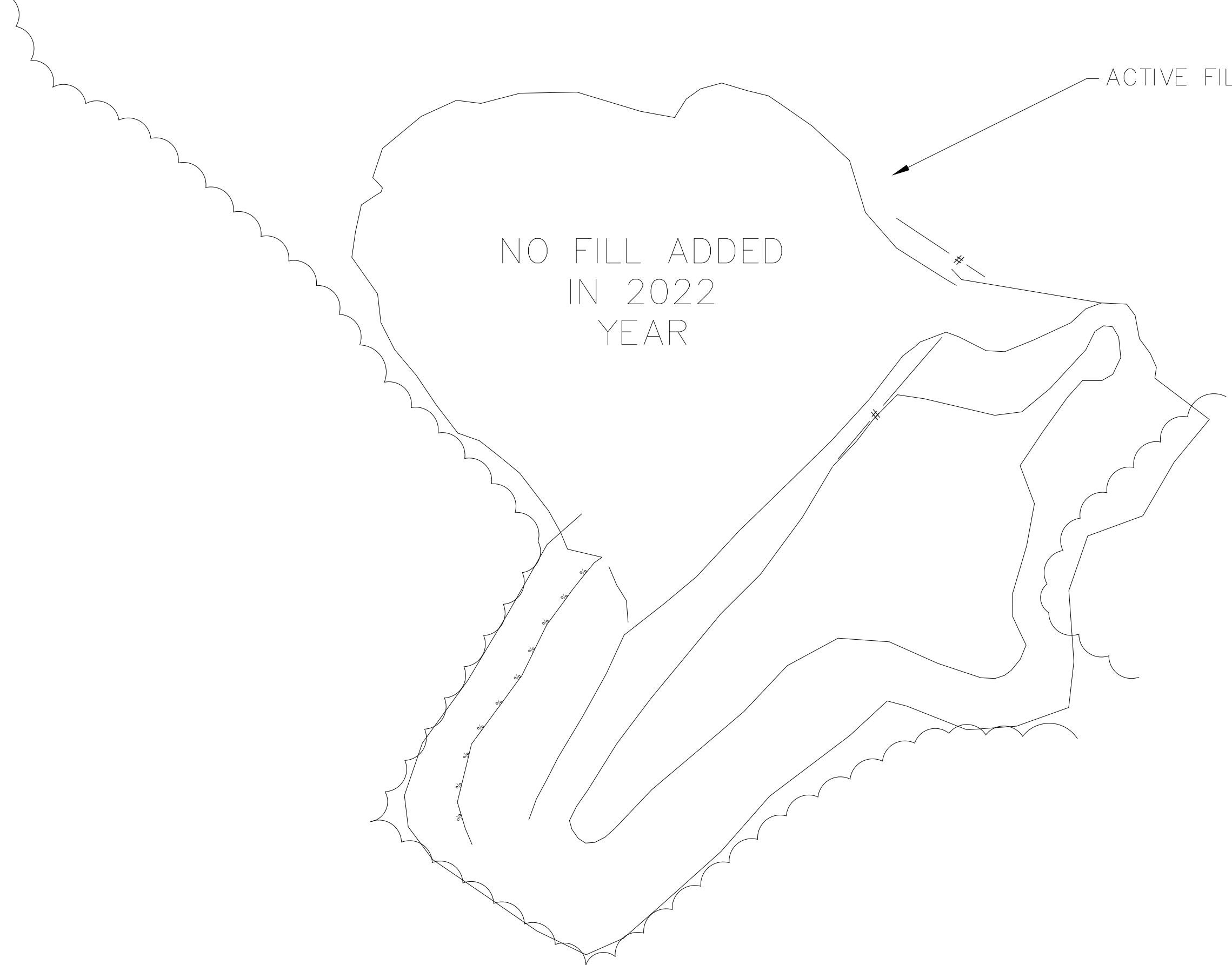
Bluewater Geoscience Consultants Inc. operates under a Certificate of Authorization from The Association of Professional Geoscientists of Ontario (APGO). Breton Lemieux is a registered Qualified Person (QP) with MECP and is a licensed Professional Geoscientist with over thirty-five years of international environmental consulting experience. Mr. Lemieux has a Geologic Technologist Diploma from Fleming College in Lindsay, Ontario, an Honours Bachelor of Science degree in Geology from the University of the West Indies in Kingston, Jamaica and a Master of Science degree in Earth Sciences from the University of Waterloo. His experience includes conducting Phase I, II and III ESAs at a wide variety of contaminated sites, underground storage tank removal supervision, water supply development, environmental building science and other site and landfill environmental monitoring projects.

APPENDIX A

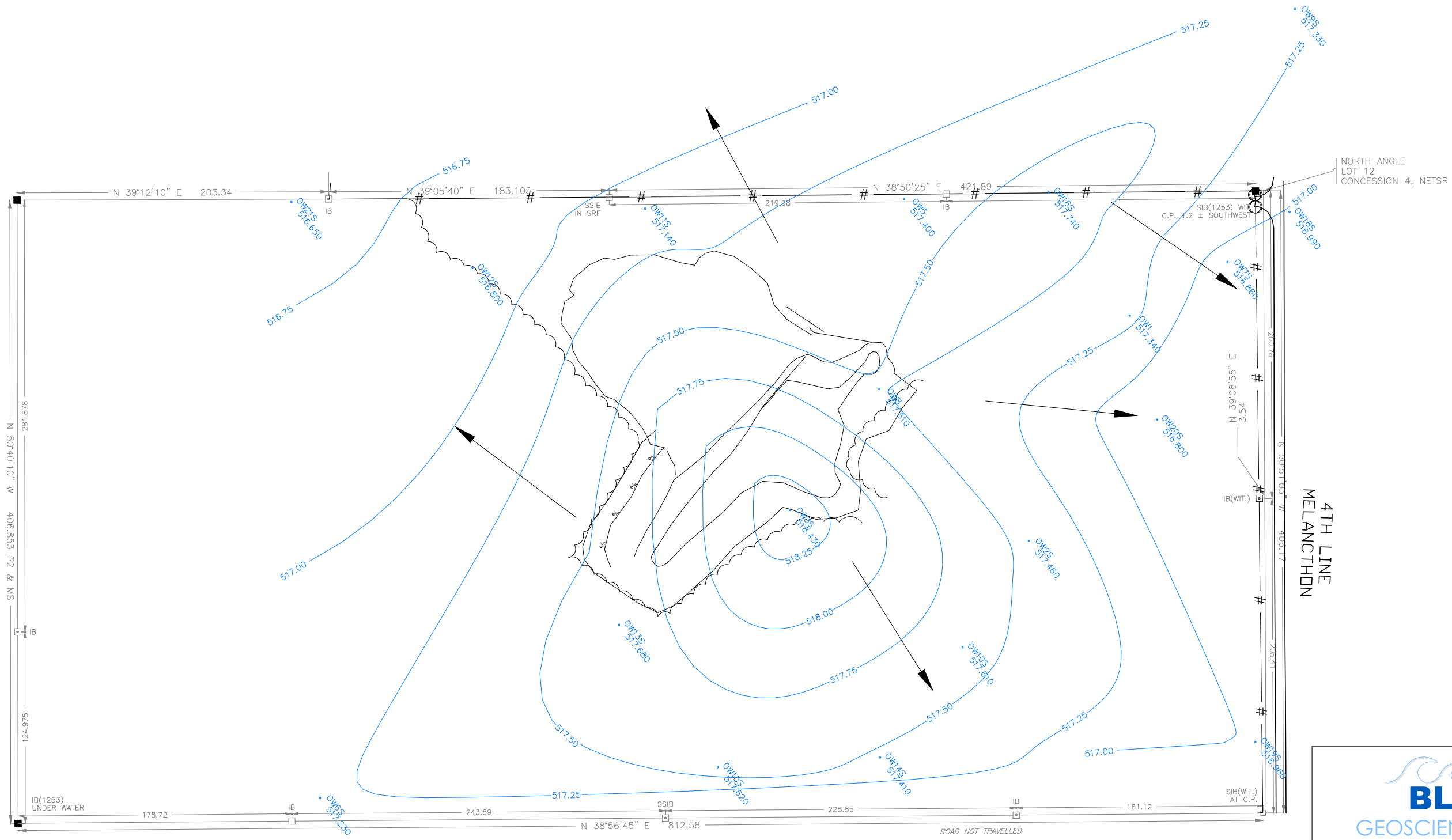
FIGURES

39°05'40" E 183.105 # # # # # # # # # # N 38°50'25" E 421.89 # # # #

SSIB IN SRF 219.98 IB



TOWNSHIP OF MELANCTHON			
LANDFILL			
ACTIVE FILL AREA – FALL 2022			
DRAWN BY: J.Y.	APPROVED BY: -	PROJECT NO: BG-817	FIGURE NO. 1
DESIGNED BY: -	DATE: DEC. 2022	SCALE: N.T.S.	



NORTH ANGLE
LOT 12
CONCESSION 4, NETSR

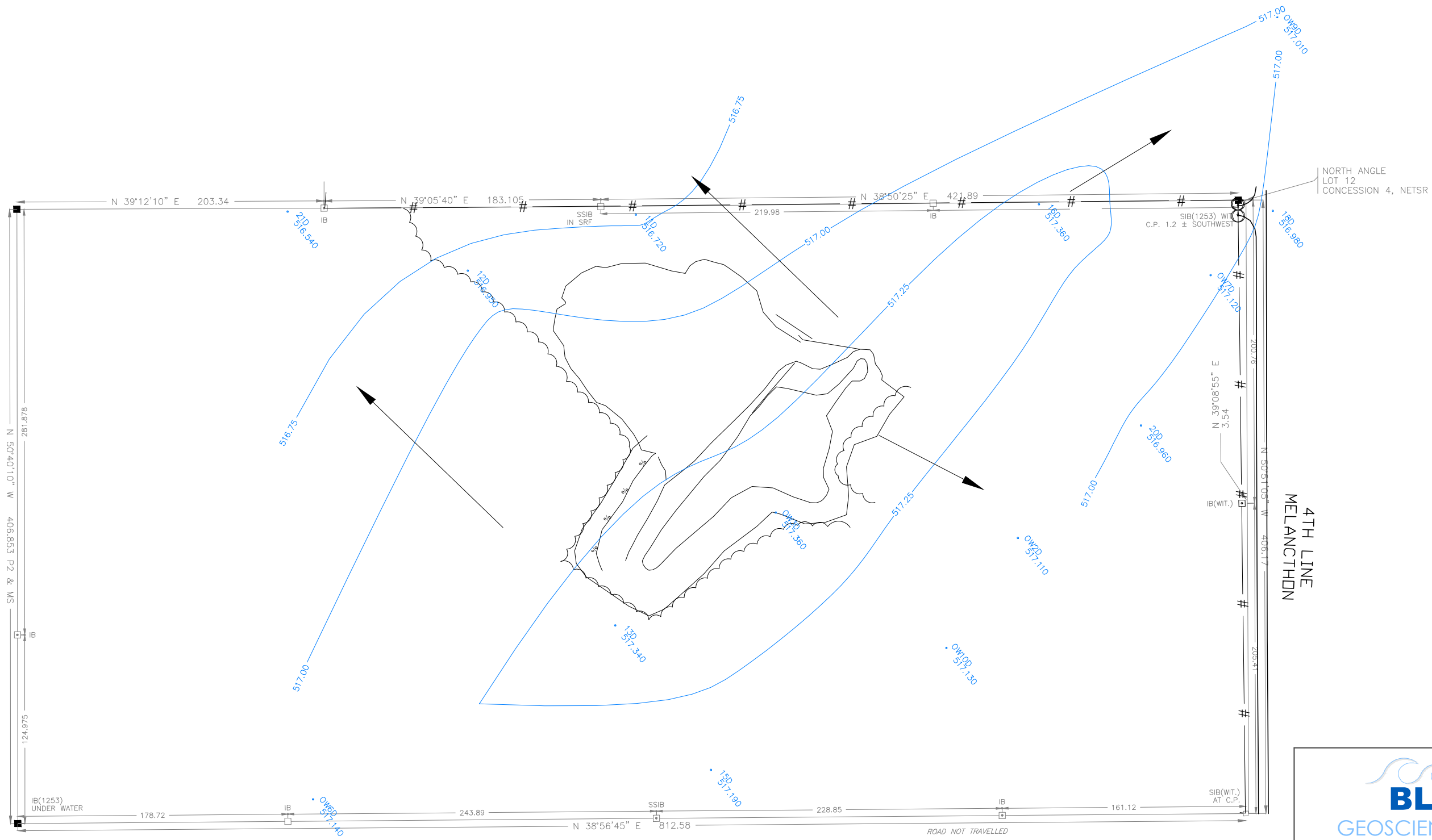
4TH LINE
MELANCTHON




TOWNSHIP OF MELANCTHON LANDFILL
SHALLOW AQUIFER GROUNDWATER FLOW
SPRING 2022

OW155 517.510 MONITOR WELL GROUNDWATER ELEVATION
517.25 GROUNDWATER CONTOUR (0.25m INTERVAL)
GW FLOW DIRECTION

DRAWN BY: J.Y.	APPROVED BY: -	PROJECT NO: BG-817	FIGURE NO. 2
DESIGNED BY: -	DATE: DEC. 2022	SCALE: N.T.S.	



15D
517.270 MONITOR WELL
GROUNDWATER ELEVATION
 517.25 GROUNDWATER CONTOUR (0.25m INTERVAL)
 —————> GW FLOW DIRECTION



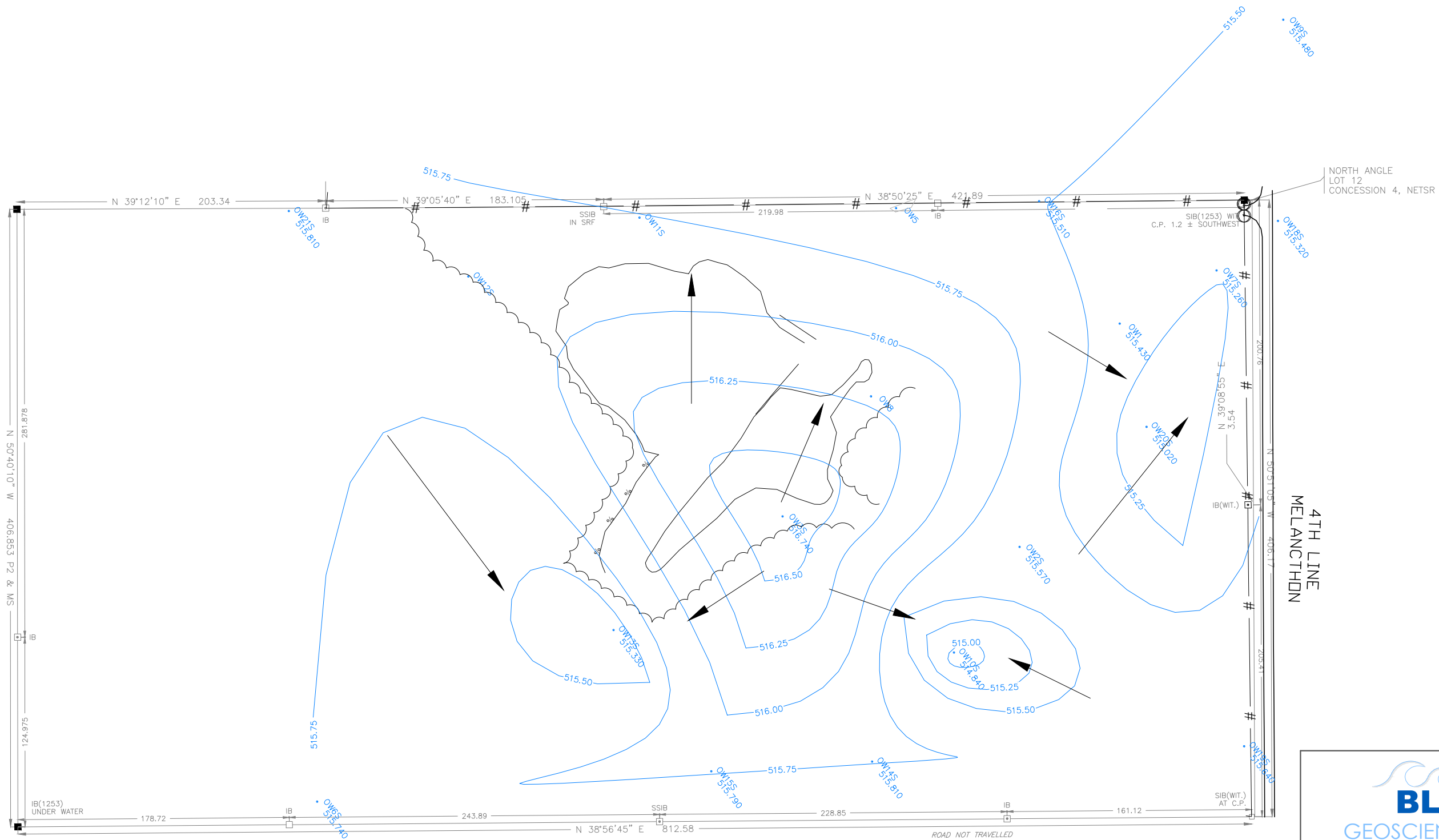
BLUEWATER
GEOSCIENCE CONSULTANTS Inc.

TOWNSHIP OF MELANCTHON LANDFILL

DEEP AQUIFER GROUNDWATER FLOW

SPRING 2022

DRAWN BY: J.Y.	APPROVED BY: -	PROJECT NO: BG-817	FIGURE NO. 3
DESIGNED BY: -	DATE: DEC. 2022	SCALE: N.T.S.	




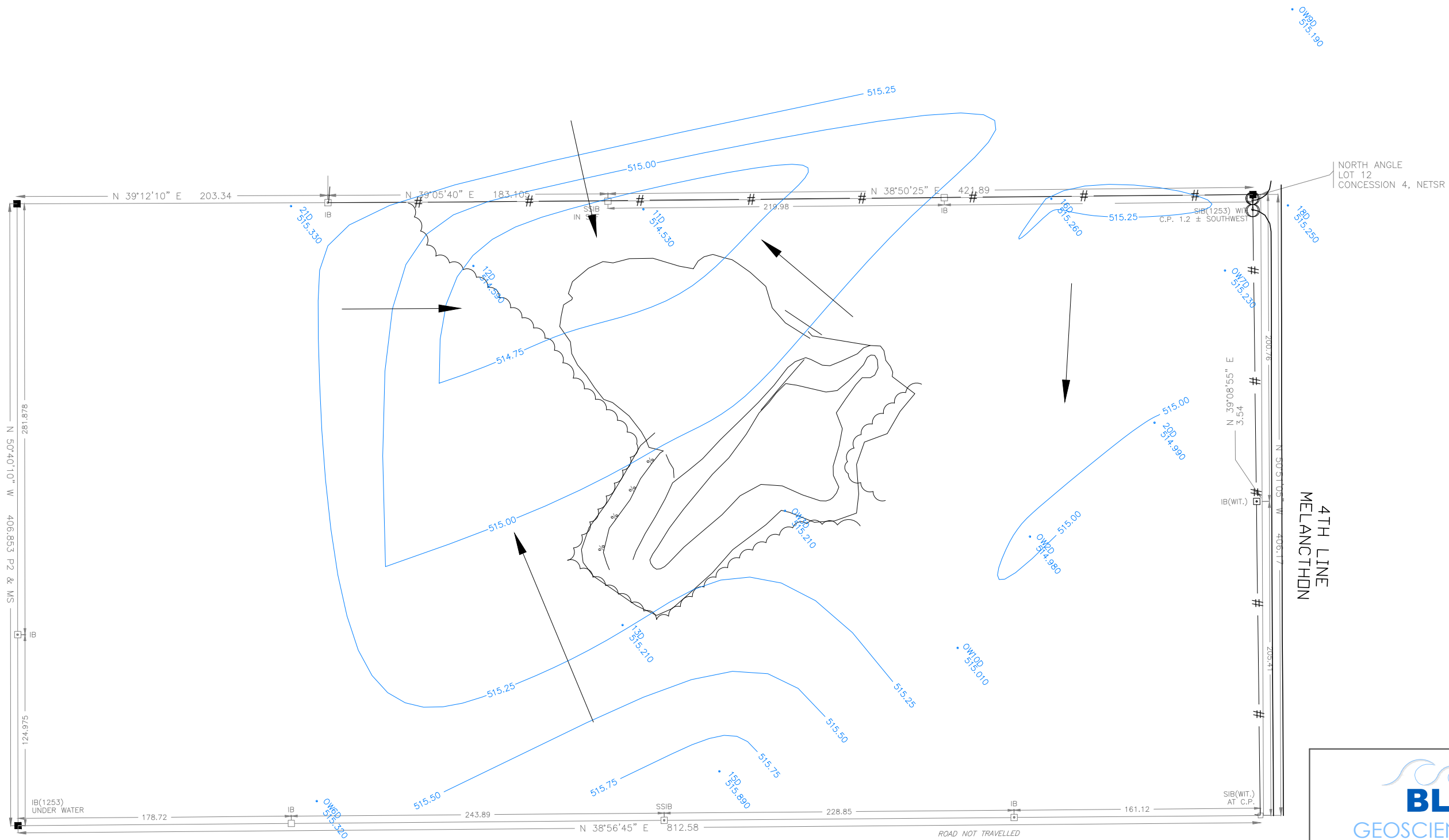
● OW155 515.800 MONITOR WELL GROUNDWATER ELEVATION
— 516.50 GROUNDWATER CONTOUR (0.25m INTERVAL)
→ GW FLOW DIRECTION

NORTH ANGLE
LOT 12
CONCESSION 4, NETSR


4TH LINE
MELANCTHON

ROAD NOT TRAVELLED

			
TOWNSHIP OF MELANCTHON LANDFILL			
SHALLOW AQUIFER GROUNDWATER FLOW			
FALL 2022			
DRAWN BY: J.Y.	APPROVED BY: —	PROJECT NO: BG-817	4
DESIGNED BY: —	DATE: DEC.2022	SCALE: N.T.S.	



15D 515.310 MONITOR WELL GROUNDWATER ELEVATION
 515.2 GROUNDWATER CONTOUR (0.25m INTERVAL)
 → GW FLOW DIRECTION



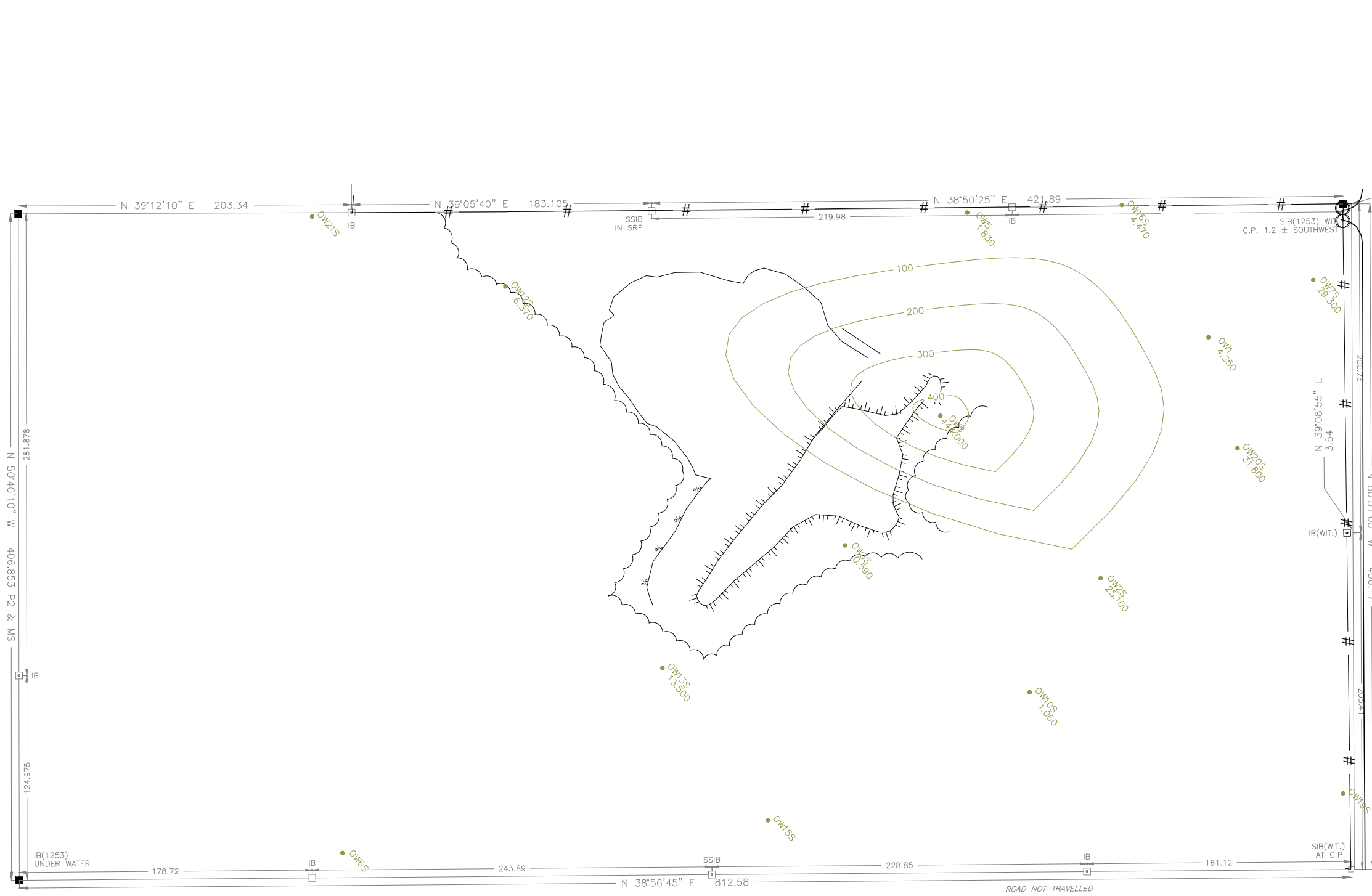
BLUEWATER
GEOSCIENCE CONSULTANTS Inc.

TOWNSHIP OF MELANCTHON LANDFILL

DEEP AQUIFER GROUNDWATER FLOW


FALL 2022

DRAWN BY: J.Y.	APPROVED BY: -	PROJECT NO: BG-817	FIGURE NO. 5
DESIGNED BY: -	DATE: DEC. 2022	SCALE: N.T.S.	



NORTH ANGLE
LOT 12
CONCESSION 4, NETSR

4TH LINE
MELANCTHON



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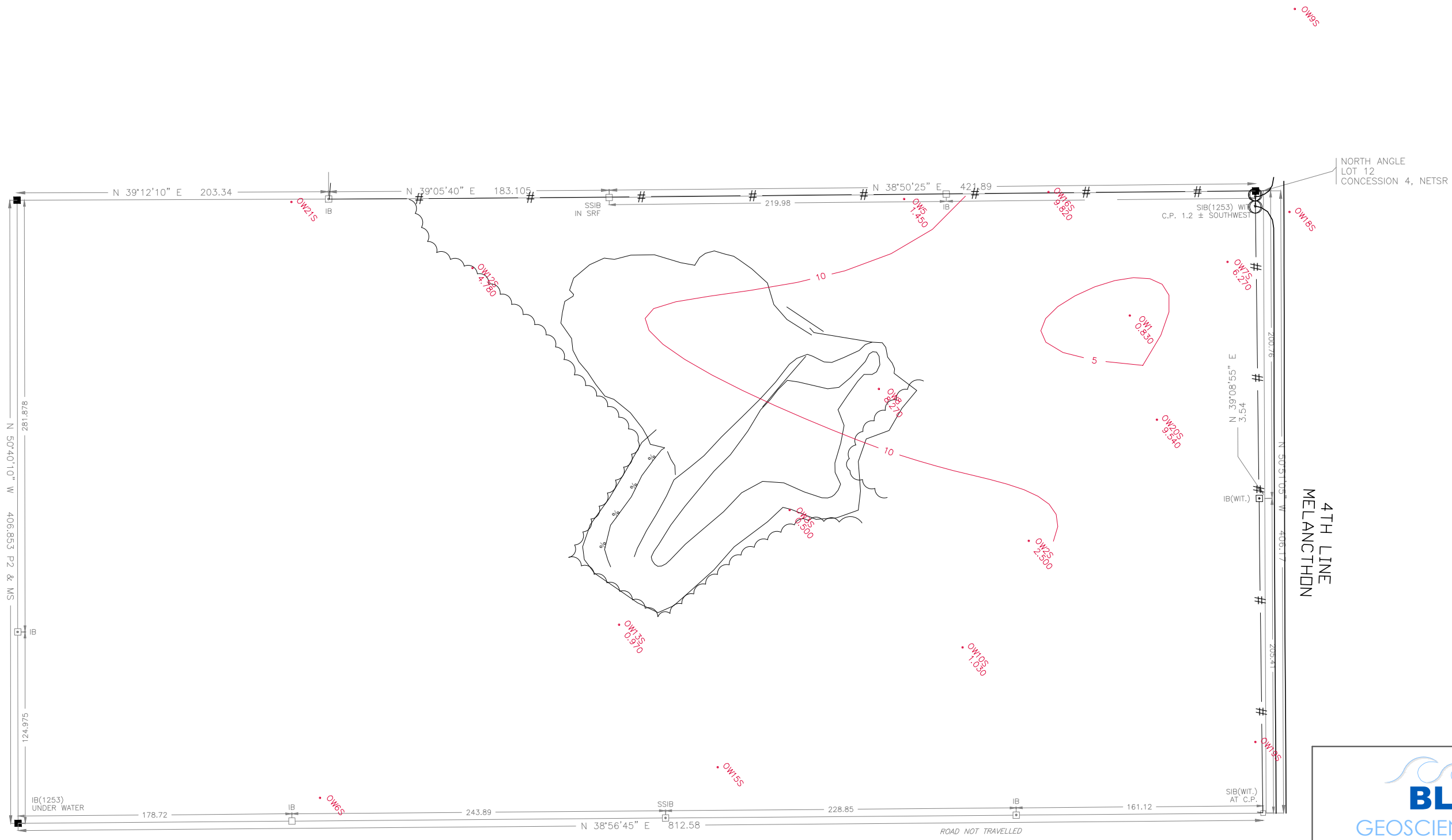
TOWNSHIP OF MELANCTHON LANDFILL

SULPHATE G.W. CONCENTRATION


SHALLOW AQUIFER – SPRING 2022

DRAWN BY: J.Y.	APPROVED BY: -	PROJECT NO: BG-817	FIGURE NO. 6
DESIGNED BY: -	DATE: DEC. 2022	SCALE: N.T.S.	

● OW15S 30.900 MONITOR WELL
 SULPHATE GW CONCENTRATION (mg/l)
— 200.0 — SULPHATE GW CONTOUR (100mg/L INTERVAL)



• OW15S 1.120 MONITOR WELL CHLORIDE GW CONCENTRATION (mg/L)
— 10.0 CHLORIDE GW CONTOUR (5mg/L INTERVAL)



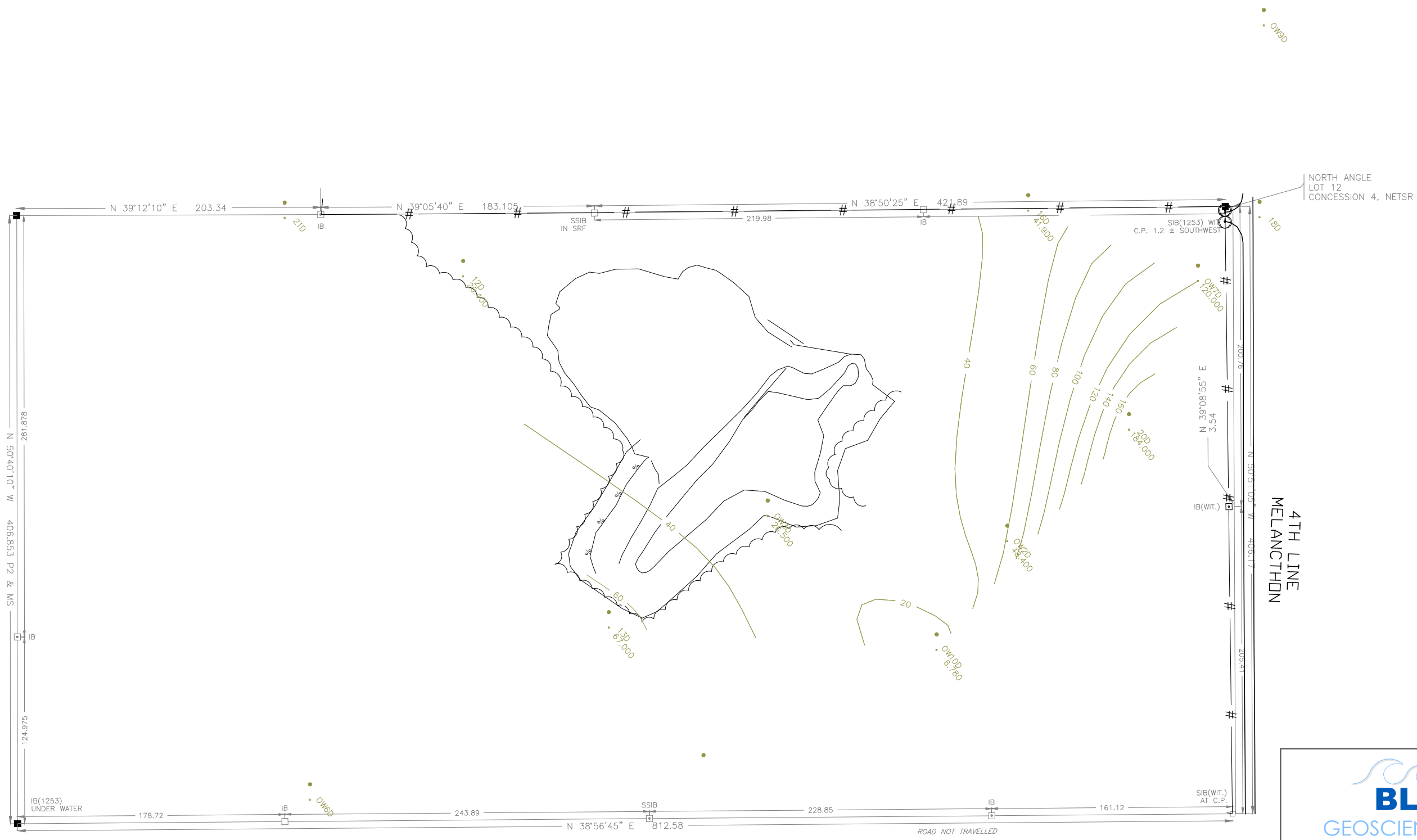
BLUEWATER
GEOSCIENCE CONSULTANTS Inc.


TOWNSHIP OF MELANCTHON LANDFILL

CHLORIDE G.W. CONCENTRATION

SHALLOW AQUIFER — SPRING 2022

DRAWN BY: J.Y.	APPROVED BY: -	PROJECT NO: BG-817	FIGURE NO. 7
DESIGNED BY: -	DATE: DEC. 2022	SCALE: N.T.S.	



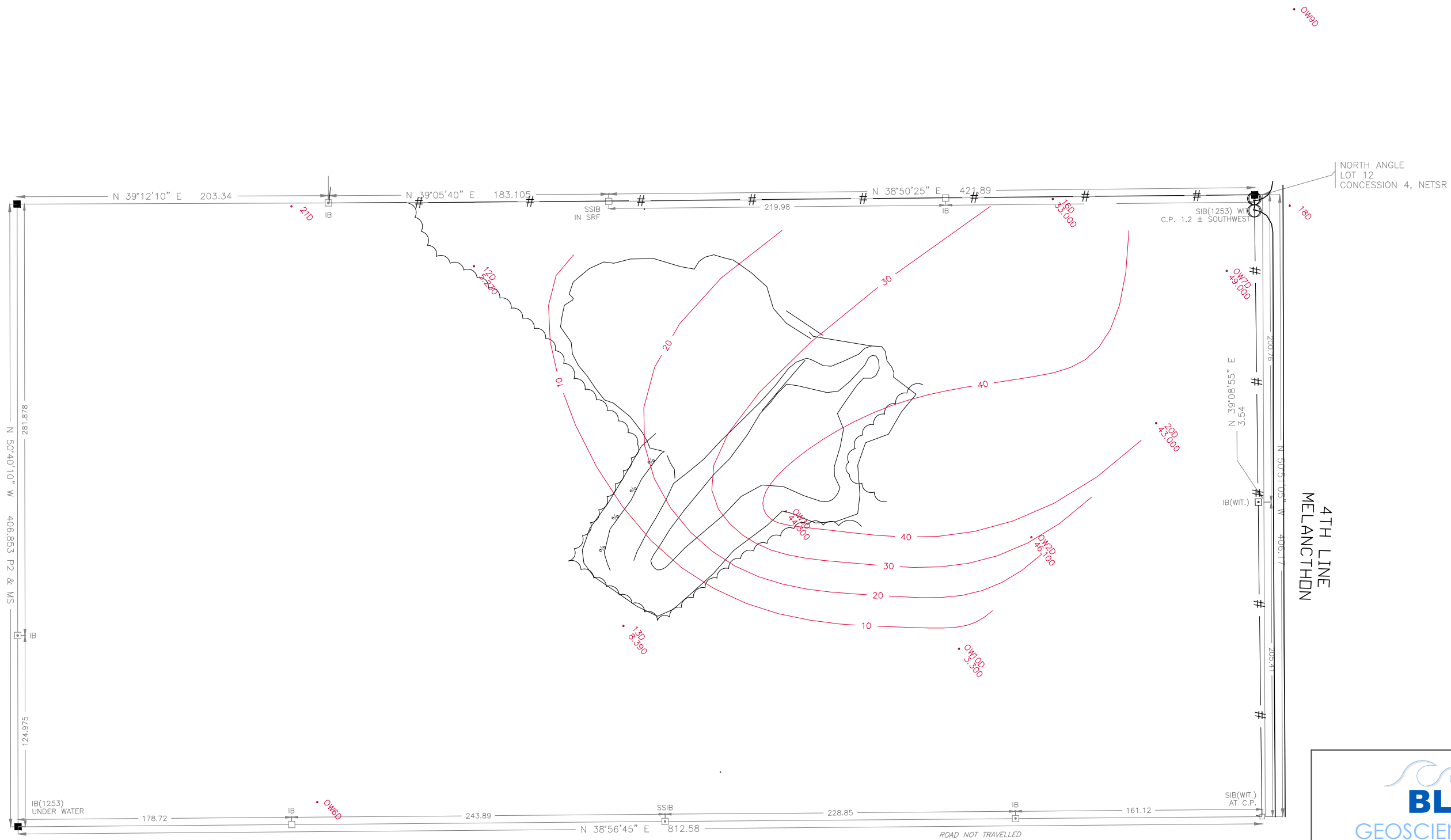

BLUEWATER
 GEOSCIENCE CONSULTANTS Inc.

TOWNSHIP OF MELANCTHON LANDFILL


SULPHATE G.W. CONCENTRATION

DEEP AQUIFER – SPRING 2022

DRAWN BY: J.Y.	APPROVED BY: -	PROJECT NO: BG-817	FIGURE NO. 8
DESIGNED BY: -	DATE: DEC. 2022	SCALE: N.T.S.	



OW15D 11.600 MONITOR WELL CHLORIDE GW CONCENTRATION (mg/L)
 20.0 CHLORIDE GW CONTOUR (10mg/L INTERVAL)

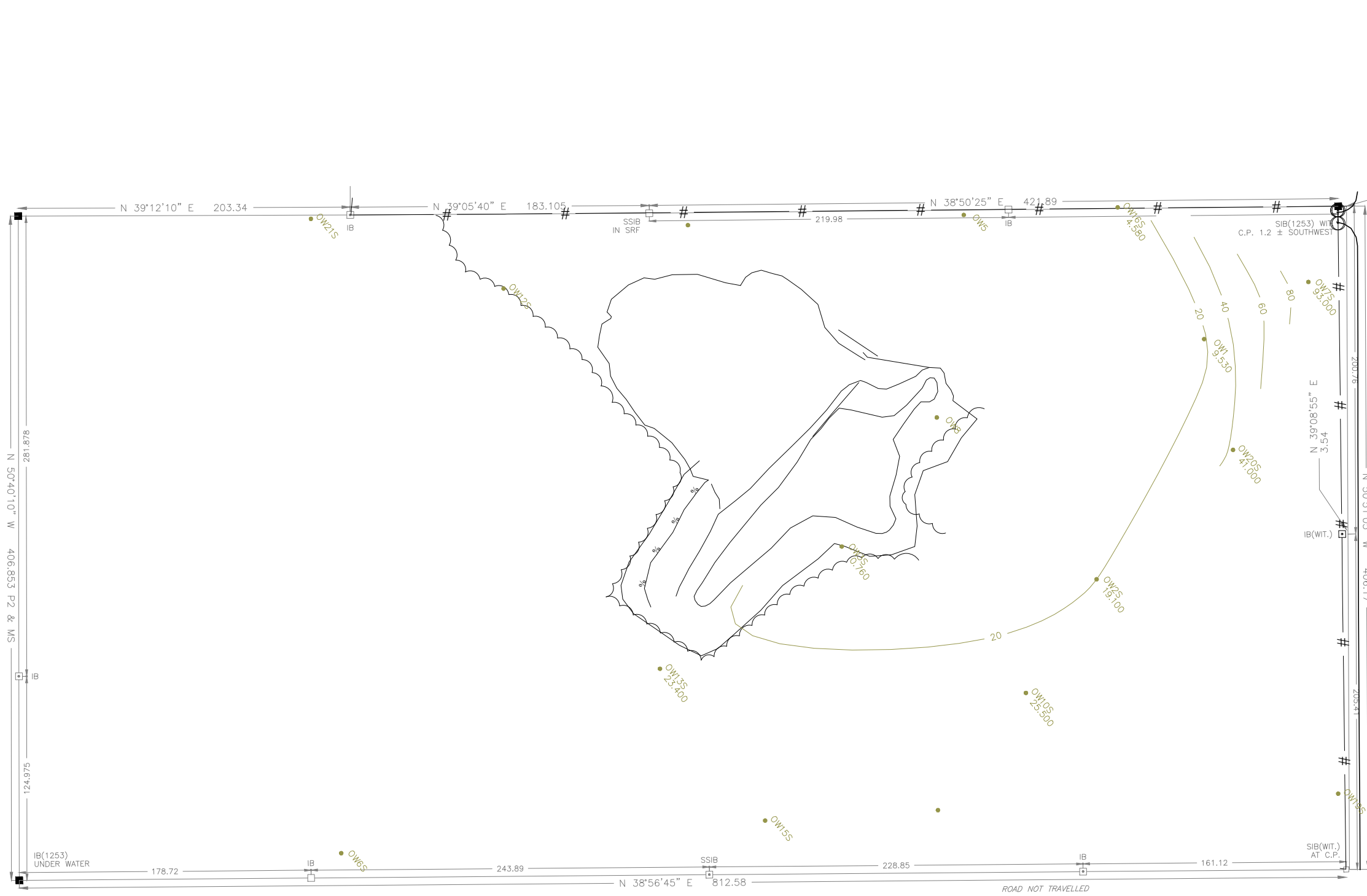

BLUEWATER
 GEOSCIENCE CONSULTANTS Inc.

TOWNSHIP OF MELANCTHON LANDFILL

CHLORIDE G.W. CONCENTRATION


DEEP AQUIFER – SPRING 2022

DRAWN BY: J.Y.	APPROVED BY: -	PROJECT NO: BG-817	FIGURE NO. 9
DESIGNED BY: -	DATE: DEC. 2022	SCALE: N.T.S.	



NORTH ANGLE
LOT 12
CONCESSION 4, NETSR

4TH LINE
MELANCTHON



BLUEWATER
GEOSCIENCE CONSULTANTS Inc.

TOWNSHIP OF MELANCTHON LANDFILL

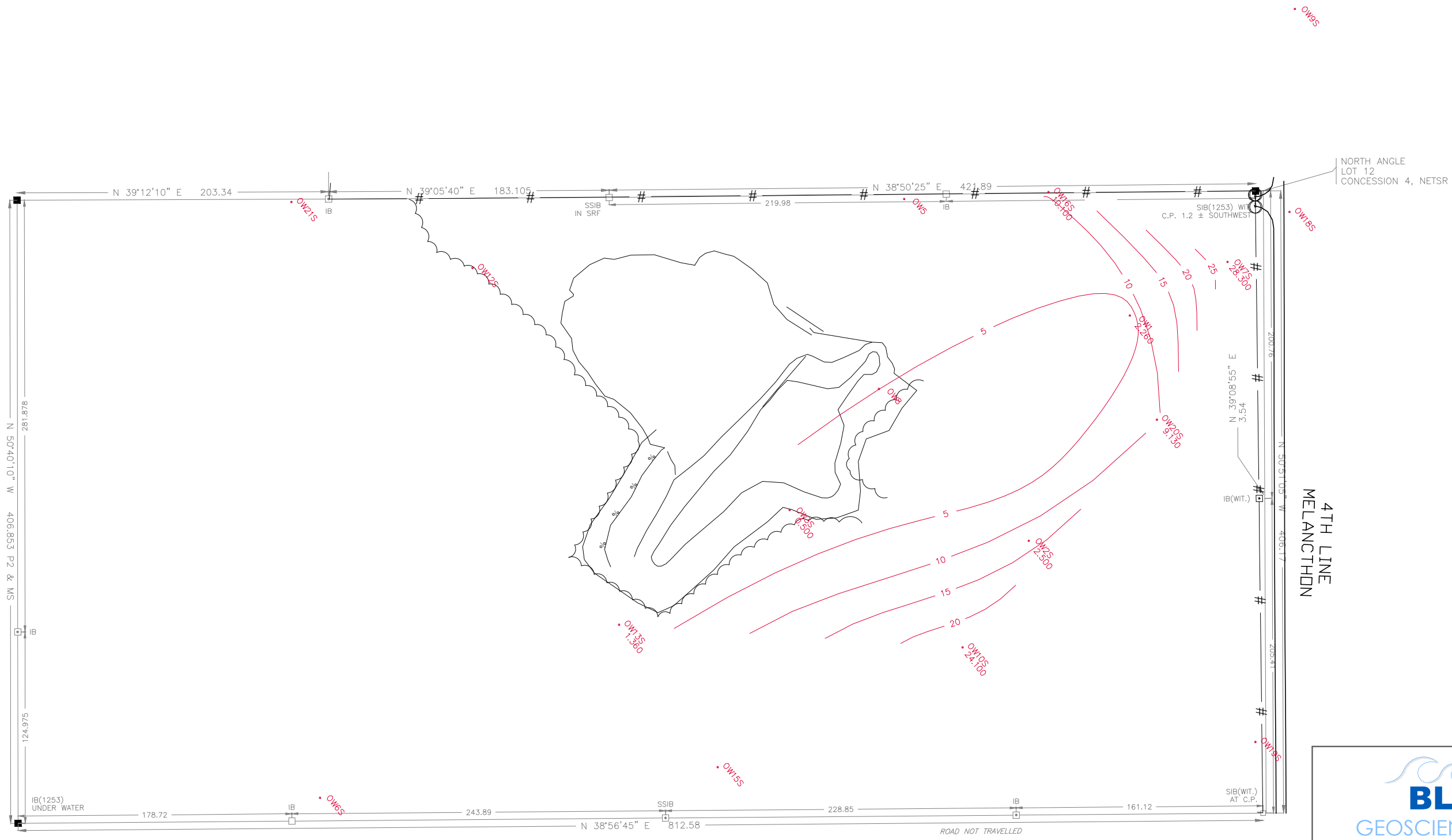
SULPHATE G.W. CONCENTRATION

SHALLOW AQUIFER – FALL 2022

DRAWN BY: J.Y.	APPROVED BY: -	PROJECT NO: BG-817	FIGURE NO. 10
DESIGNED BY: -	DATE: DEC. 2022	SCALE: N.T.S.	

● OW15S 32.300 MONITOR WELL
SULPHATE GW CONCENTRATION (mg/l)

— 100.0 — SULPHATE GW CONTOUR (100mg/L INTERVAL)



NORTH ANGLE
LOT 12
CONCESSION 4, NETSR

4TH LINE
MELANCTHON



TOWNSHIP OF MELANCTHON LANDFILL

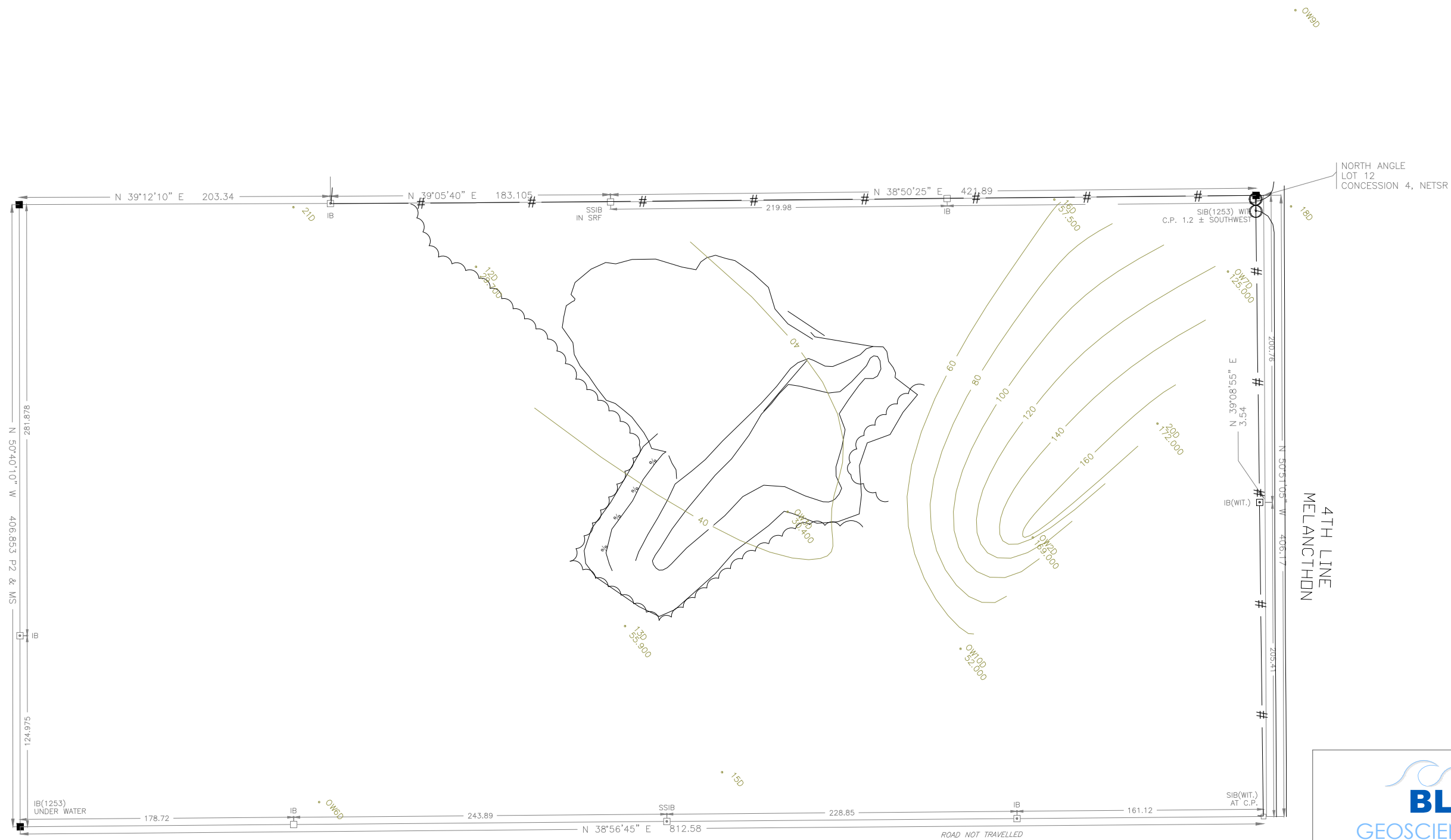
CHLORIDE G.W. CONCENTRATION

SHALLOW AQUIFER – FALL 2022

DRAWN BY: J.Y.	APPROVED BY: -	PROJECT NO: BG-817	FIGURE NO. 11
DESIGNED BY: -	DATE: DEC. 2022	SCALE: N.T.S.	

OW15S
0.910 MONITOR WELL
CHLORIDE GW CONCENTRATION (mg/L)

10.0 CHLORIDE GW CONTOUR (5mg/L INTERVAL)



NORTH ANGLE
LOT 12
CONCESSION 4, NETSR

4TH LINE
MELANCTHON

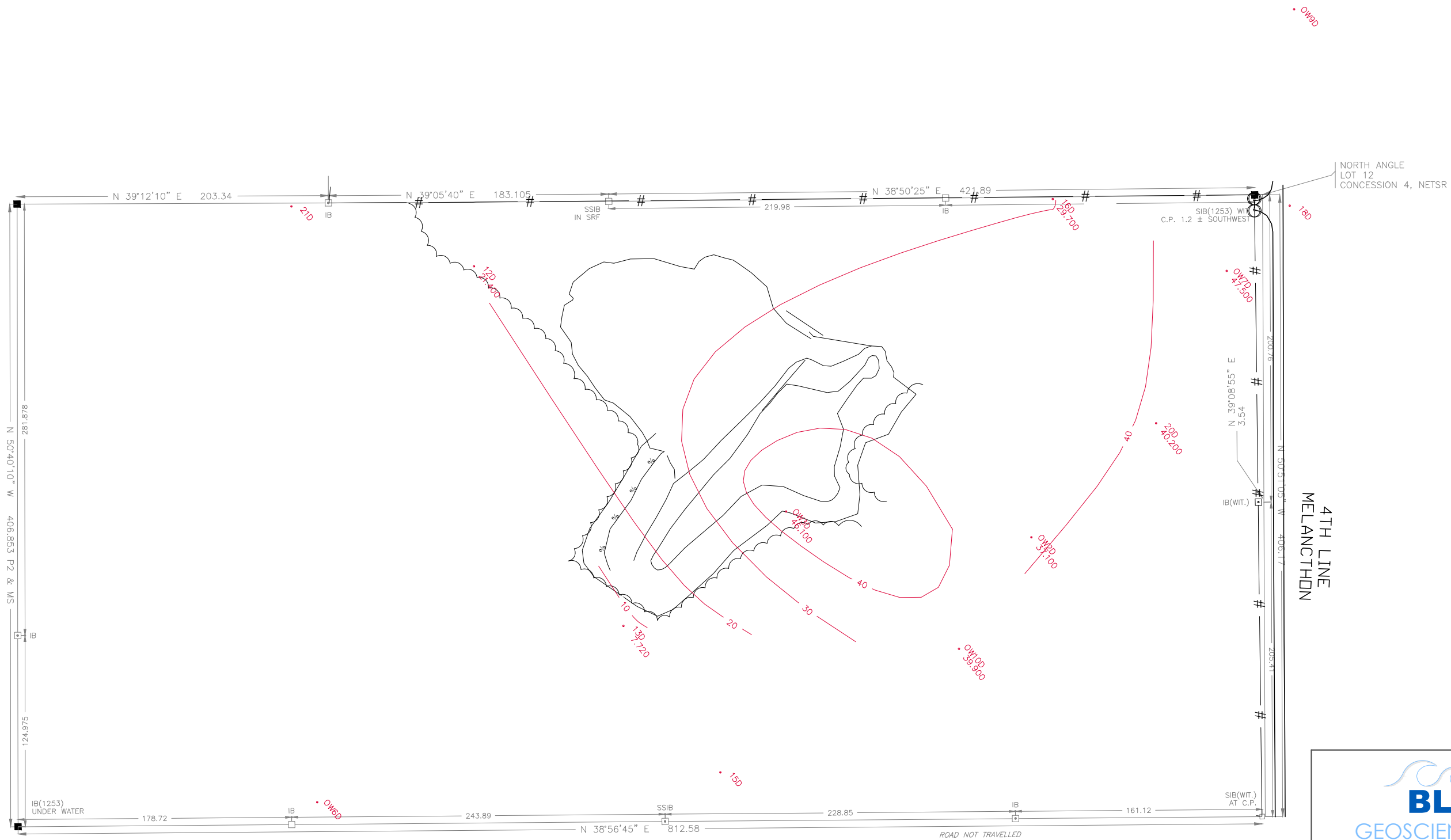


TOWNSHIP OF MELANCTHON LANDFILL


SULPHATE G.W. CONCENTRATION

DEEP AQUIFER – FALL 2022

DRAWN BY: J.Y.	APPROVED BY: -	PROJECT NO: BG-817	FIGURE NO. 12
DESIGNED BY: -	DATE: DEC. 2022	SCALE: N.T.S.	



OW15D MONITOR WELL
 13.500 CHLORIDE GW CONCENTRATION (mg/L)
 20.0 CHLORIDE GW CONTOUR (10mg/L INTERVAL)



BLUEWATER
GEOSCIENCE CONSULTANTS Inc.

TOWNSHIP OF MELANCTHON LANDFILL

CHLORIDE G.W. CONCENTRATION

DEEP AQUIFER – FALL 2022

DRAWN BY: J.Y.	APPROVED BY: -	PROJECT NO: BG-817	FIGURE NO. 13
DESIGNED BY: -	DATE: DEC. 2022	SCALE: N.T.S.	

APPENDIX B

GROUNDWATER AND METHANE MONITORING
AND
LABORATORY ANALYSIS RESULTS TABLES

Table 2:
Headspace Methane Concentrations

	Methane Conc.(ppm)	Methane Conc. (ppm)	Methane Conc. (ppm)	Methane Conc. (ppm)	Methane Conc. (ppm)	Methane Conc. (ppm)	Methane Conc. (ppm)	Methane Conc. (ppm)	Methane Conc. (ppm)	Methane Conc. (ppm)	Methane Conc. (ppm)	Methane Conc. (ppm)	Methane Conc. (ppm)	Methane Conc. (ppm)	Methane Conc. (ppm)	Methane Conc. (ppm)	Methane Conc. (ppm)	Methane Conc. (ppm)	Methane Conc. (ppm)	Methane Conc. (ppm)	Methane Conc. (ppm)	Methane Conc. (ppm)	Methane Conc. (ppm)	Methane Conc. (ppm)	Methane Conc. (ppm)	Methane Conc. (ppm)	Methane Conc. (ppm)	Methane Conc. (ppm)	Methane Conc. (ppm)	Methane Conc. (ppm)	
Well	5-May-08	30-Oct-08	1-May-09	27-Oct-09	6-May'10	10-Nov'10	10-May'11	31-Oct'11	21-May-'12	24-Oct-'12	22-Apr-13	4-Nov-13	28-Apr-14	22-Oct-14	28-Apr-15	22-Oct-15	3-May-16	19-Oct-16	25-Apr-17	25-Oct-17	30-Apr-18	25-Oct-18	30-Apr-19	25-Oct-19	28-Apr-20	14-Oct-20	18-May-21	13-Oct-21	4-May-22	25-Oct-22	
OW1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
OW2S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
OW2D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
OW3S	0	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
OW3D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
OW4S	Destroyed	Destroyed	Destroyed	Destroyed	Destroyed	Destroyed	Destroyed	Destroyed	Destroyed	Destroyed	Destroyed	Destroyed	Destroyed	Destroyed	Destroyed	Destroyed	Destroyed	Destroyed	Destroyed	Destroyed	Destroyed	Destroyed	Destroyed	Destroyed	Destroyed	Destroyed	Destroyed	Destroyed	Destroyed	Destroyed	
OW4D	Destroyed	Destroyed	Destroyed	Destroyed	Destroyed	Destroyed	Destroyed	Destroyed	Destroyed	Destroyed	Destroyed	Destroyed	Destroyed	Destroyed	Destroyed	Destroyed	Destroyed	Destroyed	Destroyed	Destroyed	Destroyed	Destroyed	Destroyed	Destroyed	Destroyed	Destroyed	Destroyed	Destroyed	Destroyed	Destroyed	
OW5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
OW6S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
OW6D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
OW7S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
OW7D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
OW8	0	0	0	0	0	0	10	10	15	10	15	10	25	15	20	10	15	10	10	5	5	5	10	5	5	5	5	5	0	5	0
OW9S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
OW9D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
OW10S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
OW10D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
OW11S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
OW11D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
OW12S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
OW12D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
OW13S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
OW13D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
OW14S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
OW15S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
OW15D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
OW16S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
OW16D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
OW17S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Destroyed	Destroyed	Destroyed	Destroyed	Destroyed	Destroyed	Destroyed	Destroyed	Destroyed	Destroyed	Destroyed	Destroyed	Destroyed	Destroyed	Destroyed	Destroyed	
OW18S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
OW18D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
OW-19S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
OW-20S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
OW-20D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
OW021S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
OW-21D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	



1,2-Dichloropropane	N/V	5	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
1,3-Dichlorobenzene	N/V	630	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
1,4-Dichlorobenzene	5	1	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
2-Chloroethylvinyl Ether	N/V	N/V	N/V	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
2-Hexanone	N/V	N/V	N/V	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT
Acetone	N/V	300	N/V	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT
Benzene	5	5	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Bromodichloromethane	N/V	5	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Bromoform	N/V	5	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Bromomethane	N/V	10	N/V	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT
Carbon Disulfide	N/V	N/V	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Carbon tetrachloride	5	5	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Chlorobenzene	N/V	30	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Chloroethane	N/V	N/V	N/V	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT
Chloroform	N/V	5	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Chloromethane	N/V	N/V	N/V	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT
cis-1,2-Dichloroethylene	N/V	70	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
cis-1,3-Dichloropropene	N/V	1.4	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Dibromochloromethane	N/V	5	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Dichlorodifluoromethane	N/V	N/V	N/V	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT
Dichloromethane	50	5	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Ethyl Benzene	2.4	2.4	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
m+p-Xylenes	N/V	N/V	N/V	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT
Methyl Ethyl Ketone	N/V	350	N/V	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT
Methyl Isobutyl Ketone	N/V	350	N/V	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT
MTBE	N/V	700	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
o-Xylene	N/V	N/V	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Styrene	N/V	100	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Tetrachloroethylene	30	5	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Toluene	24	24	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
trans-1,2-Dichloroethylene	N/V	0.1	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
trans-1,3-Dichloropropene	N/V	N/V	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Trichloroethylene	50	50	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Trichlorofluoromethane	N/V	N/V	N/V	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT
Trihalomethanes (total)	100	N/V	N/V	<2	NT	<2	NT	<2	NT	<2	NT	<2	NT	<2	NT	<2	NT	<2	NT
Vinyl chloride	2	1.3	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Xylenes (Total)	300	300	N/V	<1.5	NT	<1.5	NT	<1.5	NT	<1.5	NT	<1.5	NT	<1.5	NT	<1.5	NT	<1.5	NT

Notes:

OWDS - Ontario Drinking Water Standards (mg/L) from Ont. Reg. 169/03

SCS - Table 2 Site Condition Standards (mg/L) from Ont. Reg. 153/04

RUP - Reasonable Use Policy from Guideline B-7, MOEE, 1994

Values shown in **BOLD** exceed ODWS

N/V - No Value. No maximum concentration assigned.

NT - Not Tested, no analysis completed for this parameter/sample

Analyses completed at ALS Laboratory Group in Waterloo, ON

Benzene	5	5	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Bromodichloromethane	N/V	5	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Bromoform	N/V	5	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Bromomethane	N/V	10	N/V	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT
Carbon Disulfide	N/V	N/V	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Carbon tetrachloride	5	5	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Chlorobenzene	N/V	30	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Chloroethane	N/V	N/V	N/V	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT
Chloroform	N/V	5	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Chloromethane	N/V	N/V	N/V	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT
cis-1,2-Dichloroethylene	N/V	70	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
cis-1,3-Dichloropropene	N/V	1.4	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Dibromochloromethane	N/V	5	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Dichlorodifluoromethane	N/V	N/V	N/V	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT
Dichloromethane	50	5	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Ethyl Benzene	2.4	2.4	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
m+p-Xylenes	N/V	N/V	N/V	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT
Methyl Ethyl Ketone	N/V	350	N/V	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT
Methyl Isobutyl Ketone	N/V	350	N/V	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT
MTBE	N/V	700	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
o-Xylene	N/V	N/V	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Styrene	N/V	100	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Tetrachloroethylene	30	5	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Toluene	24	24	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
trans-1,2-Dichloroethylene	N/V	0.1	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
trans-1,3-Dichloropropene	N/V	N/V	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Trichloroethylene	50	50	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Trichlorofluoromethane	N/V	N/V	N/V	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT
Trihalomethanes (total)	100	N/V	N/V	<2	NT	<2	NT	<2	NT	<2	NT	<2	NT	<2	NT	<2	NT	<2	NT
Vinyl chloride	2	1.3	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Xylenes (Total)	300	300	N/V	<1.5	NT	<1.5	NT	<1.5	NT	<1.5	NT	<1.5	NT	<1.5	NT	<1.5	NT	<1.5	NT

Notes:

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SCS - Table 2 Site Condition Standards (mg/L) from Ont. Reg. 153/04

RUP - Reasonable Use Policy from Guideline B-7, MOEE, 1994

Values shown in **BOLD** exceed ODWS

N/V - No Value. No maximum concentration assigned.

NT - Not Tested, no analysis completed for this parameter/sample

Analyses completed at ALS Laboratory Group in Waterloo, ON

2-Chloroethylvinyl Ether	N/V	N/V	N/V	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
2-Hexanone	N/V	N/V	N/V	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT
Acetone	N/V	300	N/V	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT
Benzene	5	5	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Bromodichloromethane	N/V	5	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Bromoform	N/V	5	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Bromomethane	N/V	10	N/V	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT
Carbon Disulfide	N/V	N/V	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Carbon tetrachloride	5	5	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Chlorobenzene	N/V	30	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Chloroethane	N/V	N/V	N/V	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT
Chloroform	N/V	5	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Chloromethane	N/V	N/V	N/V	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT
cis-1,2-Dichloroethylene	N/V	70	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
cis-1,3-Dichloropropene	N/V	1.4	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Dibromochloromethane	N/V	5	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Dichlorodifluoromethane	N/V	N/V	N/V	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT
Dichloromethane	50	5	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Ethyl Benzene	2.4	2.4	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
m+p-Xylenes	N/V	N/V	N/V	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT
Methyl Ethyl Ketone	N/V	350	N/V	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT
Methyl Isobutyl Ketone	N/V	350	N/V	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT
MTBE	N/V	700	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
o-Xylene	N/V	N/V	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Styrene	N/V	100	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Tetrachloroethylene	30	5	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Toluene	24	24	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
trans-1,2-Dichloroethylene	N/V	0.1	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
trans-1,3-Dichloropropene	N/V	N/V	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Trichloroethylene	50	50	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Trichlorofluoromethane	N/V	N/V	N/V	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT
Trihalomethanes (total)	100	N/V	N/V	<2	NT	<2	NT	<2	NT	<2	NT	<2	NT	<2	NT	<2	NT	<2	NT
Vinyl chloride	2	1.3	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Xylenes (Total)	300	300	N/V	<1.5	NT	<1.5	NT	<1.5	NT	<1.5	NT	<1.5	NT	<1.5	NT	<1.5	NT	<1.5	NT

Notes:

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Values shown in **BOLD** exceed ODWS

N/V - No Value. No maximum concentration assigned.

NT - Not Tested, no analysis completed for this parameter/sample

Analyses completed at ALS Laboratory Group in Waterloo, ON

2-Chloroethylvinyl Ether	N/V	N/V	N/V	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
2-Hexanone	N/V	N/V	N/V	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT
Acetone	N/V	300	N/V	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT
Benzene	5	5	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Bromodichloromethane	N/V	5	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Bromoform	N/V	5	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Bromomethane	N/V	10	N/V	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT
Carbon Disulfide	N/V	N/V	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Carbon tetrachloride	5	5	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Chlorobenzene	N/V	30	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Chloroethane	N/V	N/V	N/V	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT
Chloroform	N/V	5	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Chloromethane	N/V	N/V	N/V	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT
cis-1,2-Dichloroethylene	N/V	70	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
cis-1,3-Dichloropropene	N/V	1.4	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Dibromochloromethane	N/V	5	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Dichlorodifluoromethane	N/V	N/V	N/V	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT
Dichloromethane	50	5	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Ethyl Benzene	2.4	2.4	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
m+p-Xylenes	N/V	N/V	N/V	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT
Methyl Ethyl Ketone	N/V	350	N/V	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT
Methyl Isobutyl Ketone	N/V	350	N/V	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT
MTBE	N/V	700	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
o-Xylene	N/V	N/V	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Styrene	N/V	100	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Tetrachloroethylene	30	5	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Toluene	24	24	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
trans-1,2-Dichloroethylene	N/V	0.1	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
trans-1,3-Dichloropropene	N/V	N/V	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Trichloroethylene	50	50	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Trichlorofluoromethane	N/V	N/V	N/V	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT
Trihalomethanes (total)	100	N/V	N/V	<2	NT	<2	NT	<2	NT	<2	NT	<2	NT	<2	NT	<2	NT	<2	NT
Vinyl chloride	2	1.3	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Xylenes (Total)	300	300	N/V	<1.5	NT	<1.5	NT	<1.5	NT	<1.5	NT	<1.5	NT	<1.5	NT	<1.5	NT	<1.5	NT

Notes:

OWDS - Ontario Drinking Water Standards (mg/L) from Ont. Reg. 169/03

SCS - Table 2 Site Condition Standards (mg/L) from Ont. Reg. 153/04

RUP - Reasonable Use Policy from Guideline B-7, MOEE, 1994

Values shown in **BOLD** exceed ODWS

N/V - No Value. No maximum concentration assigned.

NT - Not Tested, no analysis completed for this parameter/sample

Analyses completed at ALS Laboratory Group in Waterloo, ON

2-Chloroethylvinyl Ether	N/V	N/V	N/V	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
2-Hexanone	N/V	N/V	N/V	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT
Acetone	N/V	300	N/V	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT
Benzene	5	5	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Bromodichloromethane	N/V	5	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Bromoform	N/V	5	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Bromomethane	N/V	10	N/V	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT
Carbon Disulfide	N/V	N/V	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Carbon tetrachloride	5	5	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Chlorobenzene	N/V	30	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Chloroethane	N/V	N/V	N/V	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT
Chloroform	N/V	5	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Chloromethane	N/V	N/V	N/V	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT
cis-1,2-Dichloroethylene	N/V	70	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
cis-1,3-Dichloropropene	N/V	1.4	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Dibromochloromethane	N/V	5	N/V	<0.5	NT	<0.5	NT	<0.5	NT	2.8	NT	2.8	NT	2.8	NT	2.8	NT	2.8	NT
Dichlorodifluoromethane	N/V	N/V	N/V	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT
Dichloromethane	50	5	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Ethyl Benzene	2.4	2.4	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
m+p-Xylenes	N/V	N/V	N/V	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT
Methyl Ethyl Ketone	N/V	350	N/V	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT
Methyl Isobutyl Ketone	N/V	350	N/V	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT
MTBE	N/V	700	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
o-Xylene	N/V	N/V	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Styrene	N/V	100	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Tetrachloroethylene	30	5	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Toluene	24	24	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
trans-1,2-Dichloroethylene	N/V	0.1	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
trans-1,3-Dichloropropene	N/V	N/V	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Trichloroethylene	50	50	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Trichlorofluoromethane	N/V	N/V	N/V	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT
Trihalomethanes (total)	100	N/V	N/V	<2	NT	<2	NT	<2	NT	<2	NT	<2	NT	<2	NT	<2	NT	<2	NT
Vinyl chloride	2	1.3	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Xylenes (Total)	300	300	N/V	<1.5	NT	<1.5	NT	<1.5	NT	<1.5	NT	<1.5	NT	<1.5	NT	<1.5	NT	<1.5	NT

Notes:

OWDS - Ontario Drinking Water Standards (mg/L) from Ont. Reg. 169/03

SCS - Table 2 Site Condition Standards (mg/L) from Ont. Reg. 153/04

RUP - Reasonable Use Policy from Guideline B-7, MOEE, 1994

Values shown in **BOLD** exceed ODWS

N/V - No Value. No maximum concentration assigned.

NT - Not Tested, no analysis completed for this parameter/sample

Analyses completed at ALS Laboratory Group in Waterloo, ON

2-Chloroethylvinyl Ether	N/V	N/V	N/V	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
2-Hexanone	N/V	N/V	N/V	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT
Acetone	N/V	300	N/V	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT
Benzene	5	5	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Bromodichloromethane	N/V	5	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Bromoform	N/V	5	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Bromomethane	N/V	10	N/V	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT
Carbon Disulfide	N/V	N/V	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Carbon tetrachloride	5	5	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Chlorobenzene	N/V	30	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Chloroethane	N/V	N/V	N/V	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT
Chloroform	N/V	5	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Chloromethane	N/V	N/V	N/V	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT
cis-1,2-Dichloroethylene	N/V	70	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
cis-1,3-Dichloropropene	N/V	1.4	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Dibromochloromethane	N/V	5	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Dichlorodifluoromethane	N/V	N/V	N/V	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT
Dichloromethane	50	5	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Ethyl Benzene	2.4	2.4	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
m+p-Xylenes	N/V	N/V	N/V	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT
Methyl Ethyl Ketone	N/V	350	N/V	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT
Methyl Isobutyl Ketone	N/V	350	N/V	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT
MTBE	N/V	700	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
o-Xylene	N/V	N/V	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Styrene	N/V	100	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Tetrachloroethylene	30	5	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Toluene	24	24	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
trans-1,2-Dichloroethylene	N/V	0.1	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
trans-1,3-Dichloropropene	N/V	N/V	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Trichloroethylene	50	50	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Trichlorofluoromethane	N/V	N/V	N/V	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT
Trihalomethanes (total)	100	N/V	N/V	<2	NT	<2	NT	<2	NT	<2	NT	<2	NT	<2	NT	<2	NT	<2	NT
Vinyl chloride	2	1.3	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Xylenes (Total)	300	300	N/V	<1.5	NT	<1.5	NT	<1.5	NT	<1.5	NT	<1.5	NT	<1.5	NT	<1.5	NT	<1.5	NT

Notes:

OWDS - Ontario Drinking Water Standards (mg/L) from Ont. Reg. 169/03

SCS - Table 2 Site Condition Standards (mg/L) from Ont. Reg. 153/04

RUP - Reasonable Use Policy from Guideline B-7, MOEE, 1994

Values shown in **BOLD** exceed ODWS

N/V - No Value. No maximum concentration assigned.

NT - Not Tested, no analysis completed for this parameter/sample

Analyses completed at ALS Laboratory Group in Waterloo, ON

2-Chloroethylvinyl Ether	N/V	N/V	N/V	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
2-Hexanone	N/V	N/V	N/V	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT
Acetone	N/V	300	N/V	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT
Benzene	5	5	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Bromodichloromethane	N/V	5	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Bromoform	N/V	5	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Bromomethane	N/V	10	N/V	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT
Carbon Disulfide	N/V	N/V	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Carbon tetrachloride	5	5	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Chlorobenzene	N/V	30	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Chloroethane	N/V	N/V	N/V	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT
Chloroform	N/V	5	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Chloromethane	N/V	N/V	N/V	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT
cis-1,2-Dichloroethylene	N/V	70	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
cis-1,3-Dichloropropene	N/V	1.4	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Dibromochloromethane	N/V	5	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Dichlorodifluoromethane	N/V	N/V	N/V	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT
Dichloromethane	50	5	N/V	<0.5	NT	<0.5	NT	<0.5	NT	2.4	NT	2.4	NT	<2	NT	<2	NT	<2	NT
Ethyl Benzene	2.4	2.4	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
m+p-Xylenes	N/V	N/V	N/V	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT
Methyl Ethyl Ketone	N/V	350	N/V	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT
Methyl Isobutyl Ketone	N/V	350	N/V	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT
MTBE	N/V	700	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
o-Xylene	N/V	N/V	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Styrene	N/V	100	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Tetrachloroethylene	30	5	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Toluene	24	24	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
trans-1,2-Dichloroethylene	N/V	0.1	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
trans-1,3-Dichloropropene	N/V	N/V	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Trichloroethylene	50	50	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Trichlorofluoromethane	N/V	N/V	N/V	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT
Trihalomethanes (total)	100	N/V	N/V	<2	NT	<2	NT	<2	NT	<2	NT	<2	NT	<2	NT	<2	NT	<2	NT
Vinyl chloride	2	1.3	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Xylenes (Total)	300	300	N/V	<1.5	NT	<1.5	NT	<1.5	NT	<1.5	NT	<1.5	NT	<1.5	NT	<1.5	NT	<1.5	NT

Notes:

OWDS - Ontario Drinking Water Standards (mg/L) from Ont. Reg. 169/03

SCS - Table 2 Site Condition Standards (mg/L) from Ont. Reg. 153/04

RUP - Reasonable Use Policy from Guideline B-7, MOEE, 1994

Values shown in **BOLD** exceed ODWS

N/V - No Value. No maximum concentration assigned.

NT - Not Tested, no analysis completed for this parameter/sample

Analyses completed at ALS Laboratory Group in Waterloo, ON

2-Chloroethylvinyl Ether	N/V	N/V	N/V	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
2-Hexanone	N/V	N/V	N/V	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT
Acetone	N/V	300	N/V	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT
Benzene	5	5	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Bromodichloromethane	N/V	5	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Bromoform	N/V	5	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Bromomethane	N/V	10	N/V	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT
Carbon Disulfide	N/V	N/V	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Carbon tetrachloride	5	5	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Chlorobenzene	N/V	30	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Chloroethane	N/V	N/V	N/V	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT
Chloroform	N/V	5	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Chloromethane	N/V	N/V	N/V	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT
cis-1,2-Dichloroethylene	N/V	70	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
cis-1,3-Dichloropropene	N/V	1.4	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Dibromochloromethane	N/V	5	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Dichlorodifluoromethane	N/V	N/V	N/V	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT
Dichloromethane	50	5	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Ethyl Benzene	2.4	2.4	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
m+p-Xylenes	N/V	N/V	N/V	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT
Methyl Ethyl Ketone	N/V	350	N/V	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT
Methyl Isobutyl Ketone	N/V	350	N/V	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT
MTBE	N/V	700	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
o-Xylene	N/V	N/V	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Styrene	N/V	100	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Tetrachloroethylene	30	5	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Toluene	24	24	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
trans-1,2-Dichloroethylene	N/V	0.1	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
trans-1,3-Dichloropropene	N/V	N/V	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Trichloroethylene	50	50	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Trichlorofluoromethane	N/V	N/V	N/V	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT
Trihalomethanes (total)	100	N/V	N/V	<2	NT	<2	NT	<2	NT	<2	NT	<2	NT	<2	NT	<2	NT	<2	NT
Vinyl chloride	2	1.3	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Xylenes (Total)	300	300	N/V	<1.5	NT	<1.5	NT	<1.5	NT	<1.5	NT	<1.5	NT	<1.5	NT	<1.5	NT	<1.5	NT

Notes:

OWDS - Ontario Drinking Water Standards (mg/L) from Ont. Reg. 169/03

SCS - Table 2 Site Condition Standards (mg/L) from Ont. Reg. 153/04

RUP - Reasonable Use Policy from Guideline B-7, MOEE, 1994

Values shown in **BOLD** exceed ODWS

N/V - No Value. No maximum concentration assigned.

NT - Not Tested, no analysis completed for this parameter/sample

Analyses completed at ALS Laboratory Group in Waterloo, ON

2-Chloroethylvinyl Ether	N/V	N/V	N/V	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
2-Hexanone	N/V	N/V	N/V	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT
Acetone	N/V	300	N/V	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT
Benzene	5	5	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Bromodichloromethane	N/V	5	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Bromoform	N/V	5	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Bromomethane	N/V	10	N/V	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT
Carbon Disulfide	N/V	N/V	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Carbon tetrachloride	5	5	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Chlorobenzene	N/V	30	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Chloroethane	N/V	N/V	N/V	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT
Chloroform	N/V	5	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Chloromethane	N/V	N/V	N/V	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT
cis-1,2-Dichloroethylene	N/V	70	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
cis-1,3-Dichloropropene	N/V	1.4	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Dibromochloromethane	N/V	5	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Dichlorodifluoromethane	N/V	N/V	N/V	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT
Dichloromethane	50	5	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	2.5	NT	2.5	NT	2.5	NT	2.5	NT
Ethyl Benzene	2.4	2.4	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
m+p-Xylenes	N/V	N/V	N/V	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT
Methyl Ethyl Ketone	N/V	350	N/V	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT
Methyl Isobutyl Ketone	N/V	350	N/V	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT
MTBE	N/V	700	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
o-Xylene	N/V	N/V	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Styrene	N/V	100	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Tetrachloroethylene	30	5	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Toluene	24	24	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
trans-1,2-Dichloroethylene	N/V	0.1	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
trans-1,3-Dichloropropene	N/V	N/V	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Trichloroethylene	50	50	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Trichlorofluoromethane	N/V	N/V	N/V	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT
Trihalomethanes (total)	100	N/V	N/V	<2	NT	<2	NT	<2	NT	<2	NT	<2	NT	<2	NT	<2	NT	<2	NT
Vinyl chloride	2	1.3	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Xylenes (Total)	300	300	N/V	<1.5	NT	<1.5	NT	<1.5	NT	<1.5	NT	<1.5	NT	<1.5	NT	<1.5	NT	<1.5	NT

Notes:

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Values shown in **BOLD** exceed ODWS

N/V - No Value. No maximum concentration assigned.

NT - Not Tested, no analysis completed for this parameter/sample

Analyses completed at ALS Laboratory Group in Waterloo, ON

2-Chloroethylvinyl Ether	N/V	N/V	N/V	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
2-Hexanone	N/V	N/V	N/V	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT
Acetone	N/V	300	N/V	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT
Benzene	5	5	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Bromodichloromethane	N/V	5	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Bromoform	N/V	5	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Bromomethane	N/V	10	N/V	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT
Carbon Disulfide	N/V	N/V	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Carbon tetrachloride	5	5	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Chlorobenzene	N/V	30	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Chloroethane	N/V	N/V	N/V	<1.0	NT	<1.0	NT	<1.0	NT	<1.0	NT	<1.0	NT	<1.0	NT	<1.0	NT	<1.0	NT
Chloroform	N/V	5	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Chloromethane	N/V	N/V	N/V	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT
cis-1,2-Dichloroethylene	N/V	70	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
cis-1,3-Dichloropropene	N/V	1.4	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Dibromochloromethane	N/V	5	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Dichlorodifluoromethane	N/V	N/V	N/V	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT
Dichloromethane	50	5	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	3.1	NT	<2	NT	<2	NT	<2	NT
Ethyl Benzene	2.4	2.4	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
m+p-Xylenes	N/V	N/V	N/V	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT
Methyl Ethyl Ketone	N/V	350	N/V	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT
Methyl Isobutyl Ketone	N/V	350	N/V	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT
MTBE	N/V	700	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
o-Xylene	N/V	N/V	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Styrene	N/V	100	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Tetrachloroethylene	30	5	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Toluene	24	24	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
trans-1,2-Dichloroethylene	N/V	0.1	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
trans-1,3-Dichloropropene	N/V	N/V	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Trichloroethylene	50	50	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Trichlorofluoromethane	N/V	N/V	N/V	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT
Trihalomethanes (total)	100	N/V	N/V	<2	NT	<2	NT	<2	NT	<2	NT	<2	NT	<2	NT	<2	NT	<2	NT
Vinyl chloride	2	1.3	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Xylenes (Total)	300	300	N/V	<1.5	NT	<1.5	NT	<1.5	NT	<1.5	NT	<1.5	NT	<1.5	NT	<1.5	NT	<1.5	NT

Notes:

OWDS - Ontario Drinking Water Standards (mg/L) from Ont. Reg. 169/03

SCS - Table 2 Site Condition Standards (mg/L) from Ont. Reg. 153/04

RUP - Reasonable Use Policy from Guideline B-7, MOEE, 1994

Values shown in **BOLD** exceed ODWS

N/V - No Value. No maximum concentration assigned.

NT - Not Tested, no analysis completed for this parameter/sample

Analyses completed at ALS Laboratory Group in Waterloo, ON

2-Chloroethylvinyl Ether	N/V	N/V	N/V	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
2-Hexanone	N/V	N/V	N/V	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT
Acetone	N/V	300	N/V	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT
Benzene	5	5	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Bromodichloromethane	N/V	5	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Bromoform	N/V	5	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Bromomethane	N/V	10	N/V	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT
Carbon Disulfide	N/V	N/V	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Carbon tetrachloride	5	5	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Chlorobenzene	N/V	30	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Chloroethane	N/V	N/V	N/V	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT
Chloroform	N/V	5	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Chloromethane	N/V	N/V	N/V	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT
cis-1,2-Dichloroethylene	N/V	70	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
cis-1,3-Dichloropropene	N/V	1.4	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Dibromochloromethane	N/V	5	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Dichlorodifluoromethane	N/V	N/V	N/V	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT
Dichloromethane	50	5	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Ethyl Benzene	2.4	2.4	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
m+p-Xylenes	N/V	N/V	N/V	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT
Methyl Ethyl Ketone	N/V	350	N/V	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT
Methyl Isobutyl Ketone	N/V	350	N/V	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT	<20	NT
MTBE	N/V	700	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
o-Xylene	N/V	N/V	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Styrene	N/V	100	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Tetrachloroethylene	30	5	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Toluene	24	24	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
trans-1,2-Dichloroethylene	N/V	0.1	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
trans-1,3-Dichloropropene	N/V	N/V	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Trichloroethylene	50	50	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Trichlorofluoromethane	N/V	N/V	N/V	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT	<1	NT
Trihalomethanes (total)	100	N/V	N/V	<2	NT	<2	NT	<2	NT	<2	NT	<2	NT	<2	NT	<2	NT	<2	NT
Vinyl chloride	2	1.3	N/V	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT	<0.5	NT
Xylenes (Total)	300	300	N/V	<1.5	NT	<1.5	NT	<1.5	NT	<1.5	NT	<1.5	NT	<1.5	NT	<1.5	NT	<1.5	NT

Notes:

OWDS - Ontario Drinking Water Standards (mg/L) from Ont. Reg. 169/03

SCS - Table 2 Site Condition Standards (mg/L) from Ont. Reg. 153/04

RUP - Reasonable Use Policy from Guideline B-7, MOEE, 1994

Values shown in **BOLD** exceed ODWS

N/V - No Value. No maximum concentration assigned.

NT - Not Tested, no analysis completed for this parameter/sample

Analyses completed at ALS Laboratory Group in Waterloo, ON

APPENDIX C

LABORATORY CERTIFICATES OF ANALYSIS

CERTIFICATE OF ANALYSIS (GUIDELINE EVALUATION)

Work Order : **WT2203380**
Client : **Bluewater Geoscience Consultants Inc.**
Contact : Breton Lemieux
Address : 42 Shadyridge Place
 Kitchener ON Canada N2N 3J1
Telephone : 519 744 4123
Project : BG-817
PO : ----
C-O-C number : ----
Sampler : Breton Lemieux
Site : ----
Quote number : SOA
No. of samples received : 19
No. of samples analysed : 19

Page : 1 of 79
Laboratory : Waterloo - Environmental
Account Manager : Gayle Braun
Address : 60 Northland Road, Unit 1
 Waterloo, Ontario Canada N2V 2B8
Telephone : +1 519 886 6910
Date Samples Received : 04-May-2022 15:30
Date Analysis Commenced : 05-May-2022
Issue Date : 12-May-2022 16:29

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Guideline Comparison

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QC Interpretive report to assist with Quality Review and Sample Receipt Notification (SRN).

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Laboratory Department</i>
Greg Pokocky	Supervisor - Inorganic	Inorganics, Waterloo, Ontario
Jon Fisher	Department Manager - Inorganics	Inorganics, Waterloo, Ontario
Jon Fisher	Department Manager - Inorganics	Metals, Waterloo, Ontario
Sarah Birch	Team Leader - Volatiles	Organics, Waterloo, Ontario

General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to fitness for a particular purpose, or non-infringement. ALS assumes no responsibility for errors or omissions in the information. Guidelines are not adjusted for the hardness, pH or temperature of the sample (the most conservative values are used). Measurement uncertainty is not applied to test results prior to comparison with specified criteria values.

Key : LOR: Limit of Reporting (detection limit).

<i>Unit</i>	<i>Description</i>
-	No Unit
µg/L	micrograms per litre
µS/cm	Microsiemens per centimetre
CU	colour units (1 CU = 1 mg/L Pt)
mg/L	milligrams per litre
NTU	nephelometric turbidity units
pH units	pH units

>: greater than.

<: less than.

Red shading is applied where the result is greater than the Guideline Upper Limit or the result is lower than the Guideline Lower Limit.

For drinking water samples, Red shading is applied where the result for E.coli, fecal or total coliforms is greater than or equal to the Guideline Upper Limit.

Qualifiers

<i>Qualifier</i>	<i>Description</i>
DLDS	<i>Detection Limit Raised: Dilution required due to high Dissolved Solids / Electrical Conductivity.</i>
DLHC	<i>Detection Limit Raised: Dilution required due to high concentration of test analyte(s).</i>
DLM	<i>Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).</i>
DLUI	<i>Detection Limit Raised: Unknown interference generated an apparent false positive test result.</i>
OWP	<i>Organic water sample contained visible sediment (must be included as part of analysis). Measured concentrations of organic substances in water can be biased high due to presence of sediment.</i>



Analytical Results

Analyte	Method	LOR	Unit	Client sample ID	ONDWS					
				OW-1	AO/OG	MAC				
Sub-Matrix: Groundwater (Matrix: Water)				Sampling date/time	04-May-2022 00:00					
				WT2203380-001						
Physical Tests										
alkalinity, total (as CaCO3)	E290	1.0	mg/L	367	30 - 500 mg/L					
colour, apparent	E330	2.0	CU	7.4	5 CU					
conductivity	E100	1.0	µS/cm	625						
pH	E108	0.10	pH units	7.70	6.5 - 8.5 pH units					
solids, total dissolved [TDS]	E162	10	mg/L	351	DLDS 500 mg/L					
turbidity	E121	0.10	NTU	40.1	5 NTU					
Anions and Nutrients										
ammonia, total (as N)	E298	0.0050	mg/L	<0.0050						
chloride	E235.Cl	0.50	mg/L	0.83	250 mg/L					
fluoride	E235.F	0.020	mg/L	0.028		1.5 mg/L				
nitrate (as N)	E235.NO3	0.020	mg/L	<0.020		10 mg/L				
nitrite (as N)	E235.NO2	0.010	mg/L	<0.010		1 mg/L				
phosphate, ortho-, dissolved (as P)	E378-T	0.0030	mg/L	0.0042						
sulfate (as SO4)	E235.SO4	0.30	mg/L	4.25						
Dissolved Metals										
aluminum, dissolved	E421	0.0010	mg/L	0.0028	0.1 mg/L					
antimony, dissolved	E421	0.00010	mg/L	<0.00010		0.006 mg/L				
arsenic, dissolved	E421	0.00010	mg/L	0.00021		0.01 mg/L				
barium, dissolved	E421	0.00010	mg/L	0.0404		1 mg/L				
beryllium, dissolved	E421	0.000020	mg/L	<0.000020						
bismuth, dissolved	E421	0.000050	mg/L	<0.000050						
boron, dissolved	E421	0.010	mg/L	0.104		5 mg/L				
cadmium, dissolved	E421	0.0000050	mg/L	0.0000200		0.005 mg/L				
calcium, dissolved	E421	0.050	mg/L	95.3						
cesium, dissolved	E421	0.000010	mg/L	<0.000010						
chromium, dissolved	E421	0.00050	mg/L	<0.00050		0.05 mg/L				
cobalt, dissolved	E421	0.00010	mg/L	0.00024						
copper, dissolved	E421	0.00020	mg/L	0.00070	1 mg/L					
iron, dissolved	E421	0.010	mg/L	0.146	0.3 mg/L					



Analyte	Method	LOR	Unit	WT2203380-001 (Continued)	ONDWS AO/OG	ONDWS MAC				
Dissolved Metals - Continued										
lead, dissolved	E421	0.000050	mg/L	0.000079		0.01 mg/L				
lithium, dissolved	E421	0.0010	mg/L	0.0018						
magnesium, dissolved	E421	0.0050	mg/L	41.0						
manganese, dissolved	E421	0.00010	mg/L	0.0147	0.05 mg/L					
molybdenum, dissolved	E421	0.000050	mg/L	0.000222						
nickel, dissolved	E421	0.00050	mg/L	0.00164						
phosphorus, dissolved	E421	0.050	mg/L	<0.050						
potassium, dissolved	E421	0.050	mg/L	4.34						
rubidium, dissolved	E421	0.00020	mg/L	0.00146						
selenium, dissolved	E421	0.000050	mg/L	0.000107		0.05 mg/L				
silicon, dissolved	E421	0.050	mg/L	4.75						
silver, dissolved	E421	0.000010	mg/L	<0.000010						
sodium, dissolved	E421	0.050	mg/L	7.90	200 mg/L	20 mg/L				
strontium, dissolved	E421	0.00020	mg/L	0.169						
sulfur, dissolved	E421	0.50	mg/L	6.75						
tellurium, dissolved	E421	0.00020	mg/L	<0.00020						
thallium, dissolved	E421	0.000010	mg/L	0.000108						
thorium, dissolved	E421	0.00010	mg/L	<0.00010						
tin, dissolved	E421	0.00010	mg/L	<0.00010						
titanium, dissolved	E421	0.00030	mg/L	<0.00030						
tungsten, dissolved	E421	0.00010	mg/L	0.00015						
uranium, dissolved	E421	0.000010	mg/L	0.000518		0.02 mg/L				
vanadium, dissolved	E421	0.00050	mg/L	<0.00050						
zinc, dissolved	E421	0.0010	mg/L	0.0174	5 mg/L					
zirconium, dissolved	E421	0.00020	mg/L	<0.00020						
dissolved metals filtration location	EP421		-	Field						
Volatile Organic Compounds										
acetone	E611D	20	µg/L	<20						
benzene	E611D	0.50	µg/L	<0.50		1 µg/L				
bromodichloromethane	E611D	0.50	µg/L	<0.50						
bromoform	E611D	0.50	µg/L	<0.50						
bromomethane	E611D	0.50	µg/L	<0.50						
carbon tetrachloride	E611D	0.20	µg/L	<0.20		2 µg/L				
chlorobenzene	E611D	0.50	µg/L	<0.50	30 µg/L	80 µg/L				



Analyte	Method	LOR	Unit	WT2203380-001 (Continued)	ONDWS AO/OG	ONDWS MAC				
Volatile Organic Compounds - Continued										
chloroform	E611D	0.50	µg/L	<0.50						
dibromochloromethane	E611D	0.50	µg/L	<0.50						
dibromoethane, 1,2-	E611D	0.20	µg/L	<0.20						
dichlorobenzene, 1,2-	E611D	0.50	µg/L	<0.50	3 µg/L	200 µg/L				
dichlorobenzene, 1,3-	E611D	0.50	µg/L	<0.50						
dichlorobenzene, 1,4-	E611D	0.50	µg/L	<0.50	1 µg/L	5 µg/L				
dichlorodifluoromethane	E611D	0.50	µg/L	<0.50						
dichloroethane, 1,1-	E611D	0.50	µg/L	<0.50						
dichloroethane, 1,2-	E611D	0.50	µg/L	<0.50		5 µg/L				
dichloroethylene, 1,1-	E611D	0.50	µg/L	<0.50		14 µg/L				
dichloroethylene, cis-1,2-	E611D	0.50	µg/L	<0.50						
dichloroethylene, trans-1,2-	E611D	0.50	µg/L	<0.50						
dichloromethane	E611D	1.0	µg/L	<1.0		50 µg/L				
dichloropropane, 1,2-	E611D	0.50	µg/L	<0.50						
dichloropropylene, cis+trans-1,3-	E611D	0.50	µg/L	<0.50						
dichloropropylene, cis-1,3-	E611D	0.30	µg/L	<0.30						
dichloropropylene, trans-1,3-	E611D	0.30	µg/L	<0.30						
ethylbenzene	E611D	0.50	µg/L	<0.50	2.4 µg/L	140 µg/L				
hexane, n-	E611D	0.50	µg/L	<0.50						
methyl ethyl ketone [MEK]	E611D	20	µg/L	<20						
methyl isobutyl ketone [MIBK]	E611D	20	µg/L	<20						
methyl-tert-butyl ether [MTBE]	E611D	0.50	µg/L	<0.50		15 µg/L				
styrene	E611D	0.50	µg/L	<0.50						
tetrachloroethane, 1,1,1,2-	E611D	0.50	µg/L	<0.50						
tetrachloroethane, 1,1,2,2-	E611D	0.50	µg/L	<0.50						
tetrachloroethylene	E611D	0.50	µg/L	<0.50		10 µg/L				
toluene	E611D	0.50	µg/L	<0.50	24 µg/L	60 µg/L				
trichloroethane, 1,1,1-	E611D	0.50	µg/L	<0.50						
trichloroethane, 1,1,2-	E611D	0.50	µg/L	<0.50						
trichloroethylene	E611D	0.50	µg/L	<0.50		5 µg/L				
trichlorofluoromethane	E611D	0.50	µg/L	<0.50						
vinyl chloride	E611D	0.50	µg/L	<0.50		1 µg/L				
xylene, m+p-	E611D	0.40	µg/L	<0.40						
xylene, o-	E611D	0.30	µg/L	<0.30						



Analyte	Method	LOR	Unit	WT2203380-001 (Continued)	ONDWS AO/OG	ONDWS MAC				
Volatile Organic Compounds - Continued										
xylene, total	E611D	0.50	µg/L	<0.50	300 µg/L	90 µg/L				
BTEX, total	E611D	1.0	µg/L	<1.0						
bromofluorobenzene, 4-	E611D	1.0	%	91.9						
difluorobenzene, 1,4-	E611D	1.0	%	100						

Please refer to the General Comments section for an explanation of any qualifiers detected.

Summary of Guideline Breaches by Sample

SampleID/Client ID	Matrix	Analyte	Analyte Summary	Guideline	Category	Result	Limit
OW-1	Water	colour, apparent	<p>May interfere with disinfection; removal is important to ensure effective treatment.</p> <p>Filtration systems should be designed and operated to reduce turbidity levels as low as reasonably achievable and strive to achieve a treated water turbidity target from individual filters of less than 0.1 NTU. Particles can harbour microorganisms, protecting them from disinfection, and can entrap heavy metals and biocides; elevated or fluctuating turbidity in filtered water can indicate a problem with the water treatment process and a potential increased risk of pathogens in treated water.</p>	ONDWS	AO/OG	7.4 CU	5 CU
	Water	turbidity		ONDWS	AO/OG	40.1 NTU	5 NTU

Key:

ONDWS	Ontario Drinking Water Regulation (JAN, 2020)
AO/OG	Aesthetic Objective/Operational Guideline
MAC	Schedule 1 (Microbiological) and 2 (Chemical) Standards (JAN,2018)



Analytical Results

Analyte	Method	LOR	Unit	Client sample ID	ONDWS					
				OW-2S	AO/OG	MAC				
Sub-Matrix: Groundwater (Matrix: Water)				Sampling date/time	04-May-2022 00:00					
				WT2203380-002						
Physical Tests										
alkalinity, total (as CaCO3)	E290	1.0	mg/L	628		30 - 500 mg/L				
colour, apparent	E330	2.0	CU	<2.0		5 CU				
conductivity	E100	1.0	µS/cm	1040						
pH	E108	0.10	pH units	7.56		6.5 - 8.5 pH units				
solids, total dissolved [TDS]	E162	10	mg/L	574	DLDS	500 mg/L				
turbidity	E121	0.10	NTU	48.8		5 NTU				
Anions and Nutrients										
ammonia, total (as N)	E298	0.0050	mg/L	<0.0050						
chloride	E235.Cl	0.50	mg/L	<2.50	DLDS	250 mg/L				
fluoride	E235.F	0.020	mg/L	<0.100	DLDS		1.5 mg/L			
nitrate (as N)	E235.NO3	0.020	mg/L	<0.100	DLDS		10 mg/L			
nitrite (as N)	E235.NO2	0.010	mg/L	<0.050	DLDS		1 mg/L			
phosphate, ortho-, dissolved (as P)	E378-T	0.0030	mg/L	<0.0030						
sulfate (as SO4)	E235.SO4	0.30	mg/L	25.1	DLDS					
Dissolved Metals										
aluminum, dissolved	E421	0.0010	mg/L	0.0585		0.1 mg/L				
antimony, dissolved	E421	0.00010	mg/L	<0.00010			0.006 mg/L			
arsenic, dissolved	E421	0.00010	mg/L	0.00188			0.01 mg/L			
barium, dissolved	E421	0.00010	mg/L	0.0762			1 mg/L			
beryllium, dissolved	E421	0.000020	mg/L	<0.000020						
bismuth, dissolved	E421	0.000050	mg/L	<0.000050						
boron, dissolved	E421	0.010	mg/L	0.319			5 mg/L			
cadmium, dissolved	E421	0.0000050	mg/L	0.0000050			0.005 mg/L			
calcium, dissolved	E421	0.050	mg/L	140						
cesium, dissolved	E421	0.000010	mg/L	<0.000010						
chromium, dissolved	E421	0.00050	mg/L	<0.00050			0.05 mg/L			
cobalt, dissolved	E421	0.00010	mg/L	0.00133						
copper, dissolved	E421	0.00020	mg/L	0.00030		1 mg/L				
iron, dissolved	E421	0.010	mg/L	1.20		0.3 mg/L				



Analyte	Method	LOR	Unit	WT2203380-002 (Continued)	ONDWS AO/OG	ONDWS MAC				
Dissolved Metals - Continued										
lead, dissolved	E421	0.000050	mg/L	0.000689		0.01 mg/L				
lithium, dissolved	E421	0.0010	mg/L	0.0072						
magnesium, dissolved	E421	0.0050	mg/L	66.8						
manganese, dissolved	E421	0.00010	mg/L	0.176	0.05 mg/L					
molybdenum, dissolved	E421	0.000050	mg/L	0.000211						
nickel, dissolved	E421	0.00050	mg/L	0.00360						
phosphorus, dissolved	E421	0.050	mg/L	<0.050						
potassium, dissolved	E421	0.050	mg/L	2.57						
rubidium, dissolved	E421	0.00020	mg/L	0.00096						
selenium, dissolved	E421	0.000050	mg/L	0.000117		0.05 mg/L				
silicon, dissolved	E421	0.050	mg/L	8.05						
silver, dissolved	E421	0.000010	mg/L	<0.000010						
sodium, dissolved	E421	0.050	mg/L	12.6	200 mg/L	20 mg/L				
strontium, dissolved	E421	0.00020	mg/L	0.212						
sulfur, dissolved	E421	0.50	mg/L	8.85						
tellurium, dissolved	E421	0.00020	mg/L	<0.00020						
thallium, dissolved	E421	0.000010	mg/L	0.000103						
thorium, dissolved	E421	0.00010	mg/L	<0.00010						
tin, dissolved	E421	0.00010	mg/L	<0.00010						
titanium, dissolved	E421	0.00030	mg/L	<0.00300	DLUI					
tungsten, dissolved	E421	0.00010	mg/L	0.00040						
uranium, dissolved	E421	0.000010	mg/L	0.000606		0.02 mg/L				
vanadium, dissolved	E421	0.00050	mg/L	<0.00050						
zinc, dissolved	E421	0.0010	mg/L	0.0114	5 mg/L					
zirconium, dissolved	E421	0.00020	mg/L	0.00024						
dissolved metals filtration location	EP421		-	Field						
Volatile Organic Compounds										
acetone	E611D	20	µg/L	<20						
benzene	E611D	0.50	µg/L	<0.50		1 µg/L				
bromodichloromethane	E611D	0.50	µg/L	<0.50						
bromoform	E611D	0.50	µg/L	<0.50						
bromomethane	E611D	0.50	µg/L	<0.50						
carbon tetrachloride	E611D	0.20	µg/L	<0.20		2 µg/L				
chlorobenzene	E611D	0.50	µg/L	<0.50	30 µg/L	80 µg/L				



Analyte	Method	LOR	Unit	WT2203380-002 (Continued)	ONDWS AO/OG	ONDWS MAC				
Volatile Organic Compounds - Continued										
chloroform	E611D	0.50	µg/L	<0.50						
dibromochloromethane	E611D	0.50	µg/L	<0.50						
dibromoethane, 1,2-	E611D	0.20	µg/L	<0.20						
dichlorobenzene, 1,2-	E611D	0.50	µg/L	<0.50	3 µg/L	200 µg/L				
dichlorobenzene, 1,3-	E611D	0.50	µg/L	<0.50						
dichlorobenzene, 1,4-	E611D	0.50	µg/L	<0.50	1 µg/L	5 µg/L				
dichlorodifluoromethane	E611D	0.50	µg/L	<0.50						
dichloroethane, 1,1-	E611D	0.50	µg/L	<0.50						
dichloroethane, 1,2-	E611D	0.50	µg/L	<0.50		5 µg/L				
dichloroethylene, 1,1-	E611D	0.50	µg/L	<0.50		14 µg/L				
dichloroethylene, cis-1,2-	E611D	0.50	µg/L	<0.50						
dichloroethylene, trans-1,2-	E611D	0.50	µg/L	<0.50						
dichloromethane	E611D	1.0	µg/L	<1.0		50 µg/L				
dichloropropane, 1,2-	E611D	0.50	µg/L	<0.50						
dichloropropylene, cis+trans-1,3-	E611D	0.50	µg/L	<0.50						
dichloropropylene, cis-1,3-	E611D	0.30	µg/L	<0.30						
dichloropropylene, trans-1,3-	E611D	0.30	µg/L	<0.30						
ethylbenzene	E611D	0.50	µg/L	<0.50	2.4 µg/L	140 µg/L				
hexane, n-	E611D	0.50	µg/L	<0.50						
methyl ethyl ketone [MEK]	E611D	20	µg/L	<20						
methyl isobutyl ketone [MIBK]	E611D	20	µg/L	<20						
methyl-tert-butyl ether [MTBE]	E611D	0.50	µg/L	<0.50		15 µg/L				
styrene	E611D	0.50	µg/L	<0.50						
tetrachloroethane, 1,1,1,2-	E611D	0.50	µg/L	<0.50						
tetrachloroethane, 1,1,2,2-	E611D	0.50	µg/L	<0.50						
tetrachloroethylene	E611D	0.50	µg/L	<0.50		10 µg/L				
toluene	E611D	0.50	µg/L	<0.50	24 µg/L	60 µg/L				
trichloroethane, 1,1,1-	E611D	0.50	µg/L	<0.50						
trichloroethane, 1,1,2-	E611D	0.50	µg/L	<0.50						
trichloroethylene	E611D	0.50	µg/L	<0.50		5 µg/L				
trichlorofluoromethane	E611D	0.50	µg/L	<0.50						
vinyl chloride	E611D	0.50	µg/L	<0.50		1 µg/L				
xylene, m+p-	E611D	0.40	µg/L	<0.40						
xylene, o-	E611D	0.30	µg/L	<0.30						



Analyte	Method	LOR	Unit	WT2203380-002 (Continued)	ONDWS AO/OG	ONDWS MAC				
Volatile Organic Compounds - Continued										
xlenes, total	E611D	0.50	µg/L	<0.50	300 µg/L	90 µg/L				
BTEX, total	E611D	1.0	µg/L	<1.0						
bromofluorobenzene, 4-	E611D	1.0	%	91.6						
difluorobenzene, 1,4-	E611D	1.0	%	99.8						

Please refer to the General Comments section for an explanation of any qualifiers detected.

Summary of Guideline Breaches by Sample

SampleID/Client ID	Matrix	Analyte	Analyte Summary	Guideline	Category	Result	Limit
OW-2S	Water	alkalinity, total (as CaCO3)		ONDWS	AO/OG	628 mg/L	30-500 mg/L
	Water	solids, total dissolved [TDS]	Based on taste; TDS above 500 mg/L results in excessive scaling in water pipes, water heaters, boilers and appliances; TDS is composed of calcium, magnesium, sodium, potassium, carbonate, bicarbonate, chloride, sulphate and nitrate.	ONDWS	AO/OG	574 mg/L	500 mg/L
	Water	turbidity	Filtration systems should be designed and operated to reduce turbidity levels as low as reasonably achievable and strive to achieve a treated water turbidity target from individual filters of less than 0.1 NTU. Particles can harbour microorganisms, protecting them from disinfection, and can entrap heavy metals and biocides; elevated or fluctuating turbidity in filtered water can indicate a problem with the water treatment process and a potential increased risk of pathogens in treated water.	ONDWS	AO/OG	48.8 NTU	5 NTU
	Water	iron, dissolved	Based on taste and staining of laundry and plumbing fixtures; no evidence exists of dietary iron toxicity in the general population.	ONDWS	AO/OG	1.20 mg/L	0.3 mg/L
	Water	manganese, dissolved	Based on taste and staining of laundry and plumbing fixtures.	ONDWS	AO/OG	0.176 mg/L	0.05 mg/L

Key:

- ONDWS Ontario Drinking Water Regulation (JAN, 2020)
- AO/OG Aesthetic Objective/Operational Guideline
- MAC Schedule 1 (Microbiological) and 2 (Chemical) Standards (JAN,2018)



Analytical Results

Analyte	Method	LOR	Unit	Client sample ID	OW-2D		ONDWS AO/OG	ONDWS MAC			
				Sampling date/time	04-May-2022 00:00						
Sub-Matrix: Groundwater (Matrix: Water)				WT2203380-003							
Physical Tests											
alkalinity, total (as CaCO3)	E290	1.0	mg/L	703			30 - 500 mg/L				
colour, apparent	E330	2.0	CU	87.7			5 CU				
conductivity	E100	1.0	µS/cm	1360							
pH	E108	0.10	pH units	7.64			6.5 - 8.5 pH units				
solids, total dissolved [TDS]	E162	10	mg/L	698	DLDS		500 mg/L				
turbidity	E121	0.10	NTU	73.5			5 NTU				
Anions and Nutrients											
ammonia, total (as N)	E298	0.0050	mg/L	14.2	DLHC						
chloride	E235.Cl	0.50	mg/L	46.1	DLDS		250 mg/L				
fluoride	E235.F	0.020	mg/L	<0.100	DLDS			1.5 mg/L			
nitrate (as N)	E235.NO3	0.020	mg/L	<0.100	DLDS			10 mg/L			
nitrite (as N)	E235.NO2	0.010	mg/L	<0.050	DLDS			1 mg/L			
phosphate, ortho-, dissolved (as P)	E378-T	0.0030	mg/L	<0.0030							
sulfate (as SO4)	E235.SO4	0.30	mg/L	48.4	DLDS						
Dissolved Metals											
aluminum, dissolved	E421	0.0010	mg/L	0.0300			0.1 mg/L				
antimony, dissolved	E421	0.00010	mg/L	<0.00010				0.006 mg/L			
arsenic, dissolved	E421	0.00010	mg/L	0.00963				0.01 mg/L			
barium, dissolved	E421	0.00010	mg/L	0.188				1 mg/L			
beryllium, dissolved	E421	0.000020	mg/L	<0.000020							
bismuth, dissolved	E421	0.000050	mg/L	<0.000050							
boron, dissolved	E421	0.010	mg/L	0.422				5 mg/L			
cadmium, dissolved	E421	0.0000050	mg/L	0.0000053				0.005 mg/L			
calcium, dissolved	E421	0.050	mg/L	126							
cesium, dissolved	E421	0.000010	mg/L	<0.000010							
chromium, dissolved	E421	0.00050	mg/L	<0.00050				0.05 mg/L			
cobalt, dissolved	E421	0.00010	mg/L	0.00599							
copper, dissolved	E421	0.00020	mg/L	0.00039				1 mg/L			
iron, dissolved	E421	0.010	mg/L	5.41				0.3 mg/L			



Analyte	Method	LOR	Unit	WT2203380-003 (Continued)	ONDWS AO/OG	ONDWS MAC				
Dissolved Metals - Continued										
lead, dissolved	E421	0.000050	mg/L	0.000715		0.01 mg/L				
lithium, dissolved	E421	0.0010	mg/L	0.0026						
magnesium, dissolved	E421	0.0050	mg/L	59.4						
manganese, dissolved	E421	0.00010	mg/L	0.644	0.05 mg/L					
molybdenum, dissolved	E421	0.000050	mg/L	0.000613						
nickel, dissolved	E421	0.00050	mg/L	0.0166						
phosphorus, dissolved	E421	0.050	mg/L	<0.050						
potassium, dissolved	E421	0.050	mg/L	11.0						
rubidium, dissolved	E421	0.00020	mg/L	0.00313						
selenium, dissolved	E421	0.000050	mg/L	0.00139		0.05 mg/L				
silicon, dissolved	E421	0.050	mg/L	6.31						
silver, dissolved	E421	0.000010	mg/L	<0.000010						
sodium, dissolved	E421	0.050	mg/L	34.9	200 mg/L	20 mg/L				
strontium, dissolved	E421	0.00020	mg/L	0.338						
sulfur, dissolved	E421	0.50	mg/L	12.8						
tellurium, dissolved	E421	0.00020	mg/L	<0.00020						
thallium, dissolved	E421	0.000010	mg/L	0.000490						
thorium, dissolved	E421	0.00010	mg/L	<0.00010						
tin, dissolved	E421	0.00010	mg/L	<0.00010						
titanium, dissolved	E421	0.00030	mg/L	<0.00300	DLUI					
tungsten, dissolved	E421	0.00010	mg/L	<0.00010						
uranium, dissolved	E421	0.000010	mg/L	0.000960		0.02 mg/L				
vanadium, dissolved	E421	0.00050	mg/L	<0.00050						
zinc, dissolved	E421	0.0010	mg/L	0.0661	5 mg/L					
zirconium, dissolved	E421	0.00020	mg/L	0.00083						
dissolved metals filtration location	EP421		-	Field						
Volatile Organic Compounds										
acetone	E611D	20	µg/L	<20						
benzene	E611D	0.50	µg/L	0.74		1 µg/L				
bromodichloromethane	E611D	0.50	µg/L	<0.50						
bromoform	E611D	0.50	µg/L	<0.50						
bromomethane	E611D	0.50	µg/L	<0.50						
carbon tetrachloride	E611D	0.20	µg/L	<0.20		2 µg/L				
chlorobenzene	E611D	0.50	µg/L	<0.50	30 µg/L	80 µg/L				



Analyte	Method	LOR	Unit	WT2203380-003 (Continued)	ONDWS AO/OG	ONDWS MAC				
Volatile Organic Compounds - Continued										
chloroform	E611D	0.50	µg/L	<0.50						
dibromochloromethane	E611D	0.50	µg/L	<0.50						
dibromoethane, 1,2-	E611D	0.20	µg/L	<0.20						
dichlorobenzene, 1,2-	E611D	0.50	µg/L	<0.50	3 µg/L	200 µg/L				
dichlorobenzene, 1,3-	E611D	0.50	µg/L	<0.50						
dichlorobenzene, 1,4-	E611D	0.50	µg/L	<0.50	1 µg/L	5 µg/L				
dichlorodifluoromethane	E611D	0.50	µg/L	<0.50						
dichloroethane, 1,1-	E611D	0.50	µg/L	<0.50						
dichloroethane, 1,2-	E611D	0.50	µg/L	<0.50		5 µg/L				
dichloroethylene, 1,1-	E611D	0.50	µg/L	<0.50		14 µg/L				
dichloroethylene, cis-1,2-	E611D	0.50	µg/L	<0.50						
dichloroethylene, trans-1,2-	E611D	0.50	µg/L	<0.50						
dichloromethane	E611D	1.0	µg/L	<1.0		50 µg/L				
dichloropropane, 1,2-	E611D	0.50	µg/L	<0.50						
dichloropropylene, cis+trans-1,3-	E611D	0.50	µg/L	<0.50						
dichloropropylene, cis-1,3-	E611D	0.30	µg/L	<0.30						
dichloropropylene, trans-1,3-	E611D	0.30	µg/L	<0.30						
ethylbenzene	E611D	0.50	µg/L	<0.50	2.4 µg/L	140 µg/L				
hexane, n-	E611D	0.50	µg/L	<0.50						
methyl ethyl ketone [MEK]	E611D	20	µg/L	<20						
methyl isobutyl ketone [MIBK]	E611D	20	µg/L	<20						
methyl-tert-butyl ether [MTBE]	E611D	0.50	µg/L	<0.50		15 µg/L				
styrene	E611D	0.50	µg/L	<0.50						
tetrachloroethane, 1,1,1,2-	E611D	0.50	µg/L	<0.50						
tetrachloroethane, 1,1,2,2-	E611D	0.50	µg/L	<0.50						
tetrachloroethylene	E611D	0.50	µg/L	<0.50		10 µg/L				
toluene	E611D	0.50	µg/L	<0.50	24 µg/L	60 µg/L				
trichloroethane, 1,1,1-	E611D	0.50	µg/L	<0.50						
trichloroethane, 1,1,2-	E611D	0.50	µg/L	<0.50						
trichloroethylene	E611D	0.50	µg/L	<0.50		5 µg/L				
trichlorofluoromethane	E611D	0.50	µg/L	<0.50						
vinyl chloride	E611D	0.50	µg/L	<0.50		1 µg/L				
xylene, m+p-	E611D	0.40	µg/L	<0.40						
xylene, o-	E611D	0.30	µg/L	<0.30						



Analyte	Method	LOR	Unit	WT2203380-003 (Continued)	ONDWS AO/OG	ONDWS MAC				
Volatile Organic Compounds - Continued										
xylenes, total	E611D	0.50	µg/L	<0.50	300 µg/L	90 µg/L				
BTEX, total	E611D	1.0	µg/L	<1.0						
bromofluorobenzene, 4-	E611D	1.0	%	91.9						
difluorobenzene, 1,4-	E611D	1.0	%	100						

Please refer to the General Comments section for an explanation of any qualifiers detected.

Summary of Guideline Breaches by Sample

SampleID/Client ID	Matrix	Analyte	Analyte Summary	Guideline	Category	Result	Limit
OW-2D	Water	alkalinity, total (as CaCO3)		ONDWS	AO/OG	703 mg/L	30-500 mg/L
	Water	colour, apparent	May interfere with disinfection; removal is important to ensure effective treatment.	ONDWS	AO/OG	87.7 CU	5 CU
	Water	solids, total dissolved [TDS]	Based on taste; TDS above 500 mg/L results in excessive scaling in water pipes, water heaters, boilers and appliances; TDS is composed of calcium, magnesium, sodium, potassium, carbonate, bicarbonate, chloride, sulphate and nitrate.	ONDWS	AO/OG	698 mg/L	500 mg/L
	Water	turbidity	Filtration systems should be designed and operated to reduce turbidity levels as low as reasonably achievable and strive to achieve a treated water turbidity target from individual filters of less than 0.1 NTU. Particles can harbour microorganisms, protecting them from disinfection, and can entrap heavy metals and biocides; elevated or fluctuating turbidity in filtered water can indicate a problem with the water treatment process and a potential increased risk of pathogens in treated water.	ONDWS	AO/OG	73.5 NTU	5 NTU
	Water	iron, dissolved	Based on taste and staining of laundry and plumbing fixtures; no evidence exists of dietary iron toxicity in the general population.	ONDWS	AO/OG	5.41 mg/L	0.3 mg/L
	Water	manganese, dissolved	Based on taste and staining of laundry and plumbing fixtures.	ONDWS	AO/OG	0.644 mg/L	0.05 mg/L
	Water	sodium, dissolved	Based on taste; where a sodium-based water softener is used, a separate unsoftened supply for cooking and drinking purposes is recommended.	ONDWS	MAC	34.9 mg/L	20 mg/L

Key:

ONDWS Ontario Drinking Water Regulation (JAN, 2020)
 AO/OG Aesthetic Objective/Operational Guideline
 MAC Schedule 1 (Microbiological) and 2 (Chemical) Standards (JAN,2018)



Analytical Results

Analyte	Method	LOR	Unit	Client sample ID	ONDWS					
				OW-3S	AO/OG	MAC				
Sub-Matrix: Groundwater (Matrix: Water)				Sampling date/time						
				WT2203380-004						
Physical Tests										
alkalinity, total (as CaCO3)	E290	1.0	mg/L	384		30 - 500 mg/L				
colour, apparent	E330	2.0	CU	73.4		5 CU				
conductivity	E100	1.0	µS/cm	586						
pH	E108	0.10	pH units	7.54		6.5 - 8.5 pH units				
solids, total dissolved [TDS]	E162	10	mg/L	344	DLDS	500 mg/L				
turbidity	E121	0.10	NTU	376		5 NTU				
Anions and Nutrients										
ammonia, total (as N)	E298	0.0050	mg/L	0.0135						
chloride	E235.Cl	0.50	mg/L	<0.50		250 mg/L				
fluoride	E235.F	0.020	mg/L	<0.020			1.5 mg/L			
nitrate (as N)	E235.NO3	0.020	mg/L	<0.020			10 mg/L			
nitrite (as N)	E235.NO2	0.010	mg/L	<0.010			1 mg/L			
phosphate, ortho-, dissolved (as P)	E378-T	0.0030	mg/L	<0.0030						
sulfate (as SO4)	E235.SO4	0.30	mg/L	0.59						
Dissolved Metals										
aluminum, dissolved	E421	0.0010	mg/L	0.0146		0.1 mg/L				
antimony, dissolved	E421	0.00010	mg/L	<0.00010			0.006 mg/L			
arsenic, dissolved	E421	0.00010	mg/L	0.00160			0.01 mg/L			
barium, dissolved	E421	0.00010	mg/L	0.120			1 mg/L			
beryllium, dissolved	E421	0.000020	mg/L	<0.000020						
bismuth, dissolved	E421	0.000050	mg/L	<0.000050						
boron, dissolved	E421	0.010	mg/L	0.208			5 mg/L			
cadmium, dissolved	E421	0.0000050	mg/L	<0.0000050			0.005 mg/L			
calcium, dissolved	E421	0.050	mg/L	124						
cesium, dissolved	E421	0.000010	mg/L	<0.000010						
chromium, dissolved	E421	0.00050	mg/L	<0.00050			0.05 mg/L			
cobalt, dissolved	E421	0.00010	mg/L	0.00024						
copper, dissolved	E421	0.00020	mg/L	0.00077		1 mg/L				
iron, dissolved	E421	0.010	mg/L	3.43		0.3 mg/L				



Analyte	Method	LOR	Unit	WT2203380-004 (Continued)	ONDWS AO/OG	ONDWS MAC				
Dissolved Metals - Continued										
lead, dissolved	E421	0.000050	mg/L	0.000295		0.01 mg/L				
lithium, dissolved	E421	0.0010	mg/L	<0.0010						
magnesium, dissolved	E421	0.0050	mg/L	33.6						
manganese, dissolved	E421	0.00010	mg/L	0.180	0.05 mg/L					
molybdenum, dissolved	E421	0.000050	mg/L	0.000210						
nickel, dissolved	E421	0.00050	mg/L	0.00108						
phosphorus, dissolved	E421	0.050	mg/L	<0.050						
potassium, dissolved	E421	0.050	mg/L	6.77						
rubidium, dissolved	E421	0.00020	mg/L	0.00170						
selenium, dissolved	E421	0.000050	mg/L	0.00104		0.05 mg/L				
silicon, dissolved	E421	0.050	mg/L	4.08						
silver, dissolved	E421	0.000010	mg/L	<0.000010						
sodium, dissolved	E421	0.050	mg/L	12.6	200 mg/L	20 mg/L				
strontium, dissolved	E421	0.00020	mg/L	0.290						
sulfur, dissolved	E421	0.50	mg/L	2.99						
tellurium, dissolved	E421	0.00020	mg/L	<0.00020						
thallium, dissolved	E421	0.000010	mg/L	<0.000010						
thorium, dissolved	E421	0.00010	mg/L	<0.00010						
tin, dissolved	E421	0.00010	mg/L	<0.00010						
titanium, dissolved	E421	0.00030	mg/L	0.00047						
tungsten, dissolved	E421	0.00010	mg/L	<0.00010						
uranium, dissolved	E421	0.000010	mg/L	0.000424		0.02 mg/L				
vanadium, dissolved	E421	0.00050	mg/L	<0.00050						
zinc, dissolved	E421	0.0010	mg/L	0.0053	5 mg/L					
zirconium, dissolved	E421	0.00020	mg/L	0.00058						
dissolved metals filtration location	EP421		-	Field						
Volatile Organic Compounds										
acetone	E611D	20	µg/L	<20	OWP					
benzene	E611D	0.50	µg/L	<0.50	OWP	1 µg/L				
bromodichloromethane	E611D	0.50	µg/L	<0.50	OWP					
bromoform	E611D	0.50	µg/L	<0.50	OWP					
bromomethane	E611D	0.50	µg/L	<0.50	OWP					
carbon tetrachloride	E611D	0.20	µg/L	<0.20	OWP	2 µg/L				
chlorobenzene	E611D	0.50	µg/L	<0.50	OWP	30 µg/L	80 µg/L			



Analyte	Method	LOR	Unit	WT2203380-004 (Continued)		ONDWS AO/OG	ONDWS MAC			
Volatile Organic Compounds - Continued										
chloroform	E611D	0.50	µg/L	<0.50	OWP					
dibromochloromethane	E611D	0.50	µg/L	<0.50	OWP					
dibromoethane, 1,2-	E611D	0.20	µg/L	<0.20	OWP					
dichlorobenzene, 1,2-	E611D	0.50	µg/L	<0.50	OWP	3 µg/L	200 µg/L			
dichlorobenzene, 1,3-	E611D	0.50	µg/L	<0.50	OWP					
dichlorobenzene, 1,4-	E611D	0.50	µg/L	<0.50	OWP	1 µg/L	5 µg/L			
dichlorodifluoromethane	E611D	0.50	µg/L	<0.50	OWP					
dichloroethane, 1,1-	E611D	0.50	µg/L	<0.50	OWP					
dichloroethane, 1,2-	E611D	0.50	µg/L	<0.50	OWP		5 µg/L			
dichloroethylene, 1,1-	E611D	0.50	µg/L	<0.50	OWP		14 µg/L			
dichloroethylene, cis-1,2-	E611D	0.50	µg/L	<0.50	OWP					
dichloroethylene, trans-1,2-	E611D	0.50	µg/L	<0.50	OWP					
dichloromethane	E611D	1.0	µg/L	<1.0			50 µg/L			
dichloropropane, 1,2-	E611D	0.50	µg/L	<0.50	OWP					
dichloropropylene, cis+trans-1,3-	E611D	0.50	µg/L	<0.50	OWP					
dichloropropylene, cis-1,3-	E611D	0.30	µg/L	<0.30	OWP					
dichloropropylene, trans-1,3-	E611D	0.30	µg/L	<0.30	OWP					
ethylbenzene	E611D	0.50	µg/L	<0.50	OWP	2.4 µg/L	140 µg/L			
hexane, n-	E611D	0.50	µg/L	<0.50	OWP					
methyl ethyl ketone [MEK]	E611D	20	µg/L	<20	OWP					
methyl isobutyl ketone [MIBK]	E611D	20	µg/L	<20	OWP					
methyl-tert-butyl ether [MTBE]	E611D	0.50	µg/L	<0.50	OWP		15 µg/L			
styrene	E611D	0.50	µg/L	<0.50	OWP					
tetrachloroethane, 1,1,1,2-	E611D	0.50	µg/L	<0.50	OWP					
tetrachloroethane, 1,1,2,2-	E611D	0.50	µg/L	<0.50	OWP					
tetrachloroethylene	E611D	0.50	µg/L	<0.50	OWP		10 µg/L			
toluene	E611D	0.50	µg/L	<0.50	OWP	24 µg/L	60 µg/L			
trichloroethane, 1,1,1-	E611D	0.50	µg/L	<0.50	OWP					
trichloroethane, 1,1,2-	E611D	0.50	µg/L	<0.50	OWP					
trichloroethylene	E611D	0.50	µg/L	<0.50	OWP		5 µg/L			
trichlorofluoromethane	E611D	0.50	µg/L	<0.50	OWP					
vinyl chloride	E611D	0.50	µg/L	<0.50	OWP		1 µg/L			
xylene, m+p-	E611D	0.40	µg/L	<0.40	OWP					
xylene, o-	E611D	0.30	µg/L	<0.30	OWP					



Analyte	Method	LOR	Unit	WT2203380-004 (Continued)	ONDWS AO/OG	ONDWS MAC				
Volatile Organic Compounds - Continued										
xylene, total	E611D	0.50	µg/L	<0.50	300 µg/L	90 µg/L				
BTEX, total	E611D	1.0	µg/L	<1.0						
bromofluorobenzene, 4-	E611D	1.0	%	91.4						
difluorobenzene, 1,4-	E611D	1.0	%	100						

Please refer to the General Comments section for an explanation of any qualifiers detected.

Summary of Guideline Breaches by Sample

SampleID/Client ID	Matrix	Analyte	Analyte Summary	Guideline	Category	Result	Limit
OW-3S	Water	colour, apparent	May interfere with disinfection; removal is important to ensure effective treatment.	ONDWS	AO/OG	73.4 CU	5 CU
	Water	turbidity	Filtration systems should be designed and operated to reduce turbidity levels as low as reasonably achievable and strive to achieve a treated water turbidity target from individual filters of less than 0.1 NTU. Particles can harbour microorganisms, protecting them from disinfection, and can entrap heavy metals and biocides; elevated or fluctuating turbidity in filtered water can indicate a problem with the water treatment process and a potential increased risk of pathogens in treated water.	ONDWS	AO/OG	376 NTU	5 NTU
	Water	iron, dissolved	Based on taste and staining of laundry and plumbing fixtures; no evidence exists of dietary iron toxicity in the general population.	ONDWS	AO/OG	3.43 mg/L	0.3 mg/L
	Water	manganese, dissolved	Based on taste and staining of laundry and plumbing fixtures.	ONDWS	AO/OG	0.180 mg/L	0.05 mg/L

Key:
 ONDWS Ontario Drinking Water Regulation (JAN, 2020)
 AO/OG Aesthetic Objective/Operational Guideline
 MAC Schedule 1 (Microbiological) and 2 (Chemical) Standards (JAN,2018)



Analytical Results

Analyte	Method	LOR	Unit	Client sample ID	OW-3D		ONDWS AO/OG	ONDWS MAC			
				Sampling date/time	04-May-2022 00:00						
Sub-Matrix: Groundwater (Matrix: Water)				WT2203380-005							
Physical Tests											
alkalinity, total (as CaCO3)	E290	1.0	mg/L	920	DLHC	30 - 500 mg/L					
colour, apparent	E330	2.0	CU	185		5 CU					
conductivity	E100	1.0	µS/cm	1630							
pH	E108	0.10	pH units	7.56		6.5 - 8.5 pH units					
solids, total dissolved [TDS]	E162	10	mg/L	768	DLM	500 mg/L					
turbidity	E121	0.10	NTU	168		5 NTU					
Anions and Nutrients											
ammonia, total (as N)	E298	0.0050	mg/L	31.6	DLHC						
chloride	E235.Cl	0.50	mg/L	44.3	DLDS	250 mg/L					
fluoride	E235.F	0.020	mg/L	<0.100	DLDS		1.5 mg/L				
nitrate (as N)	E235.NO3	0.020	mg/L	<0.100	DLDS		10 mg/L				
nitrite (as N)	E235.NO2	0.010	mg/L	<0.050	DLDS		1 mg/L				
phosphate, ortho-, dissolved (as P)	E378-T	0.0030	mg/L	<0.0030							
sulfate (as SO4)	E235.SO4	0.30	mg/L	28.5	DLDS						
Dissolved Metals											
aluminum, dissolved	E421	0.0010	mg/L	0.0481		0.1 mg/L					
antimony, dissolved	E421	0.00010	mg/L	0.00013			0.006 mg/L				
arsenic, dissolved	E421	0.00010	mg/L	0.00549			0.01 mg/L				
barium, dissolved	E421	0.00010	mg/L	0.337			1 mg/L				
beryllium, dissolved	E421	0.000020	mg/L	<0.000020							
bismuth, dissolved	E421	0.000050	mg/L	<0.000050							
boron, dissolved	E421	0.010	mg/L	0.650			5 mg/L				
cadmium, dissolved	E421	0.0000050	mg/L	<0.0000050			0.005 mg/L				
calcium, dissolved	E421	0.050	mg/L	160							
cesium, dissolved	E421	0.000010	mg/L	<0.000010							
chromium, dissolved	E421	0.00050	mg/L	0.00107			0.05 mg/L				
cobalt, dissolved	E421	0.00010	mg/L	0.00052							
copper, dissolved	E421	0.00020	mg/L	0.00061		1 mg/L					
iron, dissolved	E421	0.010	mg/L	12.2		0.3 mg/L					



Analyte	Method	LOR	Unit	WT2203380-005 (Continued)	ONDWS AO/OG	ONDWS MAC				
Dissolved Metals - Continued										
lead, dissolved	E421	0.000050	mg/L	0.000898		0.01 mg/L				
lithium, dissolved	E421	0.0010	mg/L	<0.0010						
magnesium, dissolved	E421	0.0050	mg/L	56.0						
manganese, dissolved	E421	0.00010	mg/L	0.484	0.05 mg/L					
molybdenum, dissolved	E421	0.000050	mg/L	0.000143						
nickel, dissolved	E421	0.00050	mg/L	0.00304						
phosphorus, dissolved	E421	0.050	mg/L	<0.050						
potassium, dissolved	E421	0.050	mg/L	20.0						
rubidium, dissolved	E421	0.00020	mg/L	0.00477						
selenium, dissolved	E421	0.000050	mg/L	0.00399		0.05 mg/L				
silicon, dissolved	E421	0.050	mg/L	6.51						
silver, dissolved	E421	0.000010	mg/L	<0.000010						
sodium, dissolved	E421	0.050	mg/L	37.4	200 mg/L	20 mg/L				
strontium, dissolved	E421	0.00020	mg/L	0.556						
sulfur, dissolved	E421	0.50	mg/L	11.3						
tellurium, dissolved	E421	0.00020	mg/L	<0.00020						
thallium, dissolved	E421	0.000010	mg/L	0.000011						
thorium, dissolved	E421	0.00010	mg/L	<0.00010						
tin, dissolved	E421	0.00010	mg/L	0.00017						
titanium, dissolved	E421	0.00030	mg/L	<0.00300	DLUI					
tungsten, dissolved	E421	0.00010	mg/L	<0.00010						
uranium, dissolved	E421	0.000010	mg/L	0.000343		0.02 mg/L				
vanadium, dissolved	E421	0.00050	mg/L	0.00119						
zinc, dissolved	E421	0.0010	mg/L	0.0053	5 mg/L					
zirconium, dissolved	E421	0.00020	mg/L	0.00206						
dissolved metals filtration location	EP421		-	Field						
Volatile Organic Compounds										
acetone	E611D	20	µg/L	<20						
benzene	E611D	0.50	µg/L	1.50		1 µg/L				
bromodichloromethane	E611D	0.50	µg/L	<0.50						
bromoform	E611D	0.50	µg/L	<0.50						
bromomethane	E611D	0.50	µg/L	<0.50						
carbon tetrachloride	E611D	0.20	µg/L	<0.20		2 µg/L				
chlorobenzene	E611D	0.50	µg/L	<0.50	30 µg/L	80 µg/L				



Analyte	Method	LOR	Unit	WT2203380-005 (Continued)	ONDWS AO/OG	ONDWS MAC				
Volatile Organic Compounds - Continued										
chloroform	E611D	0.50	µg/L	<0.50						
dibromochloromethane	E611D	0.50	µg/L	<0.50						
dibromoethane, 1,2-	E611D	0.20	µg/L	<0.20						
dichlorobenzene, 1,2-	E611D	0.50	µg/L	<0.50	3 µg/L	200 µg/L				
dichlorobenzene, 1,3-	E611D	0.50	µg/L	<0.50						
dichlorobenzene, 1,4-	E611D	0.50	µg/L	<0.50	1 µg/L	5 µg/L				
dichlorodifluoromethane	E611D	0.50	µg/L	<0.50						
dichloroethane, 1,1-	E611D	0.50	µg/L	<0.50						
dichloroethane, 1,2-	E611D	0.50	µg/L	<0.50		5 µg/L				
dichloroethylene, 1,1-	E611D	0.50	µg/L	<0.50		14 µg/L				
dichloroethylene, cis-1,2-	E611D	0.50	µg/L	<0.50						
dichloroethylene, trans-1,2-	E611D	0.50	µg/L	<0.50						
dichloromethane	E611D	1.0	µg/L	<1.0		50 µg/L				
dichloropropane, 1,2-	E611D	0.50	µg/L	<0.50						
dichloropropylene, cis+trans-1,3-	E611D	0.50	µg/L	<0.50						
dichloropropylene, cis-1,3-	E611D	0.30	µg/L	<0.30						
dichloropropylene, trans-1,3-	E611D	0.30	µg/L	<0.30						
ethylbenzene	E611D	0.50	µg/L	<0.50	2.4 µg/L	140 µg/L				
hexane, n-	E611D	0.50	µg/L	<0.50						
methyl ethyl ketone [MEK]	E611D	20	µg/L	<20						
methyl isobutyl ketone [MIBK]	E611D	20	µg/L	<20						
methyl-tert-butyl ether [MTBE]	E611D	0.50	µg/L	<0.50		15 µg/L				
styrene	E611D	0.50	µg/L	<0.50						
tetrachloroethane, 1,1,1,2-	E611D	0.50	µg/L	<0.50						
tetrachloroethane, 1,1,2,2-	E611D	0.50	µg/L	<0.50						
tetrachloroethylene	E611D	0.50	µg/L	<0.50		10 µg/L				
toluene	E611D	0.50	µg/L	<0.50	24 µg/L	60 µg/L				
trichloroethane, 1,1,1-	E611D	0.50	µg/L	<0.50						
trichloroethane, 1,1,2-	E611D	0.50	µg/L	<0.50						
trichloroethylene	E611D	0.50	µg/L	<0.50		5 µg/L				
trichlorofluoromethane	E611D	0.50	µg/L	<0.50						
vinyl chloride	E611D	0.50	µg/L	<0.50		1 µg/L				
xylene, m+p-	E611D	0.40	µg/L	<0.40						
xylene, o-	E611D	0.30	µg/L	<0.30						



Analyte	Method	LOR	Unit	WT2203380-005 (Continued)	ONDWS AO/OG	ONDWS MAC				
Volatile Organic Compounds - Continued										
xylenes, total	E611D	0.50	µg/L	<0.50	300 µg/L	90 µg/L				
BTEX, total	E611D	1.0	µg/L	1.5						
bromofluorobenzene, 4-	E611D	1.0	%	90.9						
difluorobenzene, 1,4-	E611D	1.0	%	99.1						

Please refer to the General Comments section for an explanation of any qualifiers detected.

Summary of Guideline Breaches by Sample

SampleID/Client ID	Matrix	Analyte	Analyte Summary	Guideline	Category	Result	Limit
OW-3D	Water	alkalinity, total (as CaCO3)		ONDWS	AO/OG	920 mg/L	30-500 mg/L
	Water	colour, apparent	May interfere with disinfection; removal is important to ensure effective treatment.	ONDWS	AO/OG	185 CU	5 CU
	Water	solids, total dissolved [TDS]	Based on taste; TDS above 500 mg/L results in excessive scaling in water pipes, water heaters, boilers and appliances; TDS is composed of calcium, magnesium, sodium, potassium, carbonate, bicarbonate, chloride, sulphate and nitrate.	ONDWS	AO/OG	768 mg/L	500 mg/L
	Water	turbidity	Filtration systems should be designed and operated to reduce turbidity levels as low as reasonably achievable and strive to achieve a treated water turbidity target from individual filters of less than 0.1 NTU. Particles can harbour microorganisms, protecting them from disinfection, and can entrap heavy metals and biocides; elevated or fluctuating turbidity in filtered water can indicate a problem with the water treatment process and a potential increased risk of pathogens in treated water.	ONDWS	AO/OG	168 NTU	5 NTU
	Water	iron, dissolved	Based on taste and staining of laundry and plumbing fixtures; no evidence exists of dietary iron toxicity in the general population.	ONDWS	AO/OG	12.2 mg/L	0.3 mg/L
	Water	manganese, dissolved	Based on taste and staining of laundry and plumbing fixtures.	ONDWS	AO/OG	0.484 mg/L	0.05 mg/L
	Water	sodium, dissolved	Based on taste; where a sodium-based water softener is used, a separate unsoftened supply for cooking and drinking purposes is recommended.	ONDWS	MAC	37.4 mg/L	20 mg/L
	Water	benzene	Health basis of MAC: Bone marrow (red and white blood cell) changes and cancer (classified as human carcinogen). Other: Blood system and immunological responses.	ONDWS	MAC	1.50 µg/L	1 µg/L



Key:

ONDWS	Ontario Drinking Water Regulation (JAN, 2020)
AO/OG	Aesthetic Objective/Operational Guideline
MAC	Schedule 1 (Microbiological) and 2 (Chemical) Standards (JAN,2018)



Analytical Results

Analyte	Method	LOR	Unit	Client sample ID	ONDWS				
				OW-5	AO/OG	MAC			
Sub-Matrix: Groundwater (Matrix: Water)				Sampling date/time					
				WT2203380-006	04-May-2022 00:00				
Physical Tests									
alkalinity, total (as CaCO3)	E290	1.0	mg/L	319		30 - 500 mg/L			
colour, apparent	E330	2.0	CU	8.4		5 CU			
conductivity	E100	1.0	µS/cm	559					
pH	E108	0.10	pH units	7.94		6.5 - 8.5 pH units			
solids, total dissolved [TDS]	E162	10	mg/L	301	DLDS	500 mg/L			
turbidity	E121	0.10	NTU	249		5 NTU			
Anions and Nutrients									
ammonia, total (as N)	E298	0.0050	mg/L	0.0174					
chloride	E235.Cl	0.50	mg/L	1.45		250 mg/L			
fluoride	E235.F	0.020	mg/L	0.027			1.5 mg/L		
nitrate (as N)	E235.NO3	0.020	mg/L	0.125			10 mg/L		
nitrite (as N)	E235.NO2	0.010	mg/L	<0.010			1 mg/L		
phosphate, ortho-, dissolved (as P)	E378-T	0.0030	mg/L	0.0102					
sulfate (as SO4)	E235.SO4	0.30	mg/L	1.83					
Dissolved Metals									
aluminum, dissolved	E421	0.0010	mg/L	0.0535		0.1 mg/L			
antimony, dissolved	E421	0.00010	mg/L	<0.00010			0.006 mg/L		
arsenic, dissolved	E421	0.00010	mg/L	0.00022			0.01 mg/L		
barium, dissolved	E421	0.00010	mg/L	0.0122			1 mg/L		
beryllium, dissolved	E421	0.000020	mg/L	<0.000020					
bismuth, dissolved	E421	0.000050	mg/L	<0.000050					
boron, dissolved	E421	0.010	mg/L	0.028			5 mg/L		
cadmium, dissolved	E421	0.0000050	mg/L	0.0000154			0.005 mg/L		
calcium, dissolved	E421	0.050	mg/L	82.7					
cesium, dissolved	E421	0.000010	mg/L	<0.000010					
chromium, dissolved	E421	0.00050	mg/L	<0.00050			0.05 mg/L		
cobalt, dissolved	E421	0.00010	mg/L	<0.00010					
copper, dissolved	E421	0.00020	mg/L	0.00251		1 mg/L			
iron, dissolved	E421	0.010	mg/L	0.110		0.3 mg/L			



Analyte	Method	LOR	Unit	WT2203380-006 (Continued)	ONDWS AO/OG	ONDWS MAC				
Dissolved Metals - Continued										
lead, dissolved	E421	0.000050	mg/L	0.000829		0.01 mg/L				
lithium, dissolved	E421	0.0010	mg/L	<0.0010						
magnesium, dissolved	E421	0.0050	mg/L	25.1						
manganese, dissolved	E421	0.00010	mg/L	0.0195	0.05 mg/L					
molybdenum, dissolved	E421	0.000050	mg/L	0.000128						
nickel, dissolved	E421	0.00050	mg/L	0.00065						
phosphorus, dissolved	E421	0.050	mg/L	<0.050						
potassium, dissolved	E421	0.050	mg/L	1.04						
rubidium, dissolved	E421	0.00020	mg/L	0.00041						
selenium, dissolved	E421	0.000050	mg/L	0.000154		0.05 mg/L				
silicon, dissolved	E421	0.050	mg/L	2.58						
silver, dissolved	E421	0.000010	mg/L	<0.000010						
sodium, dissolved	E421	0.050	mg/L	1.76	200 mg/L	20 mg/L				
strontium, dissolved	E421	0.00020	mg/L	0.0954						
sulfur, dissolved	E421	0.50	mg/L	0.88						
tellurium, dissolved	E421	0.00020	mg/L	<0.00020						
thallium, dissolved	E421	0.000010	mg/L	<0.000010						
thorium, dissolved	E421	0.00010	mg/L	<0.00010						
tin, dissolved	E421	0.00010	mg/L	0.00043						
titanium, dissolved	E421	0.00030	mg/L	<0.00300	DLUI					
tungsten, dissolved	E421	0.00010	mg/L	<0.00010						
uranium, dissolved	E421	0.000010	mg/L	0.000236		0.02 mg/L				
vanadium, dissolved	E421	0.00050	mg/L	<0.00050						
zinc, dissolved	E421	0.0010	mg/L	0.0031	5 mg/L					
zirconium, dissolved	E421	0.00020	mg/L	<0.00020						
dissolved metals filtration location	EP421		-	Field						
Volatile Organic Compounds										
acetone	E611D	20	µg/L	<20	OWP					
benzene	E611D	0.50	µg/L	<0.50	OWP	1 µg/L				
bromodichloromethane	E611D	0.50	µg/L	<0.50	OWP					
bromoform	E611D	0.50	µg/L	<0.50	OWP					
bromomethane	E611D	0.50	µg/L	<0.50	OWP					
carbon tetrachloride	E611D	0.20	µg/L	<0.20	OWP	2 µg/L				
chlorobenzene	E611D	0.50	µg/L	<0.50	OWP	30 µg/L	80 µg/L			



Analyte	Method	LOR	Unit	WT2203380-006 (Continued)	ONDWS AO/OG	ONDWS MAC				
Volatile Organic Compounds - Continued										
chloroform	E611D	0.50	µg/L	<0.50	OWP					
dibromochloromethane	E611D	0.50	µg/L	<0.50	OWP					
dibromoethane, 1,2-	E611D	0.20	µg/L	<0.20	OWP					
dichlorobenzene, 1,2-	E611D	0.50	µg/L	<0.50	OWP	3 µg/L	200 µg/L			
dichlorobenzene, 1,3-	E611D	0.50	µg/L	<0.50	OWP					
dichlorobenzene, 1,4-	E611D	0.50	µg/L	<0.50	OWP	1 µg/L	5 µg/L			
dichlorodifluoromethane	E611D	0.50	µg/L	<0.50	OWP					
dichloroethane, 1,1-	E611D	0.50	µg/L	<0.50	OWP					
dichloroethane, 1,2-	E611D	0.50	µg/L	<0.50	OWP		5 µg/L			
dichloroethylene, 1,1-	E611D	0.50	µg/L	<0.50	OWP		14 µg/L			
dichloroethylene, cis-1,2-	E611D	0.50	µg/L	<0.50	OWP					
dichloroethylene, trans-1,2-	E611D	0.50	µg/L	<0.50	OWP					
dichloromethane	E611D	1.0	µg/L	<1.0			50 µg/L			
dichloropropane, 1,2-	E611D	0.50	µg/L	<0.50	OWP					
dichloropropylene, cis+trans-1,3-	E611D	0.50	µg/L	<0.50	OWP					
dichloropropylene, cis-1,3-	E611D	0.30	µg/L	<0.30	OWP					
dichloropropylene, trans-1,3-	E611D	0.30	µg/L	<0.30	OWP					
ethylbenzene	E611D	0.50	µg/L	<0.50	OWP	2.4 µg/L	140 µg/L			
hexane, n-	E611D	0.50	µg/L	<0.50	OWP					
methyl ethyl ketone [MEK]	E611D	20	µg/L	<20	OWP					
methyl isobutyl ketone [MIBK]	E611D	20	µg/L	<20	OWP					
methyl-tert-butyl ether [MTBE]	E611D	0.50	µg/L	<0.50	OWP		15 µg/L			
styrene	E611D	0.50	µg/L	<0.50	OWP					
tetrachloroethane, 1,1,1,2-	E611D	0.50	µg/L	<0.50	OWP					
tetrachloroethane, 1,1,2,2-	E611D	0.50	µg/L	<0.50	OWP					
tetrachloroethylene	E611D	0.50	µg/L	<0.50	OWP		10 µg/L			
toluene	E611D	0.50	µg/L	<0.50	OWP	24 µg/L	60 µg/L			
trichloroethane, 1,1,1-	E611D	0.50	µg/L	<0.50	OWP					
trichloroethane, 1,1,2-	E611D	0.50	µg/L	<0.50	OWP					
trichloroethylene	E611D	0.50	µg/L	<0.50	OWP		5 µg/L			
trichlorofluoromethane	E611D	0.50	µg/L	<0.50	OWP					
vinyl chloride	E611D	0.50	µg/L	<0.50	OWP		1 µg/L			
xylene, m+p-	E611D	0.40	µg/L	<0.40	OWP					
xylene, o-	E611D	0.30	µg/L	<0.30	OWP					



Analyte	Method	LOR	Unit	WT2203380-006 (Continued)	ONDWS AO/OG	ONDWS MAC				
Volatile Organic Compounds - Continued										
xylene, total	E611D	0.50	µg/L	<0.50	300 µg/L	90 µg/L				
BTEX, total	E611D	1.0	µg/L	<1.0						
bromofluorobenzene, 4-	E611D	1.0	%	90.4						
difluorobenzene, 1,4-	E611D	1.0	%	99.3						

Please refer to the General Comments section for an explanation of any qualifiers detected.

Summary of Guideline Breaches by Sample

SampleID/Client ID	Matrix	Analyte	Analyte Summary	Guideline	Category	Result	Limit
OW-5	Water	colour, apparent	May interfere with disinfection; removal is important to ensure effective treatment. Filtration systems should be designed and operated to reduce turbidity levels as low as reasonably achievable and strive to achieve a treated water turbidity target from individual filters of less than 0.1 NTU. Particles can harbour microorganisms, protecting them from disinfection, and can entrap heavy metals and biocides; elevated or fluctuating turbidity in filtered water can indicate a problem with the water treatment process and a potential increased risk of pathogens in treated water.	ONDWS	AO/OG	8.4 CU	5 CU
	Water	turbidity		ONDWS	AO/OG	249 NTU	5 NTU

Key:

ONDWS	Ontario Drinking Water Regulation (JAN, 2020)
AO/OG	Aesthetic Objective/Operational Guideline
MAC	Schedule 1 (Microbiological) and 2 (Chemical) Standards (JAN,2018)



Analytical Results

Analyte	Method	LOR	Unit	Client sample ID	ONDWS					
				OW-7S	AO/OG	MAC				
Sub-Matrix: Groundwater (Matrix: Water)				Sampling date/time						
				WT2203380-007						
Physical Tests										
alkalinity, total (as CaCO3)	E290	1.0	mg/L	490		30 - 500 mg/L				
colour, apparent	E330	2.0	CU	35.3		5 CU				
conductivity	E100	1.0	µS/cm	879						
pH	E108	0.10	pH units	7.80		6.5 - 8.5 pH units				
solids, total dissolved [TDS]	E162	10	mg/L	516	DLDS	500 mg/L				
turbidity	E121	0.10	NTU	1750		5 NTU				
Anions and Nutrients										
ammonia, total (as N)	E298	0.0050	mg/L	0.150						
chloride	E235.Cl	0.50	mg/L	6.27		250 mg/L				
fluoride	E235.F	0.020	mg/L	0.060			1.5 mg/L			
nitrate (as N)	E235.NO3	0.020	mg/L	0.076			10 mg/L			
nitrite (as N)	E235.NO2	0.010	mg/L	<0.010			1 mg/L			
phosphate, ortho-, dissolved (as P)	E378-T	0.0030	mg/L	<0.0030						
sulfate (as SO4)	E235.SO4	0.30	mg/L	29.3						
Dissolved Metals										
aluminum, dissolved	E421	0.0010	mg/L	0.0273		0.1 mg/L				
antimony, dissolved	E421	0.00010	mg/L	0.00018			0.006 mg/L			
arsenic, dissolved	E421	0.00010	mg/L	0.00047			0.01 mg/L			
barium, dissolved	E421	0.00010	mg/L	0.0738			1 mg/L			
beryllium, dissolved	E421	0.000020	mg/L	<0.000020						
bismuth, dissolved	E421	0.000050	mg/L	<0.000050						
boron, dissolved	E421	0.010	mg/L	0.103			5 mg/L			
cadmium, dissolved	E421	0.0000050	mg/L	0.0000516			0.005 mg/L			
calcium, dissolved	E421	0.050	mg/L	140						
cesium, dissolved	E421	0.000010	mg/L	<0.000010						
chromium, dissolved	E421	0.00050	mg/L	<0.00050			0.05 mg/L			
cobalt, dissolved	E421	0.00010	mg/L	0.00106						
copper, dissolved	E421	0.00020	mg/L	0.00252		1 mg/L				
iron, dissolved	E421	0.010	mg/L	0.444		0.3 mg/L				



Analyte	Method	LOR	Unit	WT2203380-007 (Continued)	ONDWS AO/OG	ONDWS MAC				
Dissolved Metals - Continued										
lead, dissolved	E421	0.000050	mg/L	0.000153		0.01 mg/L				
lithium, dissolved	E421	0.0010	mg/L	<0.0010						
magnesium, dissolved	E421	0.0050	mg/L	35.7						
manganese, dissolved	E421	0.00010	mg/L	0.370	0.05 mg/L					
molybdenum, dissolved	E421	0.000050	mg/L	0.000488						
nickel, dissolved	E421	0.00050	mg/L	0.00171						
phosphorus, dissolved	E421	0.050	mg/L	<0.050						
potassium, dissolved	E421	0.050	mg/L	2.01						
rubidium, dissolved	E421	0.00020	mg/L	0.00058						
selenium, dissolved	E421	0.000050	mg/L	0.000273		0.05 mg/L				
silicon, dissolved	E421	0.050	mg/L	3.68						
silver, dissolved	E421	0.000010	mg/L	<0.000010						
sodium, dissolved	E421	0.050	mg/L	5.98	200 mg/L	20 mg/L				
strontium, dissolved	E421	0.00020	mg/L	0.216						
sulfur, dissolved	E421	0.50	mg/L	12.4						
tellurium, dissolved	E421	0.00020	mg/L	<0.00020						
thallium, dissolved	E421	0.000010	mg/L	<0.000010						
thorium, dissolved	E421	0.00010	mg/L	<0.00010						
tin, dissolved	E421	0.00010	mg/L	0.00015						
titanium, dissolved	E421	0.00030	mg/L	0.00076						
tungsten, dissolved	E421	0.00010	mg/L	<0.00010						
uranium, dissolved	E421	0.000010	mg/L	0.00339		0.02 mg/L				
vanadium, dissolved	E421	0.00050	mg/L	<0.00050						
zinc, dissolved	E421	0.0010	mg/L	0.0576	5 mg/L					
zirconium, dissolved	E421	0.00020	mg/L	0.00053						
dissolved metals filtration location	EP421		-	Field						
Volatile Organic Compounds										
acetone	E611D	20	µg/L	<20	OWP					
benzene	E611D	0.50	µg/L	<0.50	OWP	1 µg/L				
bromodichloromethane	E611D	0.50	µg/L	<0.50	OWP					
bromoform	E611D	0.50	µg/L	<0.50	OWP					
bromomethane	E611D	0.50	µg/L	<0.50	OWP					
carbon tetrachloride	E611D	0.20	µg/L	<0.20	OWP	2 µg/L				
chlorobenzene	E611D	0.50	µg/L	<0.50	OWP	30 µg/L	80 µg/L			



Analyte	Method	LOR	Unit	WT2203380-007 (Continued)	ONDWS AO/OG	ONDWS MAC				
Volatile Organic Compounds - Continued										
chloroform	E611D	0.50	µg/L	<0.50	OWP					
dibromochloromethane	E611D	0.50	µg/L	<0.50	OWP					
dibromoethane, 1,2-	E611D	0.20	µg/L	<0.20	OWP					
dichlorobenzene, 1,2-	E611D	0.50	µg/L	<0.50		3 µg/L	200 µg/L			
dichlorobenzene, 1,3-	E611D	0.50	µg/L	<0.50						
dichlorobenzene, 1,4-	E611D	0.50	µg/L	<0.50		1 µg/L	5 µg/L			
dichlorodifluoromethane	E611D	0.50	µg/L	<0.50	OWP					
dichloroethane, 1,1-	E611D	0.50	µg/L	<0.50	OWP					
dichloroethane, 1,2-	E611D	0.50	µg/L	<0.50	OWP		5 µg/L			
dichloroethylene, 1,1-	E611D	0.50	µg/L	<0.50	OWP		14 µg/L			
dichloroethylene, cis-1,2-	E611D	0.50	µg/L	<0.50	OWP					
dichloroethylene, trans-1,2-	E611D	0.50	µg/L	<0.50	OWP					
dichloromethane	E611D	1.0	µg/L	<1.0			50 µg/L			
dichloropropane, 1,2-	E611D	0.50	µg/L	<0.50	OWP					
dichloropropylene, cis+trans-1,3-	E611D	0.50	µg/L	<0.50	OWP					
dichloropropylene, cis-1,3-	E611D	0.30	µg/L	<0.30	OWP					
dichloropropylene, trans-1,3-	E611D	0.30	µg/L	<0.30	OWP					
ethylbenzene	E611D	0.50	µg/L	<0.50	OWP	2.4 µg/L	140 µg/L			
hexane, n-	E611D	0.50	µg/L	<0.50	OWP					
methyl ethyl ketone [MEK]	E611D	20	µg/L	<20	OWP					
methyl isobutyl ketone [MIBK]	E611D	20	µg/L	<20	OWP					
methyl-tert-butyl ether [MTBE]	E611D	0.50	µg/L	<0.50			15 µg/L			
styrene	E611D	0.50	µg/L	<0.50	OWP					
tetrachloroethane, 1,1,1,2-	E611D	0.50	µg/L	<0.50	OWP					
tetrachloroethane, 1,1,2,2-	E611D	0.50	µg/L	<0.50	OWP					
tetrachloroethylene	E611D	0.50	µg/L	<0.50	OWP		10 µg/L			
toluene	E611D	0.50	µg/L	<0.50	OWP	24 µg/L	60 µg/L			
trichloroethane, 1,1,1-	E611D	0.50	µg/L	<0.50	OWP					
trichloroethane, 1,1,2-	E611D	0.50	µg/L	<0.50	OWP					
trichloroethylene	E611D	0.50	µg/L	<0.50	OWP		5 µg/L			
trichlorofluoromethane	E611D	0.50	µg/L	<0.50	OWP					
vinyl chloride	E611D	0.50	µg/L	<0.50	OWP		1 µg/L			
xylene, m+p-	E611D	0.40	µg/L	<0.40	OWP					
xylene, o-	E611D	0.30	µg/L	<0.30	OWP					



Analyte	Method	LOR	Unit	WT2203380-007 (Continued)	ONDWS AO/OG	ONDWS MAC				
Volatile Organic Compounds - Continued										
xylene, total	E611D	0.50	µg/L	<0.50	300 µg/L	90 µg/L				
BTEX, total	E611D	1.0	µg/L	<1.0						
bromofluorobenzene, 4-	E611D	1.0	%	89.8						
difluorobenzene, 1,4-	E611D	1.0	%	99.3						

Please refer to the General Comments section for an explanation of any qualifiers detected.

Summary of Guideline Breaches by Sample

SampleID/Client ID	Matrix	Analyte	Analyte Summary	Guideline	Category	Result	Limit
OW-7S	Water	colour, apparent	May interfere with disinfection; removal is important to ensure effective treatment.	ONDWS	AO/OG	35.3 CU	5 CU
	Water	solids, total dissolved [TDS]	Based on taste; TDS above 500 mg/L results in excessive scaling in water pipes, water heaters, boilers and appliances; TDS is composed of calcium, magnesium, sodium, potassium, carbonate, bicarbonate, chloride, sulphate and nitrate.	ONDWS	AO/OG	516 mg/L	500 mg/L
	Water	turbidity	Filtration systems should be designed and operated to reduce turbidity levels as low as reasonably achievable and strive to achieve a treated water turbidity target from individual filters of less than 0.1 NTU. Particles can harbour microorganisms, protecting them from disinfection, and can entrap heavy metals and biocides; elevated or fluctuating turbidity in filtered water can indicate a problem with the water treatment process and a potential increased risk of pathogens in treated water.	ONDWS	AO/OG	1750 NTU	5 NTU
	Water	iron, dissolved	Based on taste and staining of laundry and plumbing fixtures; no evidence exists of dietary iron toxicity in the general population.	ONDWS	AO/OG	0.444 mg/L	0.3 mg/L
	Water	manganese, dissolved	Based on taste and staining of laundry and plumbing fixtures.	ONDWS	AO/OG	0.370 mg/L	0.05 mg/L

Key:

ONDWS Ontario Drinking Water Regulation (JAN, 2020)
 AO/OG Aesthetic Objective/Operational Guideline
 MAC Schedule 1 (Microbiological) and 2 (Chemical) Standards (JAN,2018)



Analytical Results

Analyte	Method	LOR	Unit	Client sample ID	OW-7D		ONDWS AO/OG	ONDWS MAC			
				Sampling date/time							
Sub-Matrix: Groundwater (Matrix: Water)				WT2203380-008	04-May-2022 00:00						
Physical Tests											
alkalinity, total (as CaCO3)	E290	1.0	mg/L	600			30 - 500 mg/L				
colour, apparent	E330	2.0	CU	17.0			5 CU				
conductivity	E100	1.0	µS/cm	1360							
pH	E108	0.10	pH units	7.90			6.5 - 8.5 pH units				
solids, total dissolved [TDS]	E162	10	mg/L	772	DLDS		500 mg/L				
turbidity	E121	0.10	NTU	45.7			5 NTU				
Anions and Nutrients											
ammonia, total (as N)	E298	0.0050	mg/L	5.88	DLHC						
chloride	E235.Cl	0.50	mg/L	49.0	DLDS		250 mg/L				
fluoride	E235.F	0.020	mg/L	<0.100	DLDS			1.5 mg/L			
nitrate (as N)	E235.NO3	0.020	mg/L	5.88	DLDS			10 mg/L			
nitrite (as N)	E235.NO2	0.010	mg/L	<0.050	DLDS			1 mg/L			
phosphate, ortho-, dissolved (as P)	E378-T	0.0030	mg/L	<0.0030							
sulfate (as SO4)	E235.SO4	0.30	mg/L	120	DLDS						
Dissolved Metals											
aluminum, dissolved	E421	0.0010	mg/L	0.0054			0.1 mg/L				
antimony, dissolved	E421	0.00010	mg/L	0.00012				0.006 mg/L			
arsenic, dissolved	E421	0.00010	mg/L	0.00087				0.01 mg/L			
barium, dissolved	E421	0.00010	mg/L	0.108				1 mg/L			
beryllium, dissolved	E421	0.000020	mg/L	<0.000020							
bismuth, dissolved	E421	0.000050	mg/L	<0.000050							
boron, dissolved	E421	0.010	mg/L	0.508				5 mg/L			
cadmium, dissolved	E421	0.0000050	mg/L	0.0000254				0.005 mg/L			
calcium, dissolved	E421	0.050	mg/L	129							
cesium, dissolved	E421	0.000010	mg/L	<0.000010							
chromium, dissolved	E421	0.00050	mg/L	<0.00050				0.05 mg/L			
cobalt, dissolved	E421	0.00010	mg/L	0.00126							
copper, dissolved	E421	0.00020	mg/L	0.00087				1 mg/L			
iron, dissolved	E421	0.010	mg/L	1.68				0.3 mg/L			



Analyte	Method	LOR	Unit	WT2203380-008 (Continued)	ONDWS AO/OG	ONDWS MAC				
Dissolved Metals - Continued										
lead, dissolved	E421	0.000050	mg/L	0.000306		0.01 mg/L				
lithium, dissolved	E421	0.0010	mg/L	0.0030						
magnesium, dissolved	E421	0.0050	mg/L	72.4						
manganese, dissolved	E421	0.00010	mg/L	0.0913	0.05 mg/L					
molybdenum, dissolved	E421	0.000050	mg/L	0.000388						
nickel, dissolved	E421	0.00050	mg/L	0.00879						
phosphorus, dissolved	E421	0.050	mg/L	<0.050						
potassium, dissolved	E421	0.050	mg/L	23.1						
rubidium, dissolved	E421	0.00020	mg/L	0.00687						
selenium, dissolved	E421	0.000050	mg/L	0.000122		0.05 mg/L				
silicon, dissolved	E421	0.050	mg/L	5.94						
silver, dissolved	E421	0.000010	mg/L	<0.000010						
sodium, dissolved	E421	0.050	mg/L	31.7	200 mg/L	20 mg/L				
strontium, dissolved	E421	0.00020	mg/L	0.385						
sulfur, dissolved	E421	0.50	mg/L	34.2						
tellurium, dissolved	E421	0.00020	mg/L	<0.00020						
thallium, dissolved	E421	0.000010	mg/L	0.000608						
thorium, dissolved	E421	0.00010	mg/L	<0.00010						
tin, dissolved	E421	0.00010	mg/L	<0.00010						
titanium, dissolved	E421	0.00030	mg/L	<0.00030						
tungsten, dissolved	E421	0.00010	mg/L	<0.00010						
uranium, dissolved	E421	0.000010	mg/L	0.00107		0.02 mg/L				
vanadium, dissolved	E421	0.00050	mg/L	<0.00050						
zinc, dissolved	E421	0.0010	mg/L	0.0915	5 mg/L					
zirconium, dissolved	E421	0.00020	mg/L	0.00030						
dissolved metals filtration location	EP421		-	Field						
Volatile Organic Compounds										
acetone	E611D	20	µg/L	<20						
benzene	E611D	0.50	µg/L	<0.50		1 µg/L				
bromodichloromethane	E611D	0.50	µg/L	<0.50						
bromoform	E611D	0.50	µg/L	<0.50						
bromomethane	E611D	0.50	µg/L	<0.50						
carbon tetrachloride	E611D	0.20	µg/L	<0.20		2 µg/L				
chlorobenzene	E611D	0.50	µg/L	<0.50	30 µg/L	80 µg/L				



Analyte	Method	LOR	Unit	WT2203380-008 (Continued)	ONDWS AO/OG	ONDWS MAC				
Volatile Organic Compounds - Continued										
chloroform	E611D	0.50	µg/L	<0.50						
dibromochloromethane	E611D	0.50	µg/L	<0.50						
dibromoethane, 1,2-	E611D	0.20	µg/L	<0.20						
dichlorobenzene, 1,2-	E611D	0.50	µg/L	<0.50	3 µg/L	200 µg/L				
dichlorobenzene, 1,3-	E611D	0.50	µg/L	<0.50						
dichlorobenzene, 1,4-	E611D	0.50	µg/L	<0.50	1 µg/L	5 µg/L				
dichlorodifluoromethane	E611D	0.50	µg/L	<0.50						
dichloroethane, 1,1-	E611D	0.50	µg/L	<0.50						
dichloroethane, 1,2-	E611D	0.50	µg/L	<0.50		5 µg/L				
dichloroethylene, 1,1-	E611D	0.50	µg/L	<0.50		14 µg/L				
dichloroethylene, cis-1,2-	E611D	0.50	µg/L	<0.50						
dichloroethylene, trans-1,2-	E611D	0.50	µg/L	<0.50						
dichloromethane	E611D	1.0	µg/L	<1.0		50 µg/L				
dichloropropane, 1,2-	E611D	0.50	µg/L	<0.50						
dichloropropylene, cis+trans-1,3-	E611D	0.50	µg/L	<0.50						
dichloropropylene, cis-1,3-	E611D	0.30	µg/L	<0.30						
dichloropropylene, trans-1,3-	E611D	0.30	µg/L	<0.30						
ethylbenzene	E611D	0.50	µg/L	<0.50	2.4 µg/L	140 µg/L				
hexane, n-	E611D	0.50	µg/L	<0.50						
methyl ethyl ketone [MEK]	E611D	20	µg/L	<20						
methyl isobutyl ketone [MIBK]	E611D	20	µg/L	<20						
methyl-tert-butyl ether [MTBE]	E611D	0.50	µg/L	<0.50		15 µg/L				
styrene	E611D	0.50	µg/L	<0.50						
tetrachloroethane, 1,1,1,2-	E611D	0.50	µg/L	<0.50						
tetrachloroethane, 1,1,2,2-	E611D	0.50	µg/L	<0.50						
tetrachloroethylene	E611D	0.50	µg/L	<0.50		10 µg/L				
toluene	E611D	0.50	µg/L	<0.50	24 µg/L	60 µg/L				
trichloroethane, 1,1,1-	E611D	0.50	µg/L	<0.50						
trichloroethane, 1,1,2-	E611D	0.50	µg/L	<0.50						
trichloroethylene	E611D	0.50	µg/L	<0.50		5 µg/L				
trichlorofluoromethane	E611D	0.50	µg/L	<0.50						
vinyl chloride	E611D	0.50	µg/L	<0.50		1 µg/L				
xylene, m+p-	E611D	0.40	µg/L	<0.40						
xylene, o-	E611D	0.30	µg/L	<0.30						



Analyte	Method	LOR	Unit	WT2203380-008 (Continued)	ONDWS AO/OG	ONDWS MAC				
Volatile Organic Compounds - Continued										
xylenes, total	E611D	0.50	µg/L	<0.50	300 µg/L	90 µg/L				
BTEX, total	E611D	1.0	µg/L	<1.0						
bromofluorobenzene, 4-	E611D	1.0	%	90.7						
difluorobenzene, 1,4-	E611D	1.0	%	99.8						

Please refer to the General Comments section for an explanation of any qualifiers detected.

Summary of Guideline Breaches by Sample

SampleID/Client ID	Matrix	Analyte	Analyte Summary	Guideline	Category	Result	Limit
OW-7D	Water	alkalinity, total (as CaCO3)		ONDWS	AO/OG	600 mg/L	30-500 mg/L
	Water	colour, apparent	May interfere with disinfection; removal is important to ensure effective treatment.	ONDWS	AO/OG	17.0 CU	5 CU
	Water	solids, total dissolved [TDS]	Based on taste; TDS above 500 mg/L results in excessive scaling in water pipes, water heaters, boilers and appliances; TDS is composed of calcium, magnesium, sodium, potassium, carbonate, bicarbonate, chloride, sulphate and nitrate.	ONDWS	AO/OG	772 mg/L	500 mg/L
	Water	turbidity	Filtration systems should be designed and operated to reduce turbidity levels as low as reasonably achievable and strive to achieve a treated water turbidity target from individual filters of less than 0.1 NTU. Particles can harbour microorganisms, protecting them from disinfection, and can entrap heavy metals and biocides; elevated or fluctuating turbidity in filtered water can indicate a problem with the water treatment process and a potential increased risk of pathogens in treated water.	ONDWS	AO/OG	45.7 NTU	5 NTU
	Water	iron, dissolved	Based on taste and staining of laundry and plumbing fixtures; no evidence exists of dietary iron toxicity in the general population.	ONDWS	AO/OG	1.68 mg/L	0.3 mg/L
	Water	manganese, dissolved	Based on taste and staining of laundry and plumbing fixtures.	ONDWS	AO/OG	0.0913 mg/L	0.05 mg/L
	Water	sodium, dissolved	Based on taste; where a sodium-based water softener is used, a separate unsoftened supply for cooking and drinking purposes is recommended.	ONDWS	MAC	31.7 mg/L	20 mg/L

Key:

ONDWS Ontario Drinking Water Regulation (JAN, 2020)
 AO/OG Aesthetic Objective/Operational Guideline
 MAC Schedule 1 (Microbiological) and 2 (Chemical) Standards (JAN,2018)



Analytical Results

Analyte	Method	LOR	Unit	Client sample ID	ONDWS					
				OW-8	AO/OG	MAC				
Sub-Matrix: Groundwater (Matrix: Water)				Sampling date/time						
				WT2203380-009						
Physical Tests										
alkalinity, total (as CaCO3)	E290	1.0	mg/L	385		30 - 500 mg/L				
colour, apparent	E330	2.0	CU	6.8		5 CU				
conductivity	E100	1.0	µS/cm	1340						
pH	E108	0.10	pH units	7.97		6.5 - 8.5 pH units				
solids, total dissolved [TDS]	E162	10	mg/L	971	DLDS	500 mg/L				
turbidity	E121	0.10	NTU	52.3		5 NTU				
Anions and Nutrients										
ammonia, total (as N)	E298	0.0050	mg/L	0.0094						
chloride	E235.Cl	0.50	mg/L	8.27	DLDS	250 mg/L				
fluoride	E235.F	0.020	mg/L	<0.100	DLDS		1.5 mg/L			
nitrate (as N)	E235.NO3	0.020	mg/L	1.52	DLDS		10 mg/L			
nitrite (as N)	E235.NO2	0.010	mg/L	<0.050	DLDS		1 mg/L			
phosphate, ortho-, dissolved (as P)	E378-T	0.0030	mg/L	<0.0030						
sulfate (as SO4)	E235.SO4	0.30	mg/L	444	DLDS					
Dissolved Metals										
aluminum, dissolved	E421	0.0010	mg/L	0.0114		0.1 mg/L				
antimony, dissolved	E421	0.00010	mg/L	0.00019			0.006 mg/L			
arsenic, dissolved	E421	0.00010	mg/L	0.00061			0.01 mg/L			
barium, dissolved	E421	0.00010	mg/L	0.0412			1 mg/L			
beryllium, dissolved	E421	0.000020	mg/L	<0.000020						
bismuth, dissolved	E421	0.000050	mg/L	<0.000050						
boron, dissolved	E421	0.010	mg/L	0.432			5 mg/L			
cadmium, dissolved	E421	0.0000050	mg/L	0.0000162			0.005 mg/L			
calcium, dissolved	E421	0.050	mg/L	175						
cesium, dissolved	E421	0.000010	mg/L	<0.000010						
chromium, dissolved	E421	0.00050	mg/L	<0.00050			0.05 mg/L			
cobalt, dissolved	E421	0.00010	mg/L	0.00018						
copper, dissolved	E421	0.00020	mg/L	0.00183		1 mg/L				
iron, dissolved	E421	0.010	mg/L	0.113		0.3 mg/L				



Analyte	Method	LOR	Unit	WT2203380-009 (Continued)	ONDWS AO/OG	ONDWS MAC				
Dissolved Metals - Continued										
lead, dissolved	E421	0.000050	mg/L	0.000334		0.01 mg/L				
lithium, dissolved	E421	0.0010	mg/L	<0.0010						
magnesium, dissolved	E421	0.0050	mg/L	70.9						
manganese, dissolved	E421	0.00010	mg/L	0.0394	0.05 mg/L					
molybdenum, dissolved	E421	0.000050	mg/L	0.000451						
nickel, dissolved	E421	0.00050	mg/L	0.00068						
phosphorus, dissolved	E421	0.050	mg/L	<0.050						
potassium, dissolved	E421	0.050	mg/L	6.78						
rubidium, dissolved	E421	0.00020	mg/L	0.00062						
selenium, dissolved	E421	0.000050	mg/L	0.000135		0.05 mg/L				
silicon, dissolved	E421	0.050	mg/L	3.30						
silver, dissolved	E421	0.000010	mg/L	<0.000010						
sodium, dissolved	E421	0.050	mg/L	11.1	200 mg/L	20 mg/L				
strontium, dissolved	E421	0.00020	mg/L	0.375						
sulfur, dissolved	E421	0.50	mg/L	127						
tellurium, dissolved	E421	0.00020	mg/L	<0.00020						
thallium, dissolved	E421	0.000010	mg/L	<0.000010						
thorium, dissolved	E421	0.00010	mg/L	<0.00010						
tin, dissolved	E421	0.00010	mg/L	<0.00010						
titanium, dissolved	E421	0.00030	mg/L	0.00039						
tungsten, dissolved	E421	0.00010	mg/L	<0.00010						
uranium, dissolved	E421	0.000010	mg/L	0.000713		0.02 mg/L				
vanadium, dissolved	E421	0.00050	mg/L	<0.00050						
zinc, dissolved	E421	0.0010	mg/L	0.0046	5 mg/L					
zirconium, dissolved	E421	0.00020	mg/L	<0.00020						
dissolved metals filtration location	EP421		-	Field						
Volatile Organic Compounds										
acetone	E611D	20	µg/L	<20						
benzene	E611D	0.50	µg/L	<0.50		1 µg/L				
bromodichloromethane	E611D	0.50	µg/L	<0.50						
bromoform	E611D	0.50	µg/L	<0.50						
bromomethane	E611D	0.50	µg/L	<0.50						
carbon tetrachloride	E611D	0.20	µg/L	<0.20		2 µg/L				
chlorobenzene	E611D	0.50	µg/L	<0.50	30 µg/L	80 µg/L				



Analyte	Method	LOR	Unit	WT2203380-009 (Continued)	ONDWS AO/OG	ONDWS MAC				
Volatile Organic Compounds - Continued										
chloroform	E611D	0.50	µg/L	<0.50						
dibromochloromethane	E611D	0.50	µg/L	<0.50						
dibromoethane, 1,2-	E611D	0.20	µg/L	<0.20						
dichlorobenzene, 1,2-	E611D	0.50	µg/L	<0.50	3 µg/L	200 µg/L				
dichlorobenzene, 1,3-	E611D	0.50	µg/L	<0.50						
dichlorobenzene, 1,4-	E611D	0.50	µg/L	<0.50	1 µg/L	5 µg/L				
dichlorodifluoromethane	E611D	0.50	µg/L	<0.50						
dichloroethane, 1,1-	E611D	0.50	µg/L	<0.50						
dichloroethane, 1,2-	E611D	0.50	µg/L	<0.50		5 µg/L				
dichloroethylene, 1,1-	E611D	0.50	µg/L	<0.50		14 µg/L				
dichloroethylene, cis-1,2-	E611D	0.50	µg/L	<0.50						
dichloroethylene, trans-1,2-	E611D	0.50	µg/L	<0.50						
dichloromethane	E611D	1.0	µg/L	<1.0		50 µg/L				
dichloropropane, 1,2-	E611D	0.50	µg/L	<0.50						
dichloropropylene, cis+trans-1,3-	E611D	0.50	µg/L	<0.50						
dichloropropylene, cis-1,3-	E611D	0.30	µg/L	<0.30						
dichloropropylene, trans-1,3-	E611D	0.30	µg/L	<0.30						
ethylbenzene	E611D	0.50	µg/L	<0.50	2.4 µg/L	140 µg/L				
hexane, n-	E611D	0.50	µg/L	<0.50						
methyl ethyl ketone [MEK]	E611D	20	µg/L	<20						
methyl isobutyl ketone [MIBK]	E611D	20	µg/L	<20						
methyl-tert-butyl ether [MTBE]	E611D	0.50	µg/L	<0.50		15 µg/L				
styrene	E611D	0.50	µg/L	<0.50						
tetrachloroethane, 1,1,1,2-	E611D	0.50	µg/L	<0.50						
tetrachloroethane, 1,1,2,2-	E611D	0.50	µg/L	<0.50						
tetrachloroethylene	E611D	0.50	µg/L	<0.50		10 µg/L				
toluene	E611D	0.50	µg/L	<0.50	24 µg/L	60 µg/L				
trichloroethane, 1,1,1-	E611D	0.50	µg/L	<0.50						
trichloroethane, 1,1,2-	E611D	0.50	µg/L	<0.50						
trichloroethylene	E611D	0.50	µg/L	<0.50		5 µg/L				
trichlorofluoromethane	E611D	0.50	µg/L	<0.50						
vinyl chloride	E611D	0.50	µg/L	<0.50		1 µg/L				
xylene, m+p-	E611D	0.40	µg/L	<0.40						
xylene, o-	E611D	0.30	µg/L	<0.30						



Analyte	Method	LOR	Unit	WT2203380-009 (Continued)	ONDWS AO/OG	ONDWS MAC				
Volatile Organic Compounds - Continued										
xylene, total	E611D	0.50	µg/L	<0.50	300 µg/L	90 µg/L				
BTEX, total	E611D	1.0	µg/L	<1.0						
bromofluorobenzene, 4-	E611D	1.0	%	90.4						
difluorobenzene, 1,4-	E611D	1.0	%	98.7						

Please refer to the General Comments section for an explanation of any qualifiers detected.

Summary of Guideline Breaches by Sample

SampleID/Client ID	Matrix	Analyte	Analyte Summary	Guideline	Category	Result	Limit
OW-8	Water	colour, apparent	May interfere with disinfection; removal is important to ensure effective treatment.	ONDWS	AO/OG	6.8 CU	5 CU
	Water	solids, total dissolved [TDS]	Based on taste; TDS above 500 mg/L results in excessive scaling in water pipes, water heaters, boilers and appliances; TDS is composed of calcium, magnesium, sodium, potassium, carbonate, bicarbonate, chloride, sulphate and nitrate.	ONDWS	AO/OG	971 mg/L	500 mg/L
	Water	turbidity	Filtration systems should be designed and operated to reduce turbidity levels as low as reasonably achievable and strive to achieve a treated water turbidity target from individual filters of less than 0.1 NTU. Particles can harbour microorganisms, protecting them from disinfection, and can entrap heavy metals and biocides; elevated or fluctuating turbidity in filtered water can indicate a problem with the water treatment process and a potential increased risk of pathogens in treated water.	ONDWS	AO/OG	52.3 NTU	5 NTU

Key:

- ONDWS Ontario Drinking Water Regulation (JAN, 2020)
- AO/OG Aesthetic Objective/Operational Guideline
- MAC Schedule 1 (Microbiological) and 2 (Chemical) Standards (JAN,2018)



Analytical Results

Analyte	Method	LOR	Unit	Client sample ID	ONDWS					
				OW-10S	AO/OG	MAC				
Sub-Matrix: Groundwater (Matrix: Water)				Sampling date/time						
				WT2203380-010						
Physical Tests										
alkalinity, total (as CaCO3)	E290	1.0	mg/L	275	30 - 500 mg/L					
colour, apparent	E330	2.0	CU	24.5	5 CU					
conductivity	E100	1.0	µS/cm	477						
pH	E108	0.10	pH units	7.97	6.5 - 8.5 pH units					
solids, total dissolved [TDS]	E162	10	mg/L	262	DLDS 500 mg/L					
turbidity	E121	0.10	NTU	784	5 NTU					
Anions and Nutrients										
ammonia, total (as N)	E298	0.0050	mg/L	0.0195						
chloride	E235.Cl	0.50	mg/L	1.03	250 mg/L					
fluoride	E235.F	0.020	mg/L	0.050		1.5 mg/L				
nitrate (as N)	E235.NO3	0.020	mg/L	<0.020		10 mg/L				
nitrite (as N)	E235.NO2	0.010	mg/L	<0.010		1 mg/L				
phosphate, ortho-, dissolved (as P)	E378-T	0.0030	mg/L	<0.0030						
sulfate (as SO4)	E235.SO4	0.30	mg/L	1.06						
Dissolved Metals										
aluminum, dissolved	E421	0.0010	mg/L	0.267	0.1 mg/L					
antimony, dissolved	E421	0.00010	mg/L	<0.00010		0.006 mg/L				
arsenic, dissolved	E421	0.00010	mg/L	0.00126		0.01 mg/L				
barium, dissolved	E421	0.00010	mg/L	0.0218		1 mg/L				
beryllium, dissolved	E421	0.000020	mg/L	<0.000020						
bismuth, dissolved	E421	0.000050	mg/L	<0.000050						
boron, dissolved	E421	0.010	mg/L	0.013		5 mg/L				
cadmium, dissolved	E421	0.0000050	mg/L	0.0000190		0.005 mg/L				
calcium, dissolved	E421	0.050	mg/L	72.5						
cesium, dissolved	E421	0.000010	mg/L	0.000025						
chromium, dissolved	E421	0.00050	mg/L	0.00050		0.05 mg/L				
cobalt, dissolved	E421	0.00010	mg/L	0.00044						
copper, dissolved	E421	0.00020	mg/L	0.00119	1 mg/L					
iron, dissolved	E421	0.010	mg/L	1.11	0.3 mg/L					



Analyte	Method	LOR	Unit	WT2203380-010 (Continued)	ONDWS AO/OG	ONDWS MAC				
Dissolved Metals - Continued										
lead, dissolved	E421	0.000050	mg/L	0.00120		0.01 mg/L				
lithium, dissolved	E421	0.0010	mg/L	<0.0010						
magnesium, dissolved	E421	0.0050	mg/L	28.4						
manganese, dissolved	E421	0.00010	mg/L	0.185	0.05 mg/L					
molybdenum, dissolved	E421	0.000050	mg/L	0.000310						
nickel, dissolved	E421	0.00050	mg/L	0.00125						
phosphorus, dissolved	E421	0.050	mg/L	<0.050						
potassium, dissolved	E421	0.050	mg/L	0.426						
rubidium, dissolved	E421	0.00020	mg/L	0.00079						
selenium, dissolved	E421	0.000050	mg/L	0.000187		0.05 mg/L				
silicon, dissolved	E421	0.050	mg/L	2.84						
silver, dissolved	E421	0.000010	mg/L	<0.000010						
sodium, dissolved	E421	0.050	mg/L	1.54	200 mg/L	20 mg/L				
strontium, dissolved	E421	0.00020	mg/L	0.0695						
sulfur, dissolved	E421	0.50	mg/L	0.58						
tellurium, dissolved	E421	0.00020	mg/L	<0.00020						
thallium, dissolved	E421	0.000010	mg/L	0.000041						
thorium, dissolved	E421	0.00010	mg/L	<0.00010						
tin, dissolved	E421	0.00010	mg/L	<0.00010						
titanium, dissolved	E421	0.00030	mg/L	<0.0150	DLUI					
tungsten, dissolved	E421	0.00010	mg/L	<0.00010						
uranium, dissolved	E421	0.000010	mg/L	0.000328		0.02 mg/L				
vanadium, dissolved	E421	0.00050	mg/L	0.00052						
zinc, dissolved	E421	0.0010	mg/L	0.0073	5 mg/L					
zirconium, dissolved	E421	0.00020	mg/L	0.00031						
dissolved metals filtration location	EP421		-	Field						
Volatile Organic Compounds										
acetone	E611D	20	µg/L	<20	OWP					
benzene	E611D	0.50	µg/L	<0.50	OWP	1 µg/L				
bromodichloromethane	E611D	0.50	µg/L	<0.50	OWP					
bromoform	E611D	0.50	µg/L	<0.50	OWP					
bromomethane	E611D	0.50	µg/L	<0.50	OWP					
carbon tetrachloride	E611D	0.20	µg/L	<0.20	OWP	2 µg/L				
chlorobenzene	E611D	0.50	µg/L	<0.50	OWP	30 µg/L	80 µg/L			



Analyte	Method	LOR	Unit	WT2203380-010 (Continued)	ONDWS AO/OG	ONDWS MAC				
Volatile Organic Compounds - Continued										
chloroform	E611D	0.50	µg/L	<0.50	OWP					
dibromochloromethane	E611D	0.50	µg/L	<0.50	OWP					
dibromoethane, 1,2-	E611D	0.20	µg/L	<0.20	OWP					
dichlorobenzene, 1,2-	E611D	0.50	µg/L	<0.50		3 µg/L	200 µg/L			
dichlorobenzene, 1,3-	E611D	0.50	µg/L	<0.50						
dichlorobenzene, 1,4-	E611D	0.50	µg/L	<0.50		1 µg/L	5 µg/L			
dichlorodifluoromethane	E611D	0.50	µg/L	<0.50	OWP					
dichloroethane, 1,1-	E611D	0.50	µg/L	<0.50	OWP					
dichloroethane, 1,2-	E611D	0.50	µg/L	<0.50	OWP		5 µg/L			
dichloroethylene, 1,1-	E611D	0.50	µg/L	<0.50	OWP		14 µg/L			
dichloroethylene, cis-1,2-	E611D	0.50	µg/L	<0.50	OWP					
dichloroethylene, trans-1,2-	E611D	0.50	µg/L	<0.50	OWP					
dichloromethane	E611D	1.0	µg/L	<1.0	OWP		50 µg/L			
dichloropropane, 1,2-	E611D	0.50	µg/L	<0.50	OWP					
dichloropropylene, cis+trans-1,3-	E611D	0.50	µg/L	<0.50	OWP					
dichloropropylene, cis-1,3-	E611D	0.30	µg/L	<0.30	OWP					
dichloropropylene, trans-1,3-	E611D	0.30	µg/L	<0.30	OWP					
ethylbenzene	E611D	0.50	µg/L	<0.50	OWP	2.4 µg/L	140 µg/L			
hexane, n-	E611D	0.50	µg/L	<0.50	OWP					
methyl ethyl ketone [MEK]	E611D	20	µg/L	<20	OWP					
methyl isobutyl ketone [MIBK]	E611D	20	µg/L	<20	OWP					
methyl-tert-butyl ether [MTBE]	E611D	0.50	µg/L	<0.50	OWP		15 µg/L			
styrene	E611D	0.50	µg/L	<0.50	OWP					
tetrachloroethane, 1,1,1,2-	E611D	0.50	µg/L	<0.50	OWP					
tetrachloroethane, 1,1,2,2-	E611D	0.50	µg/L	<0.50	OWP					
tetrachloroethylene	E611D	0.50	µg/L	<0.50	OWP		10 µg/L			
toluene	E611D	0.50	µg/L	<0.50	OWP	24 µg/L	60 µg/L			
trichloroethane, 1,1,1-	E611D	0.50	µg/L	<0.50	OWP					
trichloroethane, 1,1,2-	E611D	0.50	µg/L	<0.50	OWP					
trichloroethylene	E611D	0.50	µg/L	<0.50	OWP		5 µg/L			
trichlorofluoromethane	E611D	0.50	µg/L	<0.50	OWP					
vinyl chloride	E611D	0.50	µg/L	<0.50	OWP		1 µg/L			
xylene, m+p-	E611D	0.40	µg/L	<0.40	OWP					
xylene, o-	E611D	0.30	µg/L	<0.30	OWP					



Analyte	Method	LOR	Unit	WT2203380-010 (Continued)	ONDWS AO/OG	ONDWS MAC				
Volatile Organic Compounds - Continued										
xylene, total	E611D	0.50	µg/L	<0.50	300 µg/L	90 µg/L				
BTEX, total	E611D	1.0	µg/L	<1.0						
bromofluorobenzene, 4-	E611D	1.0	%	90.6						
difluorobenzene, 1,4-	E611D	1.0	%	99.5						

Please refer to the General Comments section for an explanation of any qualifiers detected.

Summary of Guideline Breaches by Sample

SampleID/Client ID	Matrix	Analyte	Analyte Summary	Guideline	Category	Result	Limit
OW-10S	Water	colour, apparent	May interfere with disinfection; removal is important to ensure effective treatment.	ONDWS	AO/OG	24.5 CU	5 CU
	Water	turbidity	Filtration systems should be designed and operated to reduce turbidity levels as low as reasonably achievable and strive to achieve a treated water turbidity target from individual filters of less than 0.1 NTU. Particles can harbour microorganisms, protecting them from disinfection, and can entrap heavy metals and biocides; elevated or fluctuating turbidity in filtered water can indicate a problem with the water treatment process and a potential increased risk of pathogens in treated water.	ONDWS	AO/OG	784 NTU	5 NTU
	Water	aluminum, dissolved	There is no consistent, convincing evidence that aluminum in drinking water causes adverse health effects in humans. The operational guideline applies to treatment plants using aluminum-based coagulants; it does not apply to naturally occurring aluminum found in groundwater. For treatment plants using aluminum-based coagulants, monthly samples should be taken of the water leaving the plant; the OGs are based on a running annual average of monthly samples.	ONDWS	AO/OG	0.267 mg/L	0.1 mg/L
	Water	iron, dissolved	Based on taste and staining of laundry and plumbing fixtures; no evidence exists of dietary iron toxicity in the general population.	ONDWS	AO/OG	1.11 mg/L	0.3 mg/L
	Water	manganese, dissolved	Based on taste and staining of laundry and plumbing fixtures.	ONDWS	AO/OG	0.185 mg/L	0.05 mg/L

Key:

ONDWS Ontario Drinking Water Regulation (JAN, 2020)
 AO/OG Aesthetic Objective/Operational Guideline
 MAC Schedule 1 (Microbiological) and 2 (Chemical) Standards (JAN,2018)



Analytical Results

Analyte	Method	LOR	Unit	Client sample ID	OW-10D	ONDWS AO/OG	ONDWS MAC			
				Sub-Matrix: Groundwater (Matrix: Water)	Sampling date/time					
				WT2203380-011						
Physical Tests										
alkalinity, total (as CaCO3)	E290	1.0	mg/L	333		30 - 500 mg/L				
colour, apparent	E330	2.0	CU	2.4		5 CU				
conductivity	E100	1.0	µS/cm	585						
pH	E108	0.10	pH units	7.86		6.5 - 8.5 pH units				
solids, total dissolved [TDS]	E162	10	mg/L	304	DLDS	500 mg/L				
turbidity	E121	0.10	NTU	11.6		5 NTU				
Anions and Nutrients										
ammonia, total (as N)	E298	0.0050	mg/L	0.454						
chloride	E235.Cl	0.50	mg/L	3.30		250 mg/L				
fluoride	E235.F	0.020	mg/L	0.045			1.5 mg/L			
nitrate (as N)	E235.NO3	0.020	mg/L	0.091			10 mg/L			
nitrite (as N)	E235.NO2	0.010	mg/L	0.088			1 mg/L			
phosphate, ortho-, dissolved (as P)	E378-T	0.0030	mg/L	<0.0030						
sulfate (as SO4)	E235.SO4	0.30	mg/L	6.78						
Dissolved Metals										
aluminum, dissolved	E421	0.0010	mg/L	0.0105		0.1 mg/L				
antimony, dissolved	E421	0.00010	mg/L	<0.00010			0.006 mg/L			
arsenic, dissolved	E421	0.00010	mg/L	0.00015			0.01 mg/L			
barium, dissolved	E421	0.00010	mg/L	0.0847			1 mg/L			
beryllium, dissolved	E421	0.000020	mg/L	<0.000020						
bismuth, dissolved	E421	0.000050	mg/L	<0.000050						
boron, dissolved	E421	0.010	mg/L	0.038			5 mg/L			
cadmium, dissolved	E421	0.0000050	mg/L	0.0000718			0.005 mg/L			
calcium, dissolved	E421	0.050	mg/L	76.1						
cesium, dissolved	E421	0.000010	mg/L	<0.000010						
chromium, dissolved	E421	0.00050	mg/L	<0.00050			0.05 mg/L			
cobalt, dissolved	E421	0.00010	mg/L	0.00065						
copper, dissolved	E421	0.00020	mg/L	0.00191		1 mg/L				
iron, dissolved	E421	0.010	mg/L	0.028		0.3 mg/L				



Analyte	Method	LOR	Unit	WT2203380-011 (Continued)	ONDWS AO/OG	ONDWS MAC				
Dissolved Metals - Continued										
lead, dissolved	E421	0.000050	mg/L	0.000868		0.01 mg/L				
lithium, dissolved	E421	0.0010	mg/L	0.0011						
magnesium, dissolved	E421	0.0050	mg/L	31.9						
manganese, dissolved	E421	0.00010	mg/L	0.562	0.05 mg/L					
molybdenum, dissolved	E421	0.000050	mg/L	0.000672						
nickel, dissolved	E421	0.00050	mg/L	0.00380						
phosphorus, dissolved	E421	0.050	mg/L	<0.050						
potassium, dissolved	E421	0.050	mg/L	1.21						
rubidium, dissolved	E421	0.00020	mg/L	0.00103						
selenium, dissolved	E421	0.000050	mg/L	0.000059		0.05 mg/L				
silicon, dissolved	E421	0.050	mg/L	3.42						
silver, dissolved	E421	0.000010	mg/L	<0.000010						
sodium, dissolved	E421	0.050	mg/L	3.76	200 mg/L	20 mg/L				
strontium, dissolved	E421	0.00020	mg/L	0.0952						
sulfur, dissolved	E421	0.50	mg/L	2.41						
tellurium, dissolved	E421	0.00020	mg/L	<0.00020						
thallium, dissolved	E421	0.000010	mg/L	0.000230						
thorium, dissolved	E421	0.00010	mg/L	<0.00010						
tin, dissolved	E421	0.00010	mg/L	<0.00010						
titanium, dissolved	E421	0.00030	mg/L	<0.00090	DLUI					
tungsten, dissolved	E421	0.00010	mg/L	<0.00010						
uranium, dissolved	E421	0.000010	mg/L	0.000467		0.02 mg/L				
vanadium, dissolved	E421	0.00050	mg/L	<0.00050						
zinc, dissolved	E421	0.0010	mg/L	0.0196	5 mg/L					
zirconium, dissolved	E421	0.00020	mg/L	<0.00020						
dissolved metals filtration location	EP421		-	Field						
Volatile Organic Compounds										
acetone	E611D	20	µg/L	<20						
benzene	E611D	0.50	µg/L	<0.50		1 µg/L				
bromodichloromethane	E611D	0.50	µg/L	<0.50						
bromoform	E611D	0.50	µg/L	<0.50						
bromomethane	E611D	0.50	µg/L	<0.50						
carbon tetrachloride	E611D	0.20	µg/L	<0.20		2 µg/L				
chlorobenzene	E611D	0.50	µg/L	<0.50	30 µg/L	80 µg/L				



Analyte	Method	LOR	Unit	WT2203380-011 (Continued)	ONDWS AO/OG	ONDWS MAC				
Volatile Organic Compounds - Continued										
chloroform	E611D	0.50	µg/L	<0.50						
dibromochloromethane	E611D	0.50	µg/L	<0.50						
dibromoethane, 1,2-	E611D	0.20	µg/L	<0.20						
dichlorobenzene, 1,2-	E611D	0.50	µg/L	<0.50	3 µg/L	200 µg/L				
dichlorobenzene, 1,3-	E611D	0.50	µg/L	<0.50						
dichlorobenzene, 1,4-	E611D	0.50	µg/L	<0.50	1 µg/L	5 µg/L				
dichlorodifluoromethane	E611D	0.50	µg/L	<0.50						
dichloroethane, 1,1-	E611D	0.50	µg/L	<0.50						
dichloroethane, 1,2-	E611D	0.50	µg/L	<0.50		5 µg/L				
dichloroethylene, 1,1-	E611D	0.50	µg/L	<0.50		14 µg/L				
dichloroethylene, cis-1,2-	E611D	0.50	µg/L	<0.50						
dichloroethylene, trans-1,2-	E611D	0.50	µg/L	<0.50						
dichloromethane	E611D	1.0	µg/L	<1.0		50 µg/L				
dichloropropane, 1,2-	E611D	0.50	µg/L	<0.50						
dichloropropylene, cis+trans-1,3-	E611D	0.50	µg/L	<0.50						
dichloropropylene, cis-1,3-	E611D	0.30	µg/L	<0.30						
dichloropropylene, trans-1,3-	E611D	0.30	µg/L	<0.30						
ethylbenzene	E611D	0.50	µg/L	<0.50	2.4 µg/L	140 µg/L				
hexane, n-	E611D	0.50	µg/L	<0.50						
methyl ethyl ketone [MEK]	E611D	20	µg/L	<20						
methyl isobutyl ketone [MIBK]	E611D	20	µg/L	<20						
methyl-tert-butyl ether [MTBE]	E611D	0.50	µg/L	<0.50		15 µg/L				
styrene	E611D	0.50	µg/L	<0.50						
tetrachloroethane, 1,1,1,2-	E611D	0.50	µg/L	<0.50						
tetrachloroethane, 1,1,2,2-	E611D	0.50	µg/L	<0.50						
tetrachloroethylene	E611D	0.50	µg/L	<0.50		10 µg/L				
toluene	E611D	0.50	µg/L	<0.50	24 µg/L	60 µg/L				
trichloroethane, 1,1,1-	E611D	0.50	µg/L	<0.50						
trichloroethane, 1,1,2-	E611D	0.50	µg/L	<0.50						
trichloroethylene	E611D	0.50	µg/L	<0.50		5 µg/L				
trichlorofluoromethane	E611D	0.50	µg/L	<0.50						
vinyl chloride	E611D	0.50	µg/L	<0.50		1 µg/L				
xylene, m+p-	E611D	0.40	µg/L	<0.40						
xylene, o-	E611D	0.30	µg/L	<0.30						



Analyte	Method	LOR	Unit	WT2203380-011 (Continued)	ONDWS AO/OG	ONDWS MAC				
Volatile Organic Compounds - Continued										
xylene, total	E611D	0.50	µg/L	<0.50	300 µg/L	90 µg/L				
BTEX, total	E611D	1.0	µg/L	<1.0						
bromofluorobenzene, 4-	E611D	1.0	%	89.0						
difluorobenzene, 1,4-	E611D	1.0	%	99.0						

Please refer to the General Comments section for an explanation of any qualifiers detected.

Summary of Guideline Breaches by Sample

SampleID/Client ID	Matrix	Analyte	Analyte Summary	Guideline	Category	Result	Limit
OW-10D	Water	turbidity	Filtration systems should be designed and operated to reduce turbidity levels as low as reasonably achievable and strive to achieve a treated water turbidity target from individual filters of less than 0.1 NTU. Particles can harbour microorganisms, protecting them from disinfection, and can entrap heavy metals and biocides; elevated or fluctuating turbidity in filtered water can indicate a problem with the water treatment process and a potential increased risk of pathogens in treated water. Based on taste and staining of laundry and plumbing fixtures.	ONDWS	AO/OG	11.6 NTU	5 NTU
	Water	manganese, dissolved		ONDWS	AO/OG	0.562 mg/L	0.05 mg/L

Key:
 ONDWS Ontario Drinking Water Regulation (JAN, 2020)
 AO/OG Aesthetic Objective/Operational Guideline
 MAC Schedule 1 (Microbiological) and 2 (Chemical) Standards (JAN,2018)



Analytical Results

Analyte	Method	LOR	Unit	Client sample ID	OW-12S	ONDWS AO/OG	ONDWS MAC			
				Sub-Matrix: Groundwater (Matrix: Water)	Sampling date/time					
Physical Tests										
alkalinity, total (as CaCO3)	E290	1.0	mg/L	WT2203380-012	291	30 - 500 mg/L				
colour, apparent	E330	2.0	CU		32.4	5 CU				
conductivity	E100	1.0	µS/cm		531					
pH	E108	0.10	pH units		8.04	6.5 - 8.5 pH units				
solids, total dissolved [TDS]	E162	10	mg/L		289	DLDS 500 mg/L				
turbidity	E121	0.10	NTU		2280	5 NTU				
Anions and Nutrients										
ammonia, total (as N)	E298	0.0050	mg/L		0.0123					
chloride	E235.Cl	0.50	mg/L		4.78	250 mg/L				
fluoride	E235.F	0.020	mg/L		0.044		1.5 mg/L			
nitrate (as N)	E235.NO3	0.020	mg/L		0.140		10 mg/L			
nitrite (as N)	E235.NO2	0.010	mg/L		<0.010		1 mg/L			
phosphate, ortho-, dissolved (as P)	E378-T	0.0030	mg/L		<0.0030					
sulfate (as SO4)	E235.SO4	0.30	mg/L		6.37					
Dissolved Metals										
aluminum, dissolved	E421	0.0010	mg/L		0.240	0.1 mg/L				
antimony, dissolved	E421	0.00010	mg/L		<0.00010		0.006 mg/L			
arsenic, dissolved	E421	0.00010	mg/L		0.00028		0.01 mg/L			
barium, dissolved	E421	0.00010	mg/L		0.0142		1 mg/L			
beryllium, dissolved	E421	0.000020	mg/L		<0.000020					
bismuth, dissolved	E421	0.000050	mg/L		<0.000050					
boron, dissolved	E421	0.010	mg/L		0.040		5 mg/L			
cadmium, dissolved	E421	0.0000050	mg/L		0.0000398		0.005 mg/L			
calcium, dissolved	E421	0.050	mg/L		82.0					
cesium, dissolved	E421	0.000010	mg/L		0.000030					
chromium, dissolved	E421	0.00050	mg/L		<0.00050		0.05 mg/L			
cobalt, dissolved	E421	0.00010	mg/L		0.00015					
copper, dissolved	E421	0.00020	mg/L		0.00164	1 mg/L				
iron, dissolved	E421	0.010	mg/L		0.228	0.3 mg/L				



Analyte	Method	LOR	Unit	WT2203380-012 (Continued)	ONDWS AO/OG	ONDWS MAC				
Dissolved Metals - Continued										
lead, dissolved	E421	0.000050	mg/L	0.00298		0.01 mg/L				
lithium, dissolved	E421	0.0010	mg/L	<0.0010						
magnesium, dissolved	E421	0.0050	mg/L	29.2						
manganese, dissolved	E421	0.00010	mg/L	0.0325	0.05 mg/L					
molybdenum, dissolved	E421	0.000050	mg/L	0.000064						
nickel, dissolved	E421	0.00050	mg/L	0.00066						
phosphorus, dissolved	E421	0.050	mg/L	<0.050						
potassium, dissolved	E421	0.050	mg/L	0.819						
rubidium, dissolved	E421	0.00020	mg/L	0.00074						
selenium, dissolved	E421	0.000050	mg/L	0.000098		0.05 mg/L				
silicon, dissolved	E421	0.050	mg/L	2.45						
silver, dissolved	E421	0.000010	mg/L	<0.000010						
sodium, dissolved	E421	0.050	mg/L	3.33	200 mg/L	20 mg/L				
strontium, dissolved	E421	0.00020	mg/L	0.0852						
sulfur, dissolved	E421	0.50	mg/L	2.69						
tellurium, dissolved	E421	0.00020	mg/L	<0.00020						
thallium, dissolved	E421	0.000010	mg/L	0.000020						
thorium, dissolved	E421	0.00010	mg/L	<0.00010						
tin, dissolved	E421	0.00010	mg/L	0.00013						
titanium, dissolved	E421	0.00030	mg/L	0.00990						
tungsten, dissolved	E421	0.00010	mg/L	<0.00010						
uranium, dissolved	E421	0.000010	mg/L	0.000437		0.02 mg/L				
vanadium, dissolved	E421	0.00050	mg/L	0.00063						
zinc, dissolved	E421	0.0010	mg/L	0.0086	5 mg/L					
zirconium, dissolved	E421	0.00020	mg/L	0.00034						
dissolved metals filtration location	EP421		-	Field						
Volatile Organic Compounds										
acetone	E611D	20	µg/L	<20	OWP					
benzene	E611D	0.50	µg/L	<0.50	OWP	1 µg/L				
bromodichloromethane	E611D	0.50	µg/L	<0.50	OWP					
bromoform	E611D	0.50	µg/L	<0.50	OWP					
bromomethane	E611D	0.50	µg/L	<0.50	OWP					
carbon tetrachloride	E611D	0.20	µg/L	<0.20	OWP	2 µg/L				
chlorobenzene	E611D	0.50	µg/L	<0.50	OWP	30 µg/L	80 µg/L			



Analyte	Method	LOR	Unit	WT2203380-012 (Continued)	ONDWS AO/OG	ONDWS MAC				
Volatile Organic Compounds - Continued										
chloroform	E611D	0.50	µg/L	<0.50	OWP					
dibromochloromethane	E611D	0.50	µg/L	<0.50	OWP					
dibromoethane, 1,2-	E611D	0.20	µg/L	<0.20	OWP					
dichlorobenzene, 1,2-	E611D	0.50	µg/L	<0.50	OWP	3 µg/L	200 µg/L			
dichlorobenzene, 1,3-	E611D	0.50	µg/L	<0.50	OWP					
dichlorobenzene, 1,4-	E611D	0.50	µg/L	<0.50	OWP	1 µg/L	5 µg/L			
dichlorodifluoromethane	E611D	0.50	µg/L	<0.50	OWP					
dichloroethane, 1,1-	E611D	0.50	µg/L	<0.50	OWP					
dichloroethane, 1,2-	E611D	0.50	µg/L	<0.50	OWP		5 µg/L			
dichloroethylene, 1,1-	E611D	0.50	µg/L	<0.50	OWP		14 µg/L			
dichloroethylene, cis-1,2-	E611D	0.50	µg/L	<0.50	OWP					
dichloroethylene, trans-1,2-	E611D	0.50	µg/L	<0.50	OWP					
dichloromethane	E611D	1.0	µg/L	<1.0	OWP		50 µg/L			
dichloropropane, 1,2-	E611D	0.50	µg/L	<0.50	OWP					
dichloropropylene, cis+trans-1,3-	E611D	0.50	µg/L	<0.50	OWP					
dichloropropylene, cis-1,3-	E611D	0.30	µg/L	<0.30	OWP					
dichloropropylene, trans-1,3-	E611D	0.30	µg/L	<0.30	OWP					
ethylbenzene	E611D	0.50	µg/L	<0.50	OWP	2.4 µg/L	140 µg/L			
hexane, n-	E611D	0.50	µg/L	<0.50	OWP					
methyl ethyl ketone [MEK]	E611D	20	µg/L	<20	OWP					
methyl isobutyl ketone [MIBK]	E611D	20	µg/L	<20	OWP					
methyl-tert-butyl ether [MTBE]	E611D	0.50	µg/L	<0.50	OWP		15 µg/L			
styrene	E611D	0.50	µg/L	<0.50	OWP					
tetrachloroethane, 1,1,1,2-	E611D	0.50	µg/L	<0.50	OWP					
tetrachloroethane, 1,1,2,2-	E611D	0.50	µg/L	<0.50	OWP					
tetrachloroethylene	E611D	0.50	µg/L	<0.50	OWP		10 µg/L			
toluene	E611D	0.50	µg/L	<0.50	OWP	24 µg/L	60 µg/L			
trichloroethane, 1,1,1-	E611D	0.50	µg/L	<0.50	OWP					
trichloroethane, 1,1,2-	E611D	0.50	µg/L	<0.50	OWP					
trichloroethylene	E611D	0.50	µg/L	<0.50	OWP		5 µg/L			
trichlorofluoromethane	E611D	0.50	µg/L	<0.50	OWP					
vinyl chloride	E611D	0.50	µg/L	<0.50	OWP		1 µg/L			
xylene, m+p-	E611D	0.40	µg/L	<0.40	OWP					
xylene, o-	E611D	0.30	µg/L	<0.30	OWP					



Analyte	Method	LOR	Unit	WT2203380-012 (Continued)	ONDWS AO/OG	ONDWS MAC				
Volatile Organic Compounds - Continued										
xylenes, total	E611D	0.50	µg/L	<0.50	300 µg/L	90 µg/L				
BTEX, total	E611D	1.0	µg/L	<1.0						
bromofluorobenzene, 4-	E611D	1.0	%	90.2						
difluorobenzene, 1,4-	E611D	1.0	%	99.3						

Please refer to the General Comments section for an explanation of any qualifiers detected.

Summary of Guideline Breaches by Sample

SampleID/Client ID	Matrix	Analyte	Analyte Summary	Guideline	Category	Result	Limit
OW-12S	Water	colour, apparent	May interfere with disinfection; removal is important to ensure effective treatment. Filtration systems should be designed and operated to reduce turbidity levels as low as reasonably achievable and strive to achieve a treated water turbidity target from individual filters of less than 0.1 NTU. Particles can harbour microorganisms, protecting them from disinfection, and can entrap heavy metals and biocides; elevated or fluctuating turbidity in filtered water can indicate a problem with the water treatment process and a potential increased risk of pathogens in treated water.	ONDWS	AO/OG	32.4 CU	5 CU
	Water	turbidity		ONDWS	AO/OG	2280 NTU	5 NTU
	Water	aluminum, dissolved	There is no consistent, convincing evidence that aluminum in drinking water causes adverse health effects in humans. The operational guideline applies to treatment plants using aluminum-based coagulants; it does not apply to naturally occurring aluminum found in groundwater. For treatment plants using aluminum-based coagulants, monthly samples should be taken of the water leaving the plant; the OGs are based on a running annual average of monthly samples.	ONDWS	AO/OG	0.240 mg/L	0.1 mg/L

Key:

- ONDWS Ontario Drinking Water Regulation (JAN, 2020)
- AO/OG Aesthetic Objective/Operational Guideline
- MAC Schedule 1 (Microbiological) and 2 (Chemical) Standards (JAN,2018)



Analytical Results

Analyte	Method	LOR	Unit	Client sample ID	OW-12D	ONDWS AO/OG	ONDWS MAC			
				Sub-Matrix: Groundwater (Matrix: Water)	Sampling date/time					
				WT2203380-013						
Physical Tests										
alkalinity, total (as CaCO3)	E290	1.0	mg/L	316		30 - 500 mg/L				
colour, apparent	E330	2.0	CU	4.2		5 CU				
conductivity	E100	1.0	µS/cm	598						
pH	E108	0.10	pH units	8.09		6.5 - 8.5 pH units				
solids, total dissolved [TDS]	E162	10	mg/L	320	DLDS	500 mg/L				
turbidity	E121	0.10	NTU	5.27		5 NTU				
Anions and Nutrients										
ammonia, total (as N)	E298	0.0050	mg/L	<0.0050						
chloride	E235.Cl	0.50	mg/L	5.23		250 mg/L				
fluoride	E235.F	0.020	mg/L	0.038			1.5 mg/L			
nitrate (as N)	E235.NO3	0.020	mg/L	0.238			10 mg/L			
nitrite (as N)	E235.NO2	0.010	mg/L	<0.010			1 mg/L			
phosphate, ortho-, dissolved (as P)	E378-T	0.0030	mg/L	<0.0030						
sulfate (as SO4)	E235.SO4	0.30	mg/L	20.4						
Dissolved Metals										
aluminum, dissolved	E421	0.0010	mg/L	0.0137		0.1 mg/L				
antimony, dissolved	E421	0.00010	mg/L	<0.00010			0.006 mg/L			
arsenic, dissolved	E421	0.00010	mg/L	0.00016			0.01 mg/L			
barium, dissolved	E421	0.00010	mg/L	0.0144			1 mg/L			
beryllium, dissolved	E421	0.000020	mg/L	<0.000020						
bismuth, dissolved	E421	0.000050	mg/L	<0.000050						
boron, dissolved	E421	0.010	mg/L	0.058			5 mg/L			
cadmium, dissolved	E421	0.0000050	mg/L	0.0000320			0.005 mg/L			
calcium, dissolved	E421	0.050	mg/L	82.3						
cesium, dissolved	E421	0.000010	mg/L	<0.000010						
chromium, dissolved	E421	0.00050	mg/L	<0.00050			0.05 mg/L			
cobalt, dissolved	E421	0.00010	mg/L	<0.00010						
copper, dissolved	E421	0.00020	mg/L	0.00127		1 mg/L				
iron, dissolved	E421	0.010	mg/L	0.018		0.3 mg/L				



Analyte	Method	LOR	Unit	WT2203380-013 (Continued)	ONDWS AO/OG	ONDWS MAC				
Dissolved Metals - Continued										
lead, dissolved	E421	0.000050	mg/L	0.000282		0.01 mg/L				
lithium, dissolved	E421	0.0010	mg/L	<0.0010						
magnesium, dissolved	E421	0.0050	mg/L	24.9						
manganese, dissolved	E421	0.00010	mg/L	0.00390	0.05 mg/L					
molybdenum, dissolved	E421	0.000050	mg/L	0.000086						
nickel, dissolved	E421	0.00050	mg/L	0.00067						
phosphorus, dissolved	E421	0.050	mg/L	<0.050						
potassium, dissolved	E421	0.050	mg/L	1.16						
rubidium, dissolved	E421	0.00020	mg/L	0.00055						
selenium, dissolved	E421	0.000050	mg/L	0.000087		0.05 mg/L				
silicon, dissolved	E421	0.050	mg/L	1.90						
silver, dissolved	E421	0.000010	mg/L	<0.000010						
sodium, dissolved	E421	0.050	mg/L	4.56	200 mg/L	20 mg/L				
strontium, dissolved	E421	0.00020	mg/L	0.109						
sulfur, dissolved	E421	0.50	mg/L	5.71						
tellurium, dissolved	E421	0.00020	mg/L	<0.00020						
thallium, dissolved	E421	0.000010	mg/L	0.000050						
thorium, dissolved	E421	0.00010	mg/L	<0.00010						
tin, dissolved	E421	0.00010	mg/L	0.00024						
titanium, dissolved	E421	0.00030	mg/L	0.00033						
tungsten, dissolved	E421	0.00010	mg/L	<0.00010						
uranium, dissolved	E421	0.000010	mg/L	0.000453		0.02 mg/L				
vanadium, dissolved	E421	0.00050	mg/L	<0.00050						
zinc, dissolved	E421	0.0010	mg/L	0.0086	5 mg/L					
zirconium, dissolved	E421	0.00020	mg/L	<0.00020						
dissolved metals filtration location	EP421		-	Field						
Volatile Organic Compounds										
acetone	E611D	20	µg/L	<20						
benzene	E611D	0.50	µg/L	<0.50		1 µg/L				
bromodichloromethane	E611D	0.50	µg/L	<0.50						
bromoform	E611D	0.50	µg/L	<0.50						
bromomethane	E611D	0.50	µg/L	<0.50						
carbon tetrachloride	E611D	0.20	µg/L	<0.20		2 µg/L				
chlorobenzene	E611D	0.50	µg/L	<0.50	30 µg/L	80 µg/L				



Analyte	Method	LOR	Unit	WT2203380-013 (Continued)	ONDWS AO/OG	ONDWS MAC				
Volatile Organic Compounds - Continued										
chloroform	E611D	0.50	µg/L	<0.50						
dibromochloromethane	E611D	0.50	µg/L	<0.50						
dibromoethane, 1,2-	E611D	0.20	µg/L	<0.20						
dichlorobenzene, 1,2-	E611D	0.50	µg/L	<0.50	3 µg/L	200 µg/L				
dichlorobenzene, 1,3-	E611D	0.50	µg/L	<0.50						
dichlorobenzene, 1,4-	E611D	0.50	µg/L	<0.50	1 µg/L	5 µg/L				
dichlorodifluoromethane	E611D	0.50	µg/L	<0.50						
dichloroethane, 1,1-	E611D	0.50	µg/L	<0.50						
dichloroethane, 1,2-	E611D	0.50	µg/L	<0.50		5 µg/L				
dichloroethylene, 1,1-	E611D	0.50	µg/L	<0.50		14 µg/L				
dichloroethylene, cis-1,2-	E611D	0.50	µg/L	<0.50						
dichloroethylene, trans-1,2-	E611D	0.50	µg/L	<0.50						
dichloromethane	E611D	1.0	µg/L	<1.0		50 µg/L				
dichloropropane, 1,2-	E611D	0.50	µg/L	<0.50						
dichloropropylene, cis+trans-1,3-	E611D	0.50	µg/L	<0.50						
dichloropropylene, cis-1,3-	E611D	0.30	µg/L	<0.30						
dichloropropylene, trans-1,3-	E611D	0.30	µg/L	<0.30						
ethylbenzene	E611D	0.50	µg/L	<0.50	2.4 µg/L	140 µg/L				
hexane, n-	E611D	0.50	µg/L	<0.50						
methyl ethyl ketone [MEK]	E611D	20	µg/L	<20						
methyl isobutyl ketone [MIBK]	E611D	20	µg/L	<20						
methyl-tert-butyl ether [MTBE]	E611D	0.50	µg/L	<0.50		15 µg/L				
styrene	E611D	0.50	µg/L	<0.50						
tetrachloroethane, 1,1,1,2-	E611D	0.50	µg/L	<0.50						
tetrachloroethane, 1,1,2,2-	E611D	0.50	µg/L	<0.50						
tetrachloroethylene	E611D	0.50	µg/L	<0.50		10 µg/L				
toluene	E611D	0.50	µg/L	<0.50	24 µg/L	60 µg/L				
trichloroethane, 1,1,1-	E611D	0.50	µg/L	<0.50						
trichloroethane, 1,1,2-	E611D	0.50	µg/L	<0.50						
trichloroethylene	E611D	0.50	µg/L	<0.50		5 µg/L				
trichlorofluoromethane	E611D	0.50	µg/L	<0.50						
vinyl chloride	E611D	0.50	µg/L	<0.50		1 µg/L				
xylene, m+p-	E611D	0.40	µg/L	<0.40						
xylene, o-	E611D	0.30	µg/L	<0.30						



Analyte	Method	LOR	Unit	WT2203380-013 (Continued)	ONDWS AO/OG	ONDWS MAC				
Volatile Organic Compounds - Continued										
xlenes, total	E611D	0.50	µg/L	<0.50	300 µg/L	90 µg/L				
BTEX, total	E611D	1.0	µg/L	<1.0						
bromofluorobenzene, 4-	E611D	1.0	%	90.3						
difluorobenzene, 1,4-	E611D	1.0	%	99.2						

Please refer to the General Comments section for an explanation of any qualifiers detected.

Summary of Guideline Breaches by Sample

SampleID/Client ID	Matrix	Analyte	Analyte Summary	Guideline	Category	Result	Limit
OW-12D	Water	turbidity	Filtration systems should be designed and operated to reduce turbidity levels as low as reasonably achievable and strive to achieve a treated water turbidity target from individual filters of less than 0.1 NTU. Particles can harbour microorganisms, protecting them from disinfection, and can entrap heavy metals and biocides; elevated or fluctuating turbidity in filtered water can indicate a problem with the water treatment process and a potential increased risk of pathogens in treated water.	ONDWS	AO/OG	5.27 NTU	5 NTU

Key:
 ONDWS Ontario Drinking Water Regulation (JAN, 2020)
 AO/OG Aesthetic Objective/Operational Guideline
 MAC Schedule 1 (Microbiological) and 2 (Chemical) Standards (JAN,2018)



Analytical Results

Analyte	Method	LOR	Unit	Client sample ID	ONDWS					
				OW-13S	AO/OG	MAC				
Sub-Matrix: Groundwater (Matrix: Water)				Sampling date/time						
				WT2203380-014	04-May-2022 00:00					
Physical Tests										
alkalinity, total (as CaCO3)	E290	1.0	mg/L	338	30 - 500 mg/L					
colour, apparent	E330	2.0	CU	24.8	5 CU					
conductivity	E100	1.0	µS/cm	581						
pH	E108	0.10	pH units	8.15	6.5 - 8.5 pH units					
solids, total dissolved [TDS]	E162	10	mg/L	329	DLDS 500 mg/L					
turbidity	E121	0.10	NTU	1500	5 NTU					
Anions and Nutrients										
ammonia, total (as N)	E298	0.0050	mg/L	0.0087						
chloride	E235.Cl	0.50	mg/L	0.97	250 mg/L					
fluoride	E235.F	0.020	mg/L	0.037		1.5 mg/L				
nitrate (as N)	E235.NO3	0.020	mg/L	<0.020		10 mg/L				
nitrite (as N)	E235.NO2	0.010	mg/L	<0.010		1 mg/L				
phosphate, ortho-, dissolved (as P)	E378-T	0.0030	mg/L	<0.0030						
sulfate (as SO4)	E235.SO4	0.30	mg/L	13.5						
Dissolved Metals										
aluminum, dissolved	E421	0.0010	mg/L	0.0630	0.1 mg/L					
antimony, dissolved	E421	0.00010	mg/L	<0.00010		0.006 mg/L				
arsenic, dissolved	E421	0.00010	mg/L	0.00070		0.01 mg/L				
barium, dissolved	E421	0.00010	mg/L	0.0284		1 mg/L				
beryllium, dissolved	E421	0.000020	mg/L	<0.000020						
bismuth, dissolved	E421	0.000050	mg/L	<0.000050						
boron, dissolved	E421	0.010	mg/L	0.046		5 mg/L				
cadmium, dissolved	E421	0.0000050	mg/L	0.0000084		0.005 mg/L				
calcium, dissolved	E421	0.050	mg/L	91.8						
cesium, dissolved	E421	0.000010	mg/L	<0.000010						
chromium, dissolved	E421	0.00050	mg/L	<0.00050		0.05 mg/L				
cobalt, dissolved	E421	0.00010	mg/L	0.00015						
copper, dissolved	E421	0.00020	mg/L	0.00057	1 mg/L					
iron, dissolved	E421	0.010	mg/L	0.683	0.3 mg/L					



Analyte	Method	LOR	Unit	WT2203380-014 (Continued)	ONDWS AO/OG	ONDWS MAC				
Dissolved Metals - Continued										
lead, dissolved	E421	0.000050	mg/L	0.00241		0.01 mg/L				
lithium, dissolved	E421	0.0010	mg/L	<0.0010						
magnesium, dissolved	E421	0.0050	mg/L	32.6						
manganese, dissolved	E421	0.00010	mg/L	0.0858	0.05 mg/L					
molybdenum, dissolved	E421	0.000050	mg/L	0.000227						
nickel, dissolved	E421	0.00050	mg/L	0.00072						
phosphorus, dissolved	E421	0.050	mg/L	<0.050						
potassium, dissolved	E421	0.050	mg/L	1.42						
rubidium, dissolved	E421	0.00020	mg/L	0.00074						
selenium, dissolved	E421	0.000050	mg/L	0.000335		0.05 mg/L				
silicon, dissolved	E421	0.050	mg/L	2.68						
silver, dissolved	E421	0.000010	mg/L	<0.000010						
sodium, dissolved	E421	0.050	mg/L	4.40	200 mg/L	20 mg/L				
strontium, dissolved	E421	0.00020	mg/L	0.141						
sulfur, dissolved	E421	0.50	mg/L	8.69						
tellurium, dissolved	E421	0.00020	mg/L	<0.00020						
thallium, dissolved	E421	0.000010	mg/L	<0.000010						
thorium, dissolved	E421	0.00010	mg/L	<0.00010						
tin, dissolved	E421	0.00010	mg/L	0.00014						
titanium, dissolved	E421	0.00030	mg/L	0.00278						
tungsten, dissolved	E421	0.00010	mg/L	<0.00010						
uranium, dissolved	E421	0.000010	mg/L	0.000542		0.02 mg/L				
vanadium, dissolved	E421	0.00050	mg/L	<0.00050						
zinc, dissolved	E421	0.0010	mg/L	0.0119	5 mg/L					
zirconium, dissolved	E421	0.00020	mg/L	0.00021						
dissolved metals filtration location	EP421		-	Field						
Volatile Organic Compounds										
acetone	E611D	20	µg/L	<20	OWP					
benzene	E611D	0.50	µg/L	<0.50	OWP	1 µg/L				
bromodichloromethane	E611D	0.50	µg/L	<0.50	OWP					
bromoform	E611D	0.50	µg/L	<0.50	OWP					
bromomethane	E611D	0.50	µg/L	<0.50	OWP					
carbon tetrachloride	E611D	0.20	µg/L	<0.20	OWP	2 µg/L				
chlorobenzene	E611D	0.50	µg/L	<0.50	OWP	30 µg/L	80 µg/L			



Analyte	Method	LOR	Unit	WT2203380-014 (Continued)	ONDWS AO/OG	ONDWS MAC				
Volatile Organic Compounds - Continued										
chloroform	E611D	0.50	µg/L	<0.50	OWP					
dibromochloromethane	E611D	0.50	µg/L	<0.50	OWP					
dibromoethane, 1,2-	E611D	0.20	µg/L	<0.20	OWP					
dichlorobenzene, 1,2-	E611D	0.50	µg/L	<0.50		3 µg/L	200 µg/L			
dichlorobenzene, 1,3-	E611D	0.50	µg/L	<0.50						
dichlorobenzene, 1,4-	E611D	0.50	µg/L	<0.50		1 µg/L	5 µg/L			
dichlorodifluoromethane	E611D	0.50	µg/L	<0.50	OWP					
dichloroethane, 1,1-	E611D	0.50	µg/L	<0.50	OWP					
dichloroethane, 1,2-	E611D	0.50	µg/L	<0.50	OWP		5 µg/L			
dichloroethylene, 1,1-	E611D	0.50	µg/L	<0.50	OWP		14 µg/L			
dichloroethylene, cis-1,2-	E611D	0.50	µg/L	<0.50	OWP					
dichloroethylene, trans-1,2-	E611D	0.50	µg/L	<0.50	OWP					
dichloromethane	E611D	1.0	µg/L	<1.0	OWP		50 µg/L			
dichloropropane, 1,2-	E611D	0.50	µg/L	<0.50	OWP					
dichloropropylene, cis+trans-1,3-	E611D	0.50	µg/L	<0.50	OWP					
dichloropropylene, cis-1,3-	E611D	0.30	µg/L	<0.30	OWP					
dichloropropylene, trans-1,3-	E611D	0.30	µg/L	<0.30	OWP					
ethylbenzene	E611D	0.50	µg/L	<0.50	OWP	2.4 µg/L	140 µg/L			
hexane, n-	E611D	0.50	µg/L	<0.50	OWP					
methyl ethyl ketone [MEK]	E611D	20	µg/L	<20	OWP					
methyl isobutyl ketone [MIBK]	E611D	20	µg/L	<20	OWP					
methyl-tert-butyl ether [MTBE]	E611D	0.50	µg/L	<0.50			15 µg/L			
styrene	E611D	0.50	µg/L	<0.50	OWP					
tetrachloroethane, 1,1,1,2-	E611D	0.50	µg/L	<0.50	OWP					
tetrachloroethane, 1,1,2,2-	E611D	0.50	µg/L	<0.50	OWP					
tetrachloroethylene	E611D	0.50	µg/L	<0.50	OWP		10 µg/L			
toluene	E611D	0.50	µg/L	<0.50	OWP	24 µg/L	60 µg/L			
trichloroethane, 1,1,1-	E611D	0.50	µg/L	<0.50	OWP					
trichloroethane, 1,1,2-	E611D	0.50	µg/L	<0.50	OWP					
trichloroethylene	E611D	0.50	µg/L	<0.50	OWP		5 µg/L			
trichlorofluoromethane	E611D	0.50	µg/L	<0.50	OWP					
vinyl chloride	E611D	0.50	µg/L	<0.50	OWP		1 µg/L			
xylene, m+p-	E611D	0.40	µg/L	<0.40	OWP					
xylene, o-	E611D	0.30	µg/L	<0.30	OWP					



Analyte	Method	LOR	Unit	WT2203380-014 (Continued)	ONDWS AO/OG	ONDWS MAC				
Volatile Organic Compounds - Continued										
xylene, total	E611D	0.50	µg/L	<0.50	300 µg/L	90 µg/L				
BTEX, total	E611D	1.0	µg/L	<1.0						
bromofluorobenzene, 4-	E611D	1.0	%	89.6						
difluorobenzene, 1,4-	E611D	1.0	%	99.2						

Please refer to the General Comments section for an explanation of any qualifiers detected.

Summary of Guideline Breaches by Sample

SampleID/Client ID	Matrix	Analyte	Analyte Summary	Guideline	Category	Result	Limit
OW-13S	Water	colour, apparent	May interfere with disinfection; removal is important to ensure effective treatment.	ONDWS	AO/OG	24.8 CU	5 CU
	Water	turbidity	Filtration systems should be designed and operated to reduce turbidity levels as low as reasonably achievable and strive to achieve a treated water turbidity target from individual filters of less than 0.1 NTU. Particles can harbour microorganisms, protecting them from disinfection, and can entrap heavy metals and biocides; elevated or fluctuating turbidity in filtered water can indicate a problem with the water treatment process and a potential increased risk of pathogens in treated water.	ONDWS	AO/OG	1500 NTU	5 NTU
	Water	iron, dissolved	Based on taste and staining of laundry and plumbing fixtures; no evidence exists of dietary iron toxicity in the general population.	ONDWS	AO/OG	0.683 mg/L	0.3 mg/L
	Water	manganese, dissolved	Based on taste and staining of laundry and plumbing fixtures.	ONDWS	AO/OG	0.0858 mg/L	0.05 mg/L

Key:
 ONDWS Ontario Drinking Water Regulation (JAN, 2020)
 AO/OG Aesthetic Objective/Operational Guideline
 MAC Schedule 1 (Microbiological) and 2 (Chemical) Standards (JAN,2018)



Analytical Results

Analyte	Method	LOR	Unit	Client sample ID	OW-13D		ONDWS AO/OG	ONDWS MAC			
				Sampling date/time	04-May-2022 00:00						
Sub-Matrix: Groundwater (Matrix: Water)				WT2203380-015							
Physical Tests											
alkalinity, total (as CaCO3)	E290	1.0	mg/L	487			30 - 500 mg/L				
colour, apparent	E330	2.0	CU	22.3			5 CU				
conductivity	E100	1.0	µS/cm	942							
pH	E108	0.10	pH units	7.92			6.5 - 8.5 pH units				
solids, total dissolved [TDS]	E162	10	mg/L	518	DLDS		500 mg/L				
turbidity	E121	0.10	NTU	127			5 NTU				
Anions and Nutrients											
ammonia, total (as N)	E298	0.0050	mg/L	3.57	DLHC						
chloride	E235.Cl	0.50	mg/L	8.39			250 mg/L				
fluoride	E235.F	0.020	mg/L	0.034				1.5 mg/L			
nitrate (as N)	E235.NO3	0.020	mg/L	0.120				10 mg/L			
nitrite (as N)	E235.NO2	0.010	mg/L	0.117				1 mg/L			
phosphate, ortho-, dissolved (as P)	E378-T	0.0030	mg/L	<0.0030							
sulfate (as SO4)	E235.SO4	0.30	mg/L	67.0							
Dissolved Metals											
aluminum, dissolved	E421	0.0010	mg/L	0.0177			0.1 mg/L				
antimony, dissolved	E421	0.00010	mg/L	<0.00010				0.006 mg/L			
arsenic, dissolved	E421	0.00010	mg/L	0.00110				0.01 mg/L			
barium, dissolved	E421	0.00010	mg/L	0.0806				1 mg/L			
beryllium, dissolved	E421	0.000020	mg/L	<0.000020							
bismuth, dissolved	E421	0.000050	mg/L	<0.000050							
boron, dissolved	E421	0.010	mg/L	0.174				5 mg/L			
cadmium, dissolved	E421	0.0000050	mg/L	<0.0000050				0.005 mg/L			
calcium, dissolved	E421	0.050	mg/L	134							
cesium, dissolved	E421	0.000010	mg/L	<0.000010							
chromium, dissolved	E421	0.00050	mg/L	<0.00050				0.05 mg/L			
cobalt, dissolved	E421	0.00010	mg/L	0.00025							
copper, dissolved	E421	0.00020	mg/L	0.00069				1 mg/L			
iron, dissolved	E421	0.010	mg/L	2.76				0.3 mg/L			



Analyte	Method	LOR	Unit	WT2203380-015 (Continued)	ONDWS AO/OG	ONDWS MAC				
Dissolved Metals - Continued										
lead, dissolved	E421	0.000050	mg/L	0.00150		0.01 mg/L				
lithium, dissolved	E421	0.0010	mg/L	<0.0010						
magnesium, dissolved	E421	0.0050	mg/L	41.9						
manganese, dissolved	E421	0.00010	mg/L	0.253	0.05 mg/L					
molybdenum, dissolved	E421	0.000050	mg/L	0.000368						
nickel, dissolved	E421	0.00050	mg/L	0.00208						
phosphorus, dissolved	E421	0.050	mg/L	<0.050						
potassium, dissolved	E421	0.050	mg/L	5.47						
rubidium, dissolved	E421	0.00020	mg/L	0.00218						
selenium, dissolved	E421	0.000050	mg/L	0.00127		0.05 mg/L				
silicon, dissolved	E421	0.050	mg/L	4.07						
silver, dissolved	E421	0.000010	mg/L	<0.000010						
sodium, dissolved	E421	0.050	mg/L	9.94	200 mg/L	20 mg/L				
strontium, dissolved	E421	0.00020	mg/L	0.315						
sulfur, dissolved	E421	0.50	mg/L	21.7						
tellurium, dissolved	E421	0.00020	mg/L	<0.00020						
thallium, dissolved	E421	0.000010	mg/L	<0.000010						
thorium, dissolved	E421	0.00010	mg/L	<0.00010						
tin, dissolved	E421	0.00010	mg/L	0.00026						
titanium, dissolved	E421	0.00030	mg/L	0.00058						
tungsten, dissolved	E421	0.00010	mg/L	<0.00010						
uranium, dissolved	E421	0.000010	mg/L	0.000593		0.02 mg/L				
vanadium, dissolved	E421	0.00050	mg/L	<0.00050						
zinc, dissolved	E421	0.0010	mg/L	0.0171	5 mg/L					
zirconium, dissolved	E421	0.00020	mg/L	0.00038						
dissolved metals filtration location	EP421		-	Field						
Volatile Organic Compounds										
acetone	E611D	20	µg/L	<20						
benzene	E611D	0.50	µg/L	<0.50		1 µg/L				
bromodichloromethane	E611D	0.50	µg/L	<0.50						
bromoform	E611D	0.50	µg/L	<0.50						
bromomethane	E611D	0.50	µg/L	<0.50						
carbon tetrachloride	E611D	0.20	µg/L	<0.20		2 µg/L				
chlorobenzene	E611D	0.50	µg/L	<0.50	30 µg/L	80 µg/L				



Analyte	Method	LOR	Unit	WT2203380-015 (Continued)	ONDWS AO/OG	ONDWS MAC				
Volatile Organic Compounds - Continued										
chloroform	E611D	0.50	µg/L	<0.50						
dibromochloromethane	E611D	0.50	µg/L	<0.50						
dibromoethane, 1,2-	E611D	0.20	µg/L	<0.20						
dichlorobenzene, 1,2-	E611D	0.50	µg/L	<0.50	3 µg/L	200 µg/L				
dichlorobenzene, 1,3-	E611D	0.50	µg/L	<0.50						
dichlorobenzene, 1,4-	E611D	0.50	µg/L	<0.50	1 µg/L	5 µg/L				
dichlorodifluoromethane	E611D	0.50	µg/L	<0.50						
dichloroethane, 1,1-	E611D	0.50	µg/L	<0.50						
dichloroethane, 1,2-	E611D	0.50	µg/L	<0.50		5 µg/L				
dichloroethylene, 1,1-	E611D	0.50	µg/L	<0.50		14 µg/L				
dichloroethylene, cis-1,2-	E611D	0.50	µg/L	<0.50						
dichloroethylene, trans-1,2-	E611D	0.50	µg/L	<0.50						
dichloromethane	E611D	1.0	µg/L	<1.0		50 µg/L				
dichloropropane, 1,2-	E611D	0.50	µg/L	<0.50						
dichloropropylene, cis+trans-1,3-	E611D	0.50	µg/L	<0.50						
dichloropropylene, cis-1,3-	E611D	0.30	µg/L	<0.30						
dichloropropylene, trans-1,3-	E611D	0.30	µg/L	<0.30						
ethylbenzene	E611D	0.50	µg/L	<0.50	2.4 µg/L	140 µg/L				
hexane, n-	E611D	0.50	µg/L	<0.50						
methyl ethyl ketone [MEK]	E611D	20	µg/L	<20						
methyl isobutyl ketone [MIBK]	E611D	20	µg/L	<20						
methyl-tert-butyl ether [MTBE]	E611D	0.50	µg/L	<0.50		15 µg/L				
styrene	E611D	0.50	µg/L	<0.50						
tetrachloroethane, 1,1,1,2-	E611D	0.50	µg/L	<0.50						
tetrachloroethane, 1,1,2,2-	E611D	0.50	µg/L	<0.50						
tetrachloroethylene	E611D	0.50	µg/L	<0.50		10 µg/L				
toluene	E611D	0.50	µg/L	<0.50	24 µg/L	60 µg/L				
trichloroethane, 1,1,1-	E611D	0.50	µg/L	<0.50						
trichloroethane, 1,1,2-	E611D	0.50	µg/L	<0.50						
trichloroethylene	E611D	0.50	µg/L	<0.50		5 µg/L				
trichlorofluoromethane	E611D	0.50	µg/L	<0.50						
vinyl chloride	E611D	0.50	µg/L	<0.50		1 µg/L				
xylene, m+p-	E611D	0.40	µg/L	<0.40						
xylene, o-	E611D	0.30	µg/L	<0.30						



Analyte	Method	LOR	Unit	WT2203380-015 (Continued)	ONDWS AO/OG	ONDWS MAC				
Volatile Organic Compounds - Continued										
xylenes, total	E611D	0.50	µg/L	<0.50	300 µg/L	90 µg/L				
BTEX, total	E611D	1.0	µg/L	<1.0						
bromofluorobenzene, 4-	E611D	1.0	%	87.8						
difluorobenzene, 1,4-	E611D	1.0	%	99.1						

Please refer to the General Comments section for an explanation of any qualifiers detected.

Summary of Guideline Breaches by Sample

SampleID/Client ID	Matrix	Analyte	Analyte Summary	Guideline	Category	Result	Limit
OW-13D	Water	colour, apparent	May interfere with disinfection; removal is important to ensure effective treatment.	ONDWS	AO/OG	22.3 CU	5 CU
	Water	solids, total dissolved [TDS]	Based on taste; TDS above 500 mg/L results in excessive scaling in water pipes, water heaters, boilers and appliances; TDS is composed of calcium, magnesium, sodium, potassium, carbonate, bicarbonate, chloride, sulphate and nitrate.	ONDWS	AO/OG	518 mg/L	500 mg/L
	Water	turbidity	Filtration systems should be designed and operated to reduce turbidity levels as low as reasonably achievable and strive to achieve a treated water turbidity target from individual filters of less than 0.1 NTU. Particles can harbour microorganisms, protecting them from disinfection, and can entrap heavy metals and biocides; elevated or fluctuating turbidity in filtered water can indicate a problem with the water treatment process and a potential increased risk of pathogens in treated water.	ONDWS	AO/OG	127 NTU	5 NTU
	Water	iron, dissolved	Based on taste and staining of laundry and plumbing fixtures; no evidence exists of dietary iron toxicity in the general population.	ONDWS	AO/OG	2.76 mg/L	0.3 mg/L
	Water	manganese, dissolved	Based on taste and staining of laundry and plumbing fixtures.	ONDWS	AO/OG	0.253 mg/L	0.05 mg/L

Key:

ONDWS Ontario Drinking Water Regulation (JAN, 2020)
 AO/OG Aesthetic Objective/Operational Guideline
 MAC Schedule 1 (Microbiological) and 2 (Chemical) Standards (JAN,2018)



Analytical Results

Analyte	Method	LOR	Unit	Client sample ID	OW-16S	ONDWS AO/OG	ONDWS MAC			
				Sub-Matrix: Groundwater (Matrix: Water)	Sampling date/time					
				WT2203380-016						
Physical Tests										
alkalinity, total (as CaCO3)	E290	1.0	mg/L	321		30 - 500 mg/L				
colour, apparent	E330	2.0	CU	27.8		5 CU				
conductivity	E100	1.0	µS/cm	542						
pH	E108	0.10	pH units	7.71		6.5 - 8.5 pH units				
solids, total dissolved [TDS]	E162	10	mg/L	314	DLDS	500 mg/L				
turbidity	E121	0.10	NTU	533		5 NTU				
Anions and Nutrients										
ammonia, total (as N)	E298	0.0050	mg/L	0.0128						
chloride	E235.Cl	0.50	mg/L	9.82		250 mg/L				
fluoride	E235.F	0.020	mg/L	0.040			1.5 mg/L			
nitrate (as N)	E235.NO3	0.020	mg/L	0.764			10 mg/L			
nitrite (as N)	E235.NO2	0.010	mg/L	<0.010			1 mg/L			
phosphate, ortho-, dissolved (as P)	E378-T	0.0030	mg/L	0.0042						
sulfate (as SO4)	E235.SO4	0.30	mg/L	4.47						
Dissolved Metals										
aluminum, dissolved	E421	0.0010	mg/L	0.140		0.1 mg/L				
antimony, dissolved	E421	0.00010	mg/L	<0.00010			0.006 mg/L			
arsenic, dissolved	E421	0.00010	mg/L	0.00036			0.01 mg/L			
barium, dissolved	E421	0.00010	mg/L	0.0321			1 mg/L			
beryllium, dissolved	E421	0.000020	mg/L	<0.000020						
bismuth, dissolved	E421	0.000050	mg/L	<0.000050						
boron, dissolved	E421	0.010	mg/L	0.038			5 mg/L			
cadmium, dissolved	E421	0.0000050	mg/L	0.0000145			0.005 mg/L			
calcium, dissolved	E421	0.050	mg/L	98.6						
cesium, dissolved	E421	0.000010	mg/L	0.000016						
chromium, dissolved	E421	0.00050	mg/L	<0.00050			0.05 mg/L			
cobalt, dissolved	E421	0.00010	mg/L	0.00026						
copper, dissolved	E421	0.00020	mg/L	0.00128		1 mg/L				
iron, dissolved	E421	0.010	mg/L	0.124		0.3 mg/L				



Analyte	Method	LOR	Unit	WT2203380-016 (Continued)	ONDWS AO/OG	ONDWS MAC				
Dissolved Metals - Continued										
lead, dissolved	E421	0.000050	mg/L	0.00123		0.01 mg/L				
lithium, dissolved	E421	0.0010	mg/L	0.0012						
magnesium, dissolved	E421	0.0050	mg/L	29.6						
manganese, dissolved	E421	0.00010	mg/L	0.0527	0.05 mg/L					
molybdenum, dissolved	E421	0.000050	mg/L	0.000445						
nickel, dissolved	E421	0.00050	mg/L	0.00106						
phosphorus, dissolved	E421	0.050	mg/L	<0.050						
potassium, dissolved	E421	0.050	mg/L	1.85						
rubidium, dissolved	E421	0.00020	mg/L	0.00104						
selenium, dissolved	E421	0.000050	mg/L	0.000072		0.05 mg/L				
silicon, dissolved	E421	0.050	mg/L	5.62						
silver, dissolved	E421	0.000010	mg/L	<0.000010						
sodium, dissolved	E421	0.050	mg/L	4.14	200 mg/L	20 mg/L				
strontium, dissolved	E421	0.00020	mg/L	0.154						
sulfur, dissolved	E421	0.50	mg/L	2.59						
tellurium, dissolved	E421	0.00020	mg/L	<0.00020						
thallium, dissolved	E421	0.000010	mg/L	0.000037						
thorium, dissolved	E421	0.00010	mg/L	<0.00010						
tin, dissolved	E421	0.00010	mg/L	0.00025						
titanium, dissolved	E421	0.00030	mg/L	0.00484						
tungsten, dissolved	E421	0.00010	mg/L	<0.00010						
uranium, dissolved	E421	0.000010	mg/L	0.000883		0.02 mg/L				
vanadium, dissolved	E421	0.00050	mg/L	<0.00050						
zinc, dissolved	E421	0.0010	mg/L	0.0028	5 mg/L					
zirconium, dissolved	E421	0.00020	mg/L	0.00020						
dissolved metals filtration location	EP421		-	Field						
Volatile Organic Compounds										
acetone	E611D	20	µg/L	<20						
benzene	E611D	0.50	µg/L	<0.50	OWP	1 µg/L				
bromodichloromethane	E611D	0.50	µg/L	<0.50	OWP					
bromoform	E611D	0.50	µg/L	<0.50	OWP					
bromomethane	E611D	0.50	µg/L	<0.50	OWP					
carbon tetrachloride	E611D	0.20	µg/L	<0.20	OWP	2 µg/L				
chlorobenzene	E611D	0.50	µg/L	<0.50	OWP	30 µg/L	80 µg/L			



Analyte	Method	LOR	Unit	WT2203380-016 (Continued)		ONDWS AO/OG	ONDWS MAC			
Volatile Organic Compounds - Continued										
chloroform	E611D	0.50	µg/L	<0.50	OWP					
dibromochloromethane	E611D	0.50	µg/L	<0.50	OWP					
dibromoethane, 1,2-	E611D	0.20	µg/L	<0.20	OWP					
dichlorobenzene, 1,2-	E611D	0.50	µg/L	<0.50	OWP	3 µg/L	200 µg/L			
dichlorobenzene, 1,3-	E611D	0.50	µg/L	<0.50	OWP					
dichlorobenzene, 1,4-	E611D	0.50	µg/L	<0.50	OWP	1 µg/L	5 µg/L			
dichlorodifluoromethane	E611D	0.50	µg/L	<0.50	OWP					
dichloroethane, 1,1-	E611D	0.50	µg/L	<0.50	OWP					
dichloroethane, 1,2-	E611D	0.50	µg/L	<0.50	OWP		5 µg/L			
dichloroethylene, 1,1-	E611D	0.50	µg/L	<0.50	OWP		14 µg/L			
dichloroethylene, cis-1,2-	E611D	0.50	µg/L	<0.50	OWP					
dichloroethylene, trans-1,2-	E611D	0.50	µg/L	<0.50	OWP					
dichloromethane	E611D	1.0	µg/L	<1.0	OWP		50 µg/L			
dichloropropane, 1,2-	E611D	0.50	µg/L	<0.50	OWP					
dichloropropylene, cis+trans-1,3-	E611D	0.50	µg/L	<0.50	OWP					
dichloropropylene, cis-1,3-	E611D	0.30	µg/L	<0.30	OWP					
dichloropropylene, trans-1,3-	E611D	0.30	µg/L	<0.30	OWP					
ethylbenzene	E611D	0.50	µg/L	<0.50	OWP	2.4 µg/L	140 µg/L			
hexane, n-	E611D	0.50	µg/L	<0.50	OWP					
methyl ethyl ketone [MEK]	E611D	20	µg/L	<20	OWP					
methyl isobutyl ketone [MIBK]	E611D	20	µg/L	<20	OWP					
methyl-tert-butyl ether [MTBE]	E611D	0.50	µg/L	<0.50	OWP		15 µg/L			
styrene	E611D	0.50	µg/L	<0.50	OWP					
tetrachloroethane, 1,1,1,2-	E611D	0.50	µg/L	<0.50	OWP					
tetrachloroethane, 1,1,2,2-	E611D	0.50	µg/L	<0.50	OWP					
tetrachloroethylene	E611D	0.50	µg/L	<0.50	OWP		10 µg/L			
toluene	E611D	0.50	µg/L	<0.50	OWP	24 µg/L	60 µg/L			
trichloroethane, 1,1,1-	E611D	0.50	µg/L	<0.50	OWP					
trichloroethane, 1,1,2-	E611D	0.50	µg/L	<0.50	OWP					
trichloroethylene	E611D	0.50	µg/L	<0.50	OWP		5 µg/L			
trichlorofluoromethane	E611D	0.50	µg/L	<0.50	OWP					
vinyl chloride	E611D	0.50	µg/L	<0.50	OWP		1 µg/L			
xylene, m+p-	E611D	0.40	µg/L	<0.40	OWP					
xylene, o-	E611D	0.30	µg/L	<0.30	OWP					



Analyte	Method	LOR	Unit	WT2203380-016 (Continued)	ONDWS AO/OG	ONDWS MAC				
Volatile Organic Compounds - Continued										
xylenes, total	E611D	0.50	µg/L	<0.50	300 µg/L	90 µg/L				
BTEX, total	E611D	1.0	µg/L	<1.0						
bromofluorobenzene, 4-	E611D	1.0	%	89.1						
difluorobenzene, 1,4-	E611D	1.0	%	98.8						

Please refer to the General Comments section for an explanation of any qualifiers detected.

Summary of Guideline Breaches by Sample

SampleID/Client ID	Matrix	Analyte	Analyte Summary	Guideline	Category	Result	Limit
OW-16S	Water	colour, apparent	May interfere with disinfection; removal is important to ensure effective treatment.	ONDWS	AO/OG	27.8 CU	5 CU
	Water	turbidity	Filtration systems should be designed and operated to reduce turbidity levels as low as reasonably achievable and strive to achieve a treated water turbidity target from individual filters of less than 0.1 NTU. Particles can harbour microorganisms, protecting them from disinfection, and can entrap heavy metals and biocides; elevated or fluctuating turbidity in filtered water can indicate a problem with the water treatment process and a potential increased risk of pathogens in treated water.	ONDWS	AO/OG	533 NTU	5 NTU
	Water	aluminum, dissolved	There is no consistent, convincing evidence that aluminum in drinking water causes adverse health effects in humans. The operational guideline applies to treatment plants using aluminum-based coagulants; it does not apply to naturally occurring aluminum found in groundwater. For treatment plants using aluminum-based coagulants, monthly samples should be taken of the water leaving the plant; the OGs are based on a running annual average of monthly samples.	ONDWS	AO/OG	0.140 mg/L	0.1 mg/L
	Water	manganese, dissolved	Based on taste and staining of laundry and plumbing fixtures.	ONDWS	AO/OG	0.0527 mg/L	0.05 mg/L

Key:

- ONDWS Ontario Drinking Water Regulation (JAN, 2020)
- AO/OG Aesthetic Objective/Operational Guideline
- MAC Schedule 1 (Microbiological) and 2 (Chemical) Standards (JAN,2018)



Analytical Results

Analyte	Method	LOR	Unit	Client sample ID	ONDWS					
				OW-16D	AO/OG	MAC				
Sub-Matrix: Groundwater (Matrix: Water)				Sampling date/time						
				WT2203380-017						
Physical Tests										
alkalinity, total (as CaCO3)	E290	1.0	mg/L	485		30 - 500 mg/L				
colour, apparent	E330	2.0	CU	8.6		5 CU				
conductivity	E100	1.0	µS/cm	1010						
pH	E108	0.10	pH units	7.88		6.5 - 8.5 pH units				
solids, total dissolved [TDS]	E162	10	mg/L	546	DLDS	500 mg/L				
turbidity	E121	0.10	NTU	8.16		5 NTU				
Anions and Nutrients										
ammonia, total (as N)	E298	0.0050	mg/L	5.75	DLHC					
chloride	E235.Cl	0.50	mg/L	33.0		250 mg/L				
fluoride	E235.F	0.020	mg/L	0.052			1.5 mg/L			
nitrate (as N)	E235.NO3	0.020	mg/L	0.915			10 mg/L			
nitrite (as N)	E235.NO2	0.010	mg/L	0.248			1 mg/L			
phosphate, ortho-, dissolved (as P)	E378-T	0.0030	mg/L	<0.0030						
sulfate (as SO4)	E235.SO4	0.30	mg/L	41.9						
Dissolved Metals										
aluminum, dissolved	E421	0.0010	mg/L	0.0032		0.1 mg/L				
antimony, dissolved	E421	0.00010	mg/L	<0.00010			0.006 mg/L			
arsenic, dissolved	E421	0.00010	mg/L	0.00082			0.01 mg/L			
barium, dissolved	E421	0.00010	mg/L	0.117			1 mg/L			
beryllium, dissolved	E421	0.000020	mg/L	<0.000020						
bismuth, dissolved	E421	0.000050	mg/L	<0.000050						
boron, dissolved	E421	0.010	mg/L	0.298			5 mg/L			
cadmium, dissolved	E421	0.0000050	mg/L	0.000110			0.005 mg/L			
calcium, dissolved	E421	0.050	mg/L	114						
cesium, dissolved	E421	0.000010	mg/L	0.000010						
chromium, dissolved	E421	0.00050	mg/L	<0.00050			0.05 mg/L			
cobalt, dissolved	E421	0.00010	mg/L	0.00196						
copper, dissolved	E421	0.00020	mg/L	0.00271		1 mg/L				
iron, dissolved	E421	0.010	mg/L	0.175		0.3 mg/L				



Analyte	Method	LOR	Unit	WT2203380-017 (Continued)	ONDWS AO/OG	ONDWS MAC				
Dissolved Metals - Continued										
lead, dissolved	E421	0.000050	mg/L	0.00576		0.01 mg/L				
lithium, dissolved	E421	0.0010	mg/L	0.0029						
magnesium, dissolved	E421	0.0050	mg/L	54.0						
manganese, dissolved	E421	0.00010	mg/L	0.538	0.05 mg/L					
molybdenum, dissolved	E421	0.000050	mg/L	0.000365						
nickel, dissolved	E421	0.00050	mg/L	0.00672						
phosphorus, dissolved	E421	0.050	mg/L	<0.050						
potassium, dissolved	E421	0.050	mg/L	13.3						
rubidium, dissolved	E421	0.00020	mg/L	0.00519						
selenium, dissolved	E421	0.000050	mg/L	0.000081		0.05 mg/L				
silicon, dissolved	E421	0.050	mg/L	5.04						
silver, dissolved	E421	0.000010	mg/L	<0.000010						
sodium, dissolved	E421	0.050	mg/L	20.7	200 mg/L	20 mg/L				
strontium, dissolved	E421	0.00020	mg/L	0.273						
sulfur, dissolved	E421	0.50	mg/L	13.4						
tellurium, dissolved	E421	0.00020	mg/L	<0.00020						
thallium, dissolved	E421	0.000010	mg/L	0.000285						
thorium, dissolved	E421	0.00010	mg/L	<0.00010						
tin, dissolved	E421	0.00010	mg/L	0.00068						
titanium, dissolved	E421	0.00030	mg/L	<0.00030						
tungsten, dissolved	E421	0.00010	mg/L	<0.00010						
uranium, dissolved	E421	0.000010	mg/L	0.000610		0.02 mg/L				
vanadium, dissolved	E421	0.00050	mg/L	<0.00050						
zinc, dissolved	E421	0.0010	mg/L	0.0091	5 mg/L					
zirconium, dissolved	E421	0.00020	mg/L	0.00029						
dissolved metals filtration location	EP421		-	Field						
Volatile Organic Compounds										
acetone	E611D	20	µg/L	<20						
benzene	E611D	0.50	µg/L	<0.50		1 µg/L				
bromodichloromethane	E611D	0.50	µg/L	<0.50						
bromoform	E611D	0.50	µg/L	<0.50						
bromomethane	E611D	0.50	µg/L	<0.50						
carbon tetrachloride	E611D	0.20	µg/L	<0.20		2 µg/L				
chlorobenzene	E611D	0.50	µg/L	<0.50	30 µg/L	80 µg/L				



Analyte	Method	LOR	Unit	WT2203380-017 (Continued)	ONDWS AO/OG	ONDWS MAC				
Volatile Organic Compounds - Continued										
chloroform	E611D	0.50	µg/L	<0.50						
dibromochloromethane	E611D	0.50	µg/L	<0.50						
dibromoethane, 1,2-	E611D	0.20	µg/L	<0.20						
dichlorobenzene, 1,2-	E611D	0.50	µg/L	<0.50	3 µg/L	200 µg/L				
dichlorobenzene, 1,3-	E611D	0.50	µg/L	<0.50						
dichlorobenzene, 1,4-	E611D	0.50	µg/L	<0.50	1 µg/L	5 µg/L				
dichlorodifluoromethane	E611D	0.50	µg/L	<0.50						
dichloroethane, 1,1-	E611D	0.50	µg/L	<0.50						
dichloroethane, 1,2-	E611D	0.50	µg/L	<0.50		5 µg/L				
dichloroethylene, 1,1-	E611D	0.50	µg/L	<0.50		14 µg/L				
dichloroethylene, cis-1,2-	E611D	0.50	µg/L	<0.50						
dichloroethylene, trans-1,2-	E611D	0.50	µg/L	<0.50						
dichloromethane	E611D	1.0	µg/L	<1.0		50 µg/L				
dichloropropane, 1,2-	E611D	0.50	µg/L	<0.50						
dichloropropylene, cis+trans-1,3-	E611D	0.50	µg/L	<0.50						
dichloropropylene, cis-1,3-	E611D	0.30	µg/L	<0.30						
dichloropropylene, trans-1,3-	E611D	0.30	µg/L	<0.30						
ethylbenzene	E611D	0.50	µg/L	<0.50	2.4 µg/L	140 µg/L				
hexane, n-	E611D	0.50	µg/L	<0.50						
methyl ethyl ketone [MEK]	E611D	20	µg/L	<20						
methyl isobutyl ketone [MIBK]	E611D	20	µg/L	<20						
methyl-tert-butyl ether [MTBE]	E611D	0.50	µg/L	<0.50		15 µg/L				
styrene	E611D	0.50	µg/L	<0.50						
tetrachloroethane, 1,1,1,2-	E611D	0.50	µg/L	<0.50						
tetrachloroethane, 1,1,2,2-	E611D	0.50	µg/L	<0.50						
tetrachloroethylene	E611D	0.50	µg/L	<0.50		10 µg/L				
toluene	E611D	0.50	µg/L	<0.50	24 µg/L	60 µg/L				
trichloroethane, 1,1,1-	E611D	0.50	µg/L	<0.50						
trichloroethane, 1,1,2-	E611D	0.50	µg/L	<0.50						
trichloroethylene	E611D	0.50	µg/L	<0.50		5 µg/L				
trichlorofluoromethane	E611D	0.50	µg/L	<0.50						
vinyl chloride	E611D	0.50	µg/L	<0.50		1 µg/L				
xylene, m+p-	E611D	0.40	µg/L	<0.40						
xylene, o-	E611D	0.30	µg/L	<0.30						



Analyte	Method	LOR	Unit	WT2203380-017 (Continued)	ONDWS AO/OG	ONDWS MAC				
Volatile Organic Compounds - Continued										
xylene, total	E611D	0.50	µg/L	<0.50	300 µg/L	90 µg/L				
BTEX, total	E611D	1.0	µg/L	<1.0						
bromofluorobenzene, 4-	E611D	1.0	%	88.7						
difluorobenzene, 1,4-	E611D	1.0	%	99.6						

Please refer to the General Comments section for an explanation of any qualifiers detected.

Summary of Guideline Breaches by Sample

SampleID/Client ID	Matrix	Analyte	Analyte Summary	Guideline	Category	Result	Limit
OW-16D	Water	colour, apparent	May interfere with disinfection; removal is important to ensure effective treatment.	ONDWS	AO/OG	8.6 CU	5 CU
	Water	solids, total dissolved [TDS]	Based on taste; TDS above 500 mg/L results in excessive scaling in water pipes, water heaters, boilers and appliances; TDS is composed of calcium, magnesium, sodium, potassium, carbonate, bicarbonate, chloride, sulphate and nitrate.	ONDWS	AO/OG	546 mg/L	500 mg/L
	Water	turbidity	Filtration systems should be designed and operated to reduce turbidity levels as low as reasonably achievable and strive to achieve a treated water turbidity target from individual filters of less than 0.1 NTU. Particles can harbour microorganisms, protecting them from disinfection, and can entrap heavy metals and biocides; elevated or fluctuating turbidity in filtered water can indicate a problem with the water treatment process and a potential increased risk of pathogens in treated water.	ONDWS	AO/OG	8.16 NTU	5 NTU
	Water	manganese, dissolved	Based on taste and staining of laundry and plumbing fixtures.	ONDWS	AO/OG	0.538 mg/L	0.05 mg/L
	Water	sodium, dissolved	Based on taste; where a sodium-based water softener is used, a separate unsoftened supply for cooking and drinking purposes is recommended.	ONDWS	MAC	20.7 mg/L	20 mg/L

Key:

ONDWS Ontario Drinking Water Regulation (JAN, 2020)
 AO/OG Aesthetic Objective/Operational Guideline
 MAC Schedule 1 (Microbiological) and 2 (Chemical) Standards (JAN,2018)



Analytical Results

Analyte	Method	LOR	Unit	Client sample ID	OW-20S	ONDWS AO/OG	ONDWS MAC			
				Sub-Matrix: Groundwater (Matrix: Water)	Sampling date/time					
				WT2203380-018						
Physical Tests										
alkalinity, total (as CaCO3)	E290	1.0	mg/L	338		30 - 500 mg/L				
colour, apparent	E330	2.0	CU	19.1		5 CU				
conductivity	E100	1.0	µS/cm	617						
pH	E108	0.10	pH units	8.04		6.5 - 8.5 pH units				
solids, total dissolved [TDS]	E162	10	mg/L	341	DLDS	500 mg/L				
turbidity	E121	0.10	NTU	>4000		5 NTU				
Anions and Nutrients										
ammonia, total (as N)	E298	0.0050	mg/L	0.117						
chloride	E235.Cl	0.50	mg/L	9.54		250 mg/L				
fluoride	E235.F	0.020	mg/L	0.204			1.5 mg/L			
nitrate (as N)	E235.NO3	0.020	mg/L	0.091			10 mg/L			
nitrite (as N)	E235.NO2	0.010	mg/L	<0.010			1 mg/L			
phosphate, ortho-, dissolved (as P)	E378-T	0.0030	mg/L	<0.0030						
sulfate (as SO4)	E235.SO4	0.30	mg/L	31.8						
Dissolved Metals										
aluminum, dissolved	E421	0.0010	mg/L	2.03		0.1 mg/L				
antimony, dissolved	E421	0.00010	mg/L	<0.00010			0.006 mg/L			
arsenic, dissolved	E421	0.00010	mg/L	0.00469			0.01 mg/L			
barium, dissolved	E421	0.00010	mg/L	0.0588			1 mg/L			
beryllium, dissolved	E421	0.000020	mg/L	0.000117						
bismuth, dissolved	E421	0.000050	mg/L	<0.000050						
boron, dissolved	E421	0.010	mg/L	0.185			5 mg/L			
cadmium, dissolved	E421	0.0000050	mg/L	0.0000652			0.005 mg/L			
calcium, dissolved	E421	0.050	mg/L	109						
cesium, dissolved	E421	0.000010	mg/L	0.000208						
chromium, dissolved	E421	0.00050	mg/L	0.00374			0.05 mg/L			
cobalt, dissolved	E421	0.00010	mg/L	0.00191						
copper, dissolved	E421	0.00020	mg/L	0.00534		1 mg/L				
iron, dissolved	E421	0.010	mg/L	4.55		0.3 mg/L				



Analyte	Method	LOR	Unit	WT2203380-018 (Continued)	ONDWS AO/OG	ONDWS MAC				
Dissolved Metals - Continued										
lead, dissolved	E421	0.000050	mg/L	0.00636		0.01 mg/L				
lithium, dissolved	E421	0.0010	mg/L	0.0109						
magnesium, dissolved	E421	0.0050	mg/L	63.6						
manganese, dissolved	E421	0.00010	mg/L	0.278	0.05 mg/L					
molybdenum, dissolved	E421	0.000050	mg/L	0.00320						
nickel, dissolved	E421	0.00050	mg/L	0.00545						
phosphorus, dissolved	E421	0.050	mg/L	0.114						
potassium, dissolved	E421	0.050	mg/L	4.89						
rubidium, dissolved	E421	0.00020	mg/L	0.00416						
selenium, dissolved	E421	0.000050	mg/L	0.000054		0.05 mg/L				
silicon, dissolved	E421	0.050	mg/L	10.1						
silver, dissolved	E421	0.000010	mg/L	0.000015						
sodium, dissolved	E421	0.050	mg/L	46.1	200 mg/L	20 mg/L				
strontium, dissolved	E421	0.00020	mg/L	0.235						
sulfur, dissolved	E421	0.50	mg/L	21.6						
tellurium, dissolved	E421	0.00020	mg/L	0.00023						
thallium, dissolved	E421	0.000010	mg/L	0.000131						
thorium, dissolved	E421	0.00010	mg/L	0.00071						
tin, dissolved	E421	0.00010	mg/L	0.00016						
titanium, dissolved	E421	0.00030	mg/L	0.0467						
tungsten, dissolved	E421	0.00010	mg/L	0.00024						
uranium, dissolved	E421	0.000010	mg/L	0.00151		0.02 mg/L				
vanadium, dissolved	E421	0.00050	mg/L	0.00379						
zinc, dissolved	E421	0.0010	mg/L	0.0283	5 mg/L					
zirconium, dissolved	E421	0.00020	mg/L	0.00125						
dissolved metals filtration location	EP421		-	Field						
Volatile Organic Compounds										
acetone	E611D	20	µg/L	<20	OWP					
benzene	E611D	0.50	µg/L	<0.50	OWP	1 µg/L				
bromodichloromethane	E611D	0.50	µg/L	<0.50	OWP					
bromoform	E611D	0.50	µg/L	<0.50	OWP					
bromomethane	E611D	0.50	µg/L	<0.50	OWP					
carbon tetrachloride	E611D	0.20	µg/L	<0.20	OWP	2 µg/L				
chlorobenzene	E611D	0.50	µg/L	<0.50	OWP	30 µg/L	80 µg/L			



Analyte	Method	LOR	Unit	WT2203380-018 (Continued)	ONDWS AO/OG	ONDWS MAC				
Volatile Organic Compounds - Continued										
chloroform	E611D	0.50	µg/L	<0.50	OWP					
dibromochloromethane	E611D	0.50	µg/L	<0.50	OWP					
dibromoethane, 1,2-	E611D	0.20	µg/L	<0.20	OWP					
dichlorobenzene, 1,2-	E611D	0.50	µg/L	<0.50	OWP	3 µg/L	200 µg/L			
dichlorobenzene, 1,3-	E611D	0.50	µg/L	<0.50	OWP					
dichlorobenzene, 1,4-	E611D	0.50	µg/L	<0.50	OWP	1 µg/L	5 µg/L			
dichlorodifluoromethane	E611D	0.50	µg/L	<0.50	OWP					
dichloroethane, 1,1-	E611D	0.50	µg/L	<0.50	OWP					
dichloroethane, 1,2-	E611D	0.50	µg/L	<0.50	OWP		5 µg/L			
dichloroethylene, 1,1-	E611D	0.50	µg/L	<0.50	OWP		14 µg/L			
dichloroethylene, cis-1,2-	E611D	0.50	µg/L	<0.50	OWP					
dichloroethylene, trans-1,2-	E611D	0.50	µg/L	<0.50	OWP					
dichloromethane	E611D	1.0	µg/L	<1.0	OWP		50 µg/L			
dichloropropane, 1,2-	E611D	0.50	µg/L	<0.50	OWP					
dichloropropylene, cis+trans-1,3-	E611D	0.50	µg/L	<0.50	OWP					
dichloropropylene, cis-1,3-	E611D	0.30	µg/L	<0.30	OWP					
dichloropropylene, trans-1,3-	E611D	0.30	µg/L	<0.30	OWP					
ethylbenzene	E611D	0.50	µg/L	<0.50	OWP	2.4 µg/L	140 µg/L			
hexane, n-	E611D	0.50	µg/L	<0.50	OWP					
methyl ethyl ketone [MEK]	E611D	20	µg/L	<20	OWP					
methyl isobutyl ketone [MIBK]	E611D	20	µg/L	<20	OWP					
methyl-tert-butyl ether [MTBE]	E611D	0.50	µg/L	<0.50	OWP		15 µg/L			
styrene	E611D	0.50	µg/L	<0.50	OWP					
tetrachloroethane, 1,1,1,2-	E611D	0.50	µg/L	<0.50	OWP					
tetrachloroethane, 1,1,2,2-	E611D	0.50	µg/L	<0.50	OWP					
tetrachloroethylene	E611D	0.50	µg/L	<0.50	OWP		10 µg/L			
toluene	E611D	0.50	µg/L	<0.50	OWP	24 µg/L	60 µg/L			
trichloroethane, 1,1,1-	E611D	0.50	µg/L	<0.50	OWP					
trichloroethane, 1,1,2-	E611D	0.50	µg/L	<0.50	OWP					
trichloroethylene	E611D	0.50	µg/L	<0.50	OWP		5 µg/L			
trichlorofluoromethane	E611D	0.50	µg/L	<0.50	OWP					
vinyl chloride	E611D	0.50	µg/L	<0.50	OWP		1 µg/L			
xylene, m+p-	E611D	0.40	µg/L	<0.40	OWP					
xylene, o-	E611D	0.30	µg/L	<0.30	OWP					



Analyte	Method	LOR	Unit	WT2203380-018 (Continued)	ONDWS AO/OG	ONDWS MAC				
Volatile Organic Compounds - Continued										
xylenes, total	E611D	0.50	µg/L	<0.50	300 µg/L	90 µg/L				
BTEX, total	E611D	1.0	µg/L	<1.0						
bromofluorobenzene, 4-	E611D	1.0	%	88.9						
difluorobenzene, 1,4-	E611D	1.0	%	98.6						

Please refer to the General Comments section for an explanation of any qualifiers detected.

Summary of Guideline Breaches by Sample

SampleID/Client ID	Matrix	Analyte	Analyte Summary	Guideline	Category	Result	Limit
OW-20S	Water	colour, apparent	May interfere with disinfection; removal is important to ensure effective treatment.	ONDWS	AO/OG	19.1 CU	5 CU
	Water	turbidity	Filtration systems should be designed and operated to reduce turbidity levels as low as reasonably achievable and strive to achieve a treated water turbidity target from individual filters of less than 0.1 NTU. Particles can harbour microorganisms, protecting them from disinfection, and can entrap heavy metals and biocides; elevated or fluctuating turbidity in filtered water can indicate a problem with the water treatment process and a potential increased risk of pathogens in treated water.	ONDWS	AO/OG	>4000	5 NTU
	Water	aluminum, dissolved	There is no consistent, convincing evidence that aluminum in drinking water causes adverse health effects in humans. The operational guideline applies to treatment plants using aluminum-based coagulants; it does not apply to naturally occurring aluminum found in groundwater. For treatment plants using aluminum-based coagulants, monthly samples should be taken of the water leaving the plant; the OGs are based on a running annual average of monthly samples.	ONDWS	AO/OG	2.03 mg/L	0.1 mg/L
	Water	iron, dissolved	Based on taste and staining of laundry and plumbing fixtures; no evidence exists of dietary iron toxicity in the general population.	ONDWS	AO/OG	4.55 mg/L	0.3 mg/L
	Water	manganese, dissolved	Based on taste and staining of laundry and plumbing fixtures.	ONDWS	AO/OG	0.278 mg/L	0.05 mg/L
	Water	sodium, dissolved	Based on taste; where a sodium-based water softener is used, a separate unsoftened supply for cooking and drinking purposes is recommended.	ONDWS	MAC	46.1 mg/L	20 mg/L

Key:

ONDWS	Ontario Drinking Water Regulation (JAN, 2020)
AO/OG	Aesthetic Objective/Operational Guideline
MAC	Schedule 1 (Microbiological) and 2 (Chemical) Standards (JAN,2018)



Analytical Results

Analyte	Method	LOR	Unit	Client sample ID	OW-20D		ONDWS AO/OG	ONDWS MAC			
				Sampling date/time	04-May-2022 00:00						
Sub-Matrix: Groundwater (Matrix: Water)				WT2203380-019							
Physical Tests											
alkalinity, total (as CaCO3)	E290	1.0	mg/L	488			30 - 500 mg/L				
colour, apparent	E330	2.0	CU	7.0			5 CU				
conductivity	E100	1.0	µS/cm	1250							
pH	E108	0.10	pH units	7.85			6.5 - 8.5 pH units				
solids, total dissolved [TDS]	E162	10	mg/L	816	DLDS		500 mg/L				
turbidity	E121	0.10	NTU	15.9			5 NTU				
Anions and Nutrients											
ammonia, total (as N)	E298	0.0050	mg/L	2.99	DLHC						
chloride	E235.Cl	0.50	mg/L	43.0	DLDS		250 mg/L				
fluoride	E235.F	0.020	mg/L	<0.100	DLDS			1.5 mg/L			
nitrate (as N)	E235.NO3	0.020	mg/L	3.28	DLDS			10 mg/L			
nitrite (as N)	E235.NO2	0.010	mg/L	0.339	DLDS			1 mg/L			
phosphate, ortho-, dissolved (as P)	E378-T	0.0030	mg/L	<0.0030							
sulfate (as SO4)	E235.SO4	0.30	mg/L	184	DLDS						
Dissolved Metals											
aluminum, dissolved	E421	0.0010	mg/L	0.0177			0.1 mg/L				
antimony, dissolved	E421	0.00010	mg/L	<0.00010				0.006 mg/L			
arsenic, dissolved	E421	0.00010	mg/L	0.00062				0.01 mg/L			
barium, dissolved	E421	0.00010	mg/L	0.112				1 mg/L			
beryllium, dissolved	E421	0.000020	mg/L	<0.000020							
bismuth, dissolved	E421	0.000050	mg/L	<0.000050							
boron, dissolved	E421	0.010	mg/L	0.443				5 mg/L			
cadmium, dissolved	E421	0.0000050	mg/L	0.0000132				0.005 mg/L			
calcium, dissolved	E421	0.050	mg/L	132							
cesium, dissolved	E421	0.000010	mg/L	<0.000010							
chromium, dissolved	E421	0.00050	mg/L	<0.00050				0.05 mg/L			
cobalt, dissolved	E421	0.00010	mg/L	0.00149							
copper, dissolved	E421	0.00020	mg/L	0.00077				1 mg/L			
iron, dissolved	E421	0.010	mg/L	0.263				0.3 mg/L			



Analyte	Method	LOR	Unit	WT2203380-019 (Continued)	ONDWS AO/OG	ONDWS MAC				
Dissolved Metals - Continued										
lead, dissolved	E421	0.000050	mg/L	0.000846		0.01 mg/L				
lithium, dissolved	E421	0.0010	mg/L	0.0036						
magnesium, dissolved	E421	0.0050	mg/L	73.0						
manganese, dissolved	E421	0.00010	mg/L	0.435	0.05 mg/L					
molybdenum, dissolved	E421	0.000050	mg/L	0.000340						
nickel, dissolved	E421	0.00050	mg/L	0.00696						
phosphorus, dissolved	E421	0.050	mg/L	<0.050						
potassium, dissolved	E421	0.050	mg/L	16.5						
rubidium, dissolved	E421	0.00020	mg/L	0.00506						
selenium, dissolved	E421	0.000050	mg/L	0.000062		0.05 mg/L				
silicon, dissolved	E421	0.050	mg/L	5.69						
silver, dissolved	E421	0.000010	mg/L	<0.000010						
sodium, dissolved	E421	0.050	mg/L	28.2	200 mg/L	20 mg/L				
strontium, dissolved	E421	0.00020	mg/L	0.350						
sulfur, dissolved	E421	0.50	mg/L	47.6						
tellurium, dissolved	E421	0.00020	mg/L	<0.00020						
thallium, dissolved	E421	0.000010	mg/L	0.000407						
thorium, dissolved	E421	0.00010	mg/L	<0.00010						
tin, dissolved	E421	0.00010	mg/L	0.00013						
titanium, dissolved	E421	0.00030	mg/L	<0.00060	DLUI					
tungsten, dissolved	E421	0.00010	mg/L	<0.00010						
uranium, dissolved	E421	0.000010	mg/L	0.000782		0.02 mg/L				
vanadium, dissolved	E421	0.00050	mg/L	<0.00050						
zinc, dissolved	E421	0.0010	mg/L	0.0161	5 mg/L					
zirconium, dissolved	E421	0.00020	mg/L	0.00022						
dissolved metals filtration location	EP421		-	Field						
Volatile Organic Compounds										
acetone	E611D	20	µg/L	<20						
benzene	E611D	0.50	µg/L	<0.50		1 µg/L				
bromodichloromethane	E611D	0.50	µg/L	<0.50						
bromoform	E611D	0.50	µg/L	<0.50						
bromomethane	E611D	0.50	µg/L	<0.50						
carbon tetrachloride	E611D	0.20	µg/L	<0.20		2 µg/L				
chlorobenzene	E611D	0.50	µg/L	<0.50	30 µg/L	80 µg/L				



Analyte	Method	LOR	Unit	WT2203380-019 (Continued)	ONDWS AO/OG	ONDWS MAC				
Volatile Organic Compounds - Continued										
chloroform	E611D	0.50	µg/L	<0.50						
dibromochloromethane	E611D	0.50	µg/L	<0.50						
dibromoethane, 1,2-	E611D	0.20	µg/L	<0.20						
dichlorobenzene, 1,2-	E611D	0.50	µg/L	<0.50	3 µg/L	200 µg/L				
dichlorobenzene, 1,3-	E611D	0.50	µg/L	<0.50						
dichlorobenzene, 1,4-	E611D	0.50	µg/L	<0.50	1 µg/L	5 µg/L				
dichlorodifluoromethane	E611D	0.50	µg/L	<0.50						
dichloroethane, 1,1-	E611D	0.50	µg/L	<0.50						
dichloroethane, 1,2-	E611D	0.50	µg/L	<0.50		5 µg/L				
dichloroethylene, 1,1-	E611D	0.50	µg/L	<0.50		14 µg/L				
dichloroethylene, cis-1,2-	E611D	0.50	µg/L	<0.50						
dichloroethylene, trans-1,2-	E611D	0.50	µg/L	<0.50						
dichloromethane	E611D	1.0	µg/L	<1.0		50 µg/L				
dichloropropane, 1,2-	E611D	0.50	µg/L	<0.50						
dichloropropylene, cis+trans-1,3-	E611D	0.50	µg/L	<0.50						
dichloropropylene, cis-1,3-	E611D	0.30	µg/L	<0.30						
dichloropropylene, trans-1,3-	E611D	0.30	µg/L	<0.30						
ethylbenzene	E611D	0.50	µg/L	<0.50	2.4 µg/L	140 µg/L				
hexane, n-	E611D	0.50	µg/L	<0.50						
methyl ethyl ketone [MEK]	E611D	20	µg/L	<20						
methyl isobutyl ketone [MIBK]	E611D	20	µg/L	<20						
methyl-tert-butyl ether [MTBE]	E611D	0.50	µg/L	<0.50		15 µg/L				
styrene	E611D	0.50	µg/L	<0.50						
tetrachloroethane, 1,1,1,2-	E611D	0.50	µg/L	<0.50						
tetrachloroethane, 1,1,2,2-	E611D	0.50	µg/L	<0.50						
tetrachloroethylene	E611D	0.50	µg/L	<0.50		10 µg/L				
toluene	E611D	0.50	µg/L	<0.50	24 µg/L	60 µg/L				
trichloroethane, 1,1,1-	E611D	0.50	µg/L	<0.50						
trichloroethane, 1,1,2-	E611D	0.50	µg/L	<0.50						
trichloroethylene	E611D	0.50	µg/L	<0.50		5 µg/L				
trichlorofluoromethane	E611D	0.50	µg/L	<0.50						
vinyl chloride	E611D	0.50	µg/L	<0.50		1 µg/L				
xylene, m+p-	E611D	0.40	µg/L	<0.40						
xylene, o-	E611D	0.30	µg/L	<0.30						



Analyte	Method	LOR	Unit	WT2203380-019 (Continued)	ONDWS AO/OG	ONDWS MAC				
Volatile Organic Compounds - Continued										
xylenes, total	E611D	0.50	µg/L	<0.50	300 µg/L	90 µg/L				
BTEX, total	E611D	1.0	µg/L	<1.0						
bromofluorobenzene, 4-	E611D	1.0	%	78.1						
difluorobenzene, 1,4-	E611D	1.0	%	98.5						

Please refer to the General Comments section for an explanation of any qualifiers detected.

Summary of Guideline Breaches by Sample

SampleID/Client ID	Matrix	Analyte	Analyte Summary	Guideline	Category	Result	Limit
OW-20D	Water	colour, apparent	May interfere with disinfection; removal is important to ensure effective treatment.	ONDWS	AO/OG	7.0 CU	5 CU
	Water	solids, total dissolved [TDS]	Based on taste; TDS above 500 mg/L results in excessive scaling in water pipes, water heaters, boilers and appliances; TDS is composed of calcium, magnesium, sodium, potassium, carbonate, bicarbonate, chloride, sulphate and nitrate.	ONDWS	AO/OG	816 mg/L	500 mg/L
	Water	turbidity	Filtration systems should be designed and operated to reduce turbidity levels as low as reasonably achievable and strive to achieve a treated water turbidity target from individual filters of less than 0.1 NTU. Particles can harbour microorganisms, protecting them from disinfection, and can entrap heavy metals and biocides; elevated or fluctuating turbidity in filtered water can indicate a problem with the water treatment process and a potential increased risk of pathogens in treated water.	ONDWS	AO/OG	15.9 NTU	5 NTU
	Water	manganese, dissolved	Based on taste and staining of laundry and plumbing fixtures.	ONDWS	AO/OG	0.435 mg/L	0.05 mg/L
	Water	sodium, dissolved	Based on taste; where a sodium-based water softener is used, a separate unsoftened supply for cooking and drinking purposes is recommended.	ONDWS	MAC	28.2 mg/L	20 mg/L

Key:

- ONDWS Ontario Drinking Water Regulation (JAN, 2020)
- AO/OG Aesthetic Objective/Operational Guideline
- MAC Schedule 1 (Microbiological) and 2 (Chemical) Standards (JAN,2018)



CERTIFICATE OF ANALYSIS (GUIDELINE EVALUATION)

Work Order : WT2219367	Page : 1 of 50
Amendment : 1	
Client : Bluewater Geoscience Consultants Inc.	Laboratory : Waterloo - Environmental
Contact : Breton Lemieux	Account Manager : Gayle Braun
Address : 42 Shadyridge Place Kitchener ON Canada N2N 3J1	Address : 60 Northland Road, Unit 1 Waterloo, Ontario Canada N2V 2B8
Telephone : 519 744 4123	Telephone : +1 519 886 6910
Project : BG-817	Date Samples Received : 25-Oct-2022 14:00
PO : ----	Date Analysis Commenced : 26-Oct-2022
C-O-C number : 20-1006823,20-1006822	Issue Date : 16-Nov-2022 17:09
Sampler : ----	
Site : ----	
Quote number : SOA	
No. of samples received : 16	
No. of samples analysed : 16	

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Guideline Comparison

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QC Interpretive report to assist with Quality Review and Sample Receipt Notification (SRN).

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Laboratory Department</i>
Greg Pokocky	Supervisor - Inorganic	Inorganics, Waterloo, Ontario
Jon Fisher	Department Manager - Inorganics	Inorganics, Waterloo, Ontario
Jon Fisher	Department Manager - Inorganics	Metals, Waterloo, Ontario

General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to fitness for a particular purpose, or non-infringement. ALS assumes no responsibility for errors or omissions in the information. Guidelines are not adjusted for the hardness, pH or temperature of the sample (the most conservative values are used). Measurement uncertainty is not applied to test results prior to comparison with specified criteria values.

Key : LOR: Limit of Reporting (detection limit).

<i>Unit</i>	<i>Description</i>
-	no unit
µS/cm	microsiemens per centimetre
CU	colour units (1 cu = 1 mg/l pt)
mg/L	milligrams per litre
NTU	nephelometric turbidity units
pH units	pH units

>: greater than.

<: less than.

Red shading is applied where the result is greater than the Guideline Upper Limit or the result is lower than the Guideline Lower Limit.

For drinking water samples, Red shading is applied where the result for E.coli, fecal or total coliforms is greater than or equal to the Guideline Upper Limit .

Workorder Comments

ODWS

Qualifiers

<i>Qualifier</i>	<i>Description</i>
DLDS	Detection Limit Raised: Dilution required due to high Dissolved Solids / Electrical Conductivity.
DLHC	Detection Limit Raised: Dilution required due to high concentration of test analyte(s).
DLUI	Detection Limit Raised: Unknown interference generated an apparent false positive test result.



Analytical Results

Analyte	Method	LOR	Unit	Client sample ID	OW-1	ONDWS AO/OG	ONDWS MAC			
				Sampling date/time	25-Oct-2022 00:00					
				WT2219367-001						
Physical Tests										
alkalinity, total (as CaCO3)	E290	1.0	mg/L	330		30 - 500 mg/L	--	--	--	--
colour, apparent	E330	2.0	CU	24.3		5 CU	--	--	--	--
conductivity	E100	1.0	µS/cm	568		--	--	--	--	--
pH	E108	0.10	pH units	7.89		6.5 - 8.5 pH units	--	--	--	--
solids, total dissolved [TDS]	E162	10	mg/L	394	DLDS	500 mg/L	--	--	--	--
turbidity	E121	0.10	NTU	76.9		5 NTU	--	--	--	--
Anions and Nutrients										
ammonia, total (as N)	E298	0.0050	mg/L	0.451		--	--	--	--	--
chloride	E235.Cl	0.50	mg/L	2.26		250 mg/L	--	--	--	--
fluoride	E235.F	0.020	mg/L	0.029		--	1.5 mg/L	--	--	--
nitrate (as N)	E235.NO3	0.020	mg/L	0.269		--	10 mg/L	--	--	--
nitrite (as N)	E235.NO2	0.010	mg/L	0.016		--	1 mg/L	--	--	--
phosphate, ortho-, dissolved (as P)	E378-T	0.0030	mg/L	0.0239		--	--	--	--	--
sulfate (as SO4)	E235.SO4	0.30	mg/L	9.53		--	--	--	--	--
Dissolved Metals										
aluminum, dissolved	E421	0.0010	mg/L	0.0023		0.1 mg/L	--	--	--	--
antimony, dissolved	E421	0.00010	mg/L	<0.00010		--	0.006 mg/L	--	--	--
arsenic, dissolved	E421	0.00010	mg/L	0.00088		--	0.01 mg/L	--	--	--
barium, dissolved	E421	0.00010	mg/L	0.0428		--	1 mg/L	--	--	--
beryllium, dissolved	E421	0.000020	mg/L	<0.000020		--	--	--	--	--
bismuth, dissolved	E421	0.000050	mg/L	<0.000050		--	--	--	--	--
boron, dissolved	E421	0.010	mg/L	0.104		--	5 mg/L	--	--	--
cadmium, dissolved	E421	0.0000050	mg/L	<0.0000050		--	0.005 mg/L	--	--	--
calcium, dissolved	E421	0.050	mg/L	109		--	--	--	--	--
cesium, dissolved	E421	0.000010	mg/L	<0.000010		--	--	--	--	--
chromium, dissolved	E421	0.00050	mg/L	<0.00050		--	0.05 mg/L	--	--	--
cobalt, dissolved	E421	0.00010	mg/L	0.00030		--	--	--	--	--
copper, dissolved	E421	0.00020	mg/L	0.00063		1 mg/L	--	--	--	--
iron, dissolved	E421	0.010	mg/L	0.270		0.3 mg/L	--	--	--	--
lead, dissolved	E421	0.000050	mg/L	0.000191		--	0.01 mg/L	--	--	--



Analyte	Method	LOR	Unit	WT2219367-001 (Continued)	ONDWS AO/OG	ONDWS MAC				
Dissolved Metals - Continued										
lithium, dissolved	E421	0.0010	mg/L	0.0025	--	--	--	--	--	--
magnesium, dissolved	E421	0.0050	mg/L	38.2	--	--	--	--	--	--
manganese, dissolved	E421	0.00010	mg/L	0.0370	0.05 mg/L	--	--	--	--	--
molybdenum, dissolved	E421	0.000050	mg/L	0.000252	--	--	--	--	--	--
nickel, dissolved	E421	0.00050	mg/L	0.00112	--	--	--	--	--	--
phosphorus, dissolved	E421	0.050	mg/L	0.090	--	--	--	--	--	--
potassium, dissolved	E421	0.050	mg/L	3.02	--	--	--	--	--	--
rubidium, dissolved	E421	0.00020	mg/L	0.00127	--	--	--	--	--	--
selenium, dissolved	E421	0.000050	mg/L	0.000172	--	0.05 mg/L	--	--	--	--
silicon, dissolved	E421	0.050	mg/L	5.42	--	--	--	--	--	--
silver, dissolved	E421	0.000010	mg/L	<0.000010	--	--	--	--	--	--
sodium, dissolved	E421	0.050	mg/L	6.95	200 mg/L	20 mg/L	--	--	--	--
strontium, dissolved	E421	0.00020	mg/L	0.161	--	--	--	--	--	--
sulfur, dissolved	E421	0.50	mg/L	6.90	--	--	--	--	--	--
tellurium, dissolved	E421	0.00020	mg/L	<0.00020	--	--	--	--	--	--
thallium, dissolved	E421	0.000010	mg/L	0.000022	--	--	--	--	--	--
thorium, dissolved	E421	0.00010	mg/L	<0.00010	--	--	--	--	--	--
tin, dissolved	E421	0.00010	mg/L	<0.00010	--	--	--	--	--	--
titanium, dissolved	E421	0.00030	mg/L	<0.00030	--	--	--	--	--	--
tungsten, dissolved	E421	0.00010	mg/L	0.00021	--	--	--	--	--	--
uranium, dissolved	E421	0.000010	mg/L	0.000565	--	0.02 mg/L	--	--	--	--
vanadium, dissolved	E421	0.00050	mg/L	<0.00050	--	--	--	--	--	--
zinc, dissolved	E421	0.0010	mg/L	0.0054	5 mg/L	--	--	--	--	--
zirconium, dissolved	E421	0.00020	mg/L	<0.00020	--	--	--	--	--	--
dissolved metals filtration location	EP421		-	Field	--	--	--	--	--	--

Please refer to the General Comments section for an explanation of any qualifiers detected.



Summary of Guideline Breaches by Sample

SampleID/Client ID	Matrix	Analyte	Analyte Summary	Guideline	Category	Result	Limit
OW-1	Water	colour, apparent	<p>May interfere with disinfection; removal is important to ensure effective treatment.</p> <p>Filtration systems should be designed and operated to reduce turbidity levels as low as reasonably achievable and strive to achieve a treated water turbidity target from individual filters of less than 0.1 NTU. Particles can harbour microorganisms, protecting them from disinfection, and can entrap heavy metals and biocides; elevated or fluctuating turbidity in filtered water can indicate a problem with the water treatment process and a potential increased risk of pathogens in treated water.</p>	ONDWS	AO/OG	24.3 CU	5 CU
	Water	turbidity		ONDWS	AO/OG	76.9 NTU	5 NTU

Key:

- ONDWS Ontario Drinking Water Regulation (JAN, 2020)
- AO/OG Aesthetic Objective/Operational Guideline
- MAC Schedule 1 (Microbiological) and 2 (Chemical) Standards (JAN,2020)



Analytical Results

Analyte	Method	LOR	Unit	Client sample ID							
				OW-2S	Sub-Matrix: Water	Sampling date/time	25-Oct-2022	00:00	WT2219367-002	ONDWS AO/OG	ONDWS MAC
Physical Tests											
alkalinity, total (as CaCO3)	E290	1.0	mg/L	554	30 - 500 mg/L	--	--	--	--	--	
colour, apparent	E330	2.0	CU	41.4	5 CU	--	--	--	--	--	
conductivity	E100	1.0	µS/cm	932	--	--	--	--	--	--	
pH	E108	0.10	pH units	7.60	6.5 - 8.5 pH units	--	--	--	--	--	
solids, total dissolved [TDS]	E162	10	mg/L	599 DLDS	500 mg/L	--	--	--	--	--	
turbidity	E121	0.10	NTU	76.8	5 NTU	--	--	--	--	--	
Anions and Nutrients											
ammonia, total (as N)	E298	0.0050	mg/L	0.0242	--	--	--	--	--	--	
chloride	E235.Cl	0.50	mg/L	<2.50 DLDS	250 mg/L	--	--	--	--	--	
fluoride	E235.F	0.020	mg/L	<0.100 DLDS	--	1.5 mg/L	--	--	--	--	
nitrate (as N)	E235.NO3	0.020	mg/L	<0.100 DLDS	--	10 mg/L	--	--	--	--	
nitrite (as N)	E235.NO2	0.010	mg/L	<0.050 DLDS	--	1 mg/L	--	--	--	--	
phosphate, ortho-, dissolved (as P)	E378-T	0.0030	mg/L	<0.0030	--	--	--	--	--	--	
sulfate (as SO4)	E235.SO4	0.30	mg/L	19.1 DLDS	--	--	--	--	--	--	
Dissolved Metals											
aluminum, dissolved	E421	0.0010	mg/L	<0.0010	0.1 mg/L	--	--	--	--	--	
antimony, dissolved	E421	0.00010	mg/L	<0.00010	--	0.006 mg/L	--	--	--	--	
arsenic, dissolved	E421	0.00010	mg/L	0.00114	--	0.01 mg/L	--	--	--	--	
barium, dissolved	E421	0.00010	mg/L	0.0619	--	1 mg/L	--	--	--	--	
beryllium, dissolved	E421	0.000020	mg/L	<0.000020	--	--	--	--	--	--	
bismuth, dissolved	E421	0.000050	mg/L	<0.000050	--	--	--	--	--	--	
boron, dissolved	E421	0.010	mg/L	0.383	--	5 mg/L	--	--	--	--	
cadmium, dissolved	E421	0.0000050	mg/L	<0.0000050	--	0.005 mg/L	--	--	--	--	
calcium, dissolved	E421	0.050	mg/L	156	--	--	--	--	--	--	
cesium, dissolved	E421	0.000010	mg/L	<0.000010	--	--	--	--	--	--	
chromium, dissolved	E421	0.00050	mg/L	<0.00050	--	0.05 mg/L	--	--	--	--	
cobalt, dissolved	E421	0.00010	mg/L	0.00060	--	--	--	--	--	--	
copper, dissolved	E421	0.00020	mg/L	<0.00020	1 mg/L	--	--	--	--	--	
iron, dissolved	E421	0.010	mg/L	1.04	0.3 mg/L	--	--	--	--	--	
lead, dissolved	E421	0.000050	mg/L	0.000354	--	0.01 mg/L	--	--	--	--	



Analyte	Method	LOR	Unit	WT2219367-002 (Continued)	ONDWS AO/OG	ONDWS MAC				
Dissolved Metals - Continued										
lithium, dissolved	E421	0.0010	mg/L	0.0098	--	--	--	--	--	--
magnesium, dissolved	E421	0.0050	mg/L	67.4	--	--	--	--	--	--
manganese, dissolved	E421	0.00010	mg/L	0.144	0.05 mg/L	--	--	--	--	--
molybdenum, dissolved	E421	0.000050	mg/L	0.000218	--	--	--	--	--	--
nickel, dissolved	E421	0.00050	mg/L	0.00210	--	--	--	--	--	--
phosphorus, dissolved	E421	0.050	mg/L	<0.050	--	--	--	--	--	--
potassium, dissolved	E421	0.050	mg/L	2.16	--	--	--	--	--	--
rubidium, dissolved	E421	0.00020	mg/L	0.00094	--	--	--	--	--	--
selenium, dissolved	E421	0.000050	mg/L	0.000163	--	0.05 mg/L	--	--	--	--
silicon, dissolved	E421	0.050	mg/L	9.00	--	--	--	--	--	--
silver, dissolved	E421	0.000010	mg/L	<0.000010	--	--	--	--	--	--
sodium, dissolved	E421	0.050	mg/L	10.4	200 mg/L	20 mg/L	--	--	--	--
strontium, dissolved	E421	0.00020	mg/L	0.206	--	--	--	--	--	--
sulfur, dissolved	E421	0.50	mg/L	11.6	--	--	--	--	--	--
tellurium, dissolved	E421	0.00020	mg/L	<0.00020	--	--	--	--	--	--
thallium, dissolved	E421	0.000010	mg/L	0.000055	--	--	--	--	--	--
thorium, dissolved	E421	0.00010	mg/L	<0.00010	--	--	--	--	--	--
tin, dissolved	E421	0.00010	mg/L	<0.00010	--	--	--	--	--	--
titanium, dissolved	E421	0.00030	mg/L	<0.00030	--	--	--	--	--	--
tungsten, dissolved	E421	0.00010	mg/L	0.00062	--	--	--	--	--	--
uranium, dissolved	E421	0.000010	mg/L	0.000677	--	0.02 mg/L	--	--	--	--
vanadium, dissolved	E421	0.00050	mg/L	<0.00050	--	--	--	--	--	--
zinc, dissolved	E421	0.0010	mg/L	0.0029	5 mg/L	--	--	--	--	--
zirconium, dissolved	E421	0.00020	mg/L	<0.00020	--	--	--	--	--	--
dissolved metals filtration location	EP421		-	Field	--	--	--	--	--	--

Please refer to the General Comments section for an explanation of any qualifiers detected.



Summary of Guideline Breaches by Sample

SampleID/Client ID	Matrix	Analyte	Analyte Summary	Guideline	Category	Result	Limit
OW-2S	Water	alkalinity, total (as CaCO ₃)		ONDWS	AO/OG	554 mg/L	30-500 mg/L
	Water	colour, apparent	May interfere with disinfection; removal is important to ensure effective treatment.	ONDWS	AO/OG	41.4 CU	5 CU
	Water	solids, total dissolved [TDS]	Based on taste; TDS above 500 mg/L results in excessive scaling in water pipes, water heaters, boilers and appliances; TDS is composed of calcium, magnesium, sodium, potassium, carbonate, bicarbonate, chloride, sulphate and nitrate.	ONDWS	AO/OG	599 mg/L	500 mg/L
	Water	turbidity	Filtration systems should be designed and operated to reduce turbidity levels as low as reasonably achievable and strive to achieve a treated water turbidity target from individual filters of less than 0.1 NTU. Particles can harbour microorganisms, protecting them from disinfection, and can entrap heavy metals and biocides; elevated or fluctuating turbidity in filtered water can indicate a problem with the water treatment process and a potential increased risk of pathogens in treated water.	ONDWS	AO/OG	76.8 NTU	5 NTU
	Water	iron, dissolved	Based on taste and staining of laundry and plumbing fixtures; no evidence exists of dietary iron toxicity in the general population.	ONDWS	AO/OG	1.04 mg/L	0.3 mg/L
	Water	manganese, dissolved	Based on taste and staining of laundry and plumbing fixtures.	ONDWS	AO/OG	0.144 mg/L	0.05 mg/L

Key:

ONDWS Ontario Drinking Water Regulation (JAN, 2020)
 AO/OG Aesthetic Objective/Operational Guideline
 MAC Schedule 1 (Microbiological) and 2 (Chemical) Standards (JAN,2020)



Analytical Results

Analyte	Method	LOR	Unit	Client sample ID						
				OW-2D	25-Oct-2022	00:00	WT2219367-003	ONDWS AO/OG	ONDWS MAC	
Sub-Matrix: Water (Matrix: Water)										
Sampling date/time										
Physical Tests										
alkalinity, total (as CaCO3)	E290	1.0	mg/L	535		30 - 500 mg/L	--	--	--	--
colour, apparent	E330	2.0	CU	91.9		5 CU	--	--	--	--
conductivity	E100	1.0	µS/cm	1280		--	--	--	--	--
pH	E108	0.10	pH units	7.90		6.5 - 8.5 pH units	--	--	--	--
solids, total dissolved [TDS]	E162	10	mg/L	800	DLDS	500 mg/L	--	--	--	--
turbidity	E121	0.10	NTU	15.8		5 NTU	--	--	--	--
Anions and Nutrients										
ammonia, total (as N)	E298	0.0050	mg/L	6.25	DLHC	--	--	--	--	--
chloride	E235.Cl	0.50	mg/L	37.1	DLDS	250 mg/L	--	--	--	--
fluoride	E235.F	0.020	mg/L	<0.100	DLDS	--	1.5 mg/L	--	--	--
nitrate (as N)	E235.NO3	0.020	mg/L	<0.100	DLDS	--	10 mg/L	--	--	--
nitrite (as N)	E235.NO2	0.010	mg/L	<0.050	DLDS	--	1 mg/L	--	--	--
phosphate, ortho-, dissolved (as P)	E378-T	0.0030	mg/L	<0.0030		--	--	--	--	--
sulfate (as SO4)	E235.SO4	0.30	mg/L	169	DLDS	--	--	--	--	--
Dissolved Metals										
aluminum, dissolved	E421	0.0010	mg/L	0.0035		0.1 mg/L	--	--	--	--
antimony, dissolved	E421	0.00010	mg/L	<0.00010		--	0.006 mg/L	--	--	--
arsenic, dissolved	E421	0.00010	mg/L	0.00253		--	0.01 mg/L	--	--	--
barium, dissolved	E421	0.00010	mg/L	0.121		--	1 mg/L	--	--	--
beryllium, dissolved	E421	0.000020	mg/L	<0.000020		--	--	--	--	--
bismuth, dissolved	E421	0.000050	mg/L	<0.000050		--	--	--	--	--
boron, dissolved	E421	0.010	mg/L	0.540		--	5 mg/L	--	--	--
cadmium, dissolved	E421	0.0000050	mg/L	0.0000052		--	0.005 mg/L	--	--	--
calcium, dissolved	E421	0.050	mg/L	151		--	--	--	--	--
cesium, dissolved	E421	0.000010	mg/L	<0.000010		--	--	--	--	--
chromium, dissolved	E421	0.00050	mg/L	<0.00050		--	0.05 mg/L	--	--	--
cobalt, dissolved	E421	0.00010	mg/L	0.00394		--	--	--	--	--
copper, dissolved	E421	0.00020	mg/L	0.00041		1 mg/L	--	--	--	--
iron, dissolved	E421	0.010	mg/L	1.46		0.3 mg/L	--	--	--	--
lead, dissolved	E421	0.000050	mg/L	0.00162		--	0.01 mg/L	--	--	--



Analyte	Method	LOR	Unit	WT2219367-003 (Continued)	ONDWS AO/OG	ONDWS MAC				
Dissolved Metals - Continued										
lithium, dissolved	E421	0.0010	mg/L	0.0045	--	--	--	--	--	--
magnesium, dissolved	E421	0.0050	mg/L	78.8	--	--	--	--	--	--
manganese, dissolved	E421	0.00010	mg/L	0.826	0.05 mg/L	--	--	--	--	--
molybdenum, dissolved	E421	0.000050	mg/L	0.000677	--	--	--	--	--	--
nickel, dissolved	E421	0.00050	mg/L	0.0121	--	--	--	--	--	--
phosphorus, dissolved	E421	0.050	mg/L	<0.050	--	--	--	--	--	--
potassium, dissolved	E421	0.050	mg/L	12.6	--	--	--	--	--	--
rubidium, dissolved	E421	0.00020	mg/L	0.00328	--	--	--	--	--	--
selenium, dissolved	E421	0.000050	mg/L	0.000215	--	0.05 mg/L	--	--	--	--
silicon, dissolved	E421	0.050	mg/L	6.70	--	--	--	--	--	--
silver, dissolved	E421	0.000010	mg/L	<0.000010	--	--	--	--	--	--
sodium, dissolved	E421	0.050	mg/L	33.0	200 mg/L	20 mg/L	--	--	--	--
strontium, dissolved	E421	0.00020	mg/L	0.347	--	--	--	--	--	--
sulfur, dissolved	E421	0.50	mg/L	49.8	--	--	--	--	--	--
tellurium, dissolved	E421	0.00020	mg/L	<0.00020	--	--	--	--	--	--
thallium, dissolved	E421	0.000010	mg/L	0.000331	--	--	--	--	--	--
thorium, dissolved	E421	0.00010	mg/L	<0.00010	--	--	--	--	--	--
tin, dissolved	E421	0.00010	mg/L	<0.00010	--	--	--	--	--	--
titanium, dissolved	E421	0.00030	mg/L	<0.00030	--	--	--	--	--	--
tungsten, dissolved	E421	0.00010	mg/L	<0.00010	--	--	--	--	--	--
uranium, dissolved	E421	0.000010	mg/L	0.00164	--	0.02 mg/L	--	--	--	--
vanadium, dissolved	E421	0.00050	mg/L	<0.00050	--	--	--	--	--	--
zinc, dissolved	E421	0.0010	mg/L	0.0103	5 mg/L	--	--	--	--	--
zirconium, dissolved	E421	0.00020	mg/L	0.00040	--	--	--	--	--	--
dissolved metals filtration location	EP421		-	Field	--	--	--	--	--	--

Please refer to the General Comments section for an explanation of any qualifiers detected.



Summary of Guideline Breaches by Sample

SampleID/Client ID	Matrix	Analyte	Analyte Summary	Guideline	Category	Result	Limit
OW-2D	Water	alkalinity, total (as CaCO3)		ONDWS	AO/OG	535 mg/L	30-500 mg/L
	Water	colour, apparent	May interfere with disinfection; removal is important to ensure effective treatment.	ONDWS	AO/OG	91.9 CU	5 CU
	Water	solids, total dissolved [TDS]	Based on taste; TDS above 500 mg/L results in excessive scaling in water pipes, water heaters, boilers and appliances; TDS is composed of calcium, magnesium, sodium, potassium, carbonate, bicarbonate, chloride, sulphate and nitrate.	ONDWS	AO/OG	800 mg/L	500 mg/L
	Water	turbidity	Filtration systems should be designed and operated to reduce turbidity levels as low as reasonably achievable and strive to achieve a treated water turbidity target from individual filters of less than 0.1 NTU. Particles can harbour microorganisms, protecting them from disinfection, and can entrap heavy metals and biocides; elevated or fluctuating turbidity in filtered water can indicate a problem with the water treatment process and a potential increased risk of pathogens in treated water.	ONDWS	AO/OG	15.8 NTU	5 NTU
	Water	iron, dissolved	Based on taste and staining of laundry and plumbing fixtures; no evidence exists of dietary iron toxicity in the general population.	ONDWS	AO/OG	1.46 mg/L	0.3 mg/L
	Water	manganese, dissolved	Based on taste and staining of laundry and plumbing fixtures.	ONDWS	AO/OG	0.826 mg/L	0.05 mg/L
	Water	sodium, dissolved	Based on taste; where a sodium-based water softener is used, a separate unsoftened supply for cooking and drinking purposes is recommended.	ONDWS	MAC	33.0 mg/L	20 mg/L

Key:

- ONDWS Ontario Drinking Water Regulation (JAN, 2020)
- AO/OG Aesthetic Objective/Operational Guideline
- MAC Schedule 1 (Microbiological) and 2 (Chemical) Standards (JAN,2020)



Analytical Results

Analyte	Method	LOR	Unit	Client sample ID	OW-3S	ONDWS AO/OG	ONDWS MAC			
				Sub-Matrix: Water (Matrix: Water)	Sampling date/time					
				WT2219367-004						
Physical Tests										
alkalinity, total (as CaCO3)	E290	1.0	mg/L	332		30 - 500 mg/L	--	--	--	--
colour, apparent	E330	2.0	CU	41.1		5 CU	--	--	--	--
conductivity	E100	1.0	µS/cm	524		--	--	--	--	--
pH	E108	0.10	pH units	7.74		6.5 - 8.5 pH units	--	--	--	--
solids, total dissolved [TDS]	E162	10	mg/L	390	DLDS	500 mg/L	--	--	--	--
turbidity	E121	0.10	NTU	235		5 NTU	--	--	--	--
Anions and Nutrients										
ammonia, total (as N)	E298	0.0050	mg/L	0.0128		--	--	--	--	--
chloride	E235.Cl	0.50	mg/L	<0.50		250 mg/L	--	--	--	--
fluoride	E235.F	0.020	mg/L	<0.020		--	1.5 mg/L	--	--	--
nitrate (as N)	E235.NO3	0.020	mg/L	0.037		--	10 mg/L	--	--	--
nitrite (as N)	E235.NO2	0.010	mg/L	<0.010		--	1 mg/L	--	--	--
phosphate, ortho-, dissolved (as P)	E378-T	0.0030	mg/L	<0.0030		--	--	--	--	--
sulfate (as SO4)	E235.SO4	0.30	mg/L	0.76		--	--	--	--	--
Dissolved Metals										
aluminum, dissolved	E421	0.0010	mg/L	0.0080		0.1 mg/L	--	--	--	--
antimony, dissolved	E421	0.00010	mg/L	<0.00010		--	0.006 mg/L	--	--	--
arsenic, dissolved	E421	0.00010	mg/L	0.00079		--	0.01 mg/L	--	--	--
barium, dissolved	E421	0.00010	mg/L	0.0697		--	1 mg/L	--	--	--
beryllium, dissolved	E421	0.000020	mg/L	<0.000020		--	--	--	--	--
bismuth, dissolved	E421	0.000050	mg/L	<0.000050		--	--	--	--	--
boron, dissolved	E421	0.010	mg/L	0.109		--	5 mg/L	--	--	--
cadmium, dissolved	E421	0.0000050	mg/L	<0.0000050		--	0.005 mg/L	--	--	--
calcium, dissolved	E421	0.050	mg/L	129		--	--	--	--	--
cesium, dissolved	E421	0.000010	mg/L	<0.000010		--	--	--	--	--
chromium, dissolved	E421	0.00050	mg/L	<0.00050		--	0.05 mg/L	--	--	--
cobalt, dissolved	E421	0.00010	mg/L	0.00024		--	--	--	--	--
copper, dissolved	E421	0.00020	mg/L	0.00071		1 mg/L	--	--	--	--
iron, dissolved	E421	0.010	mg/L	1.38		0.3 mg/L	--	--	--	--
lead, dissolved	E421	0.000050	mg/L	0.000075		--	0.01 mg/L	--	--	--



Analyte	Method	LOR	Unit	WT2219367-004 (Continued)	ONDWS AO/OG	ONDWS MAC				
Dissolved Metals - Continued										
lithium, dissolved	E421	0.0010	mg/L	0.0019	--	--	--	--	--	--
magnesium, dissolved	E421	0.0050	mg/L	30.2	--	--	--	--	--	--
manganese, dissolved	E421	0.00010	mg/L	0.119	0.05 mg/L	--	--	--	--	--
molybdenum, dissolved	E421	0.000050	mg/L	0.000349	--	--	--	--	--	--
nickel, dissolved	E421	0.00050	mg/L	0.00134	--	--	--	--	--	--
phosphorus, dissolved	E421	0.050	mg/L	<0.050	--	--	--	--	--	--
potassium, dissolved	E421	0.050	mg/L	3.76	--	--	--	--	--	--
rubidium, dissolved	E421	0.00020	mg/L	0.00124	--	--	--	--	--	--
selenium, dissolved	E421	0.000050	mg/L	0.000116	--	0.05 mg/L	--	--	--	--
silicon, dissolved	E421	0.050	mg/L	4.58	--	--	--	--	--	--
silver, dissolved	E421	0.000010	mg/L	<0.000010	--	--	--	--	--	--
sodium, dissolved	E421	0.050	mg/L	7.39	200 mg/L	20 mg/L	--	--	--	--
strontium, dissolved	E421	0.00020	mg/L	0.236	--	--	--	--	--	--
sulfur, dissolved	E421	0.50	mg/L	1.83	--	--	--	--	--	--
tellurium, dissolved	E421	0.00020	mg/L	<0.00020	--	--	--	--	--	--
thallium, dissolved	E421	0.000010	mg/L	0.000011	--	--	--	--	--	--
thorium, dissolved	E421	0.00010	mg/L	<0.00010	--	--	--	--	--	--
tin, dissolved	E421	0.00010	mg/L	<0.00010	--	--	--	--	--	--
titanium, dissolved	E421	0.00030	mg/L	<0.00030	--	--	--	--	--	--
tungsten, dissolved	E421	0.00010	mg/L	<0.00010	--	--	--	--	--	--
uranium, dissolved	E421	0.000010	mg/L	0.000548	--	0.02 mg/L	--	--	--	--
vanadium, dissolved	E421	0.00050	mg/L	<0.00050	--	--	--	--	--	--
zinc, dissolved	E421	0.0010	mg/L	0.0026	5 mg/L	--	--	--	--	--
zirconium, dissolved	E421	0.00020	mg/L	0.00026	--	--	--	--	--	--
dissolved metals filtration location	EP421		-	Field	--	--	--	--	--	--

Please refer to the General Comments section for an explanation of any qualifiers detected.



Summary of Guideline Breaches by Sample

SampleID/Client ID	Matrix	Analyte	Analyte Summary	Guideline	Category	Result	Limit
OW-3S	Water	colour, apparent	May interfere with disinfection; removal is important to ensure effective treatment.	ONDWS	AO/OG	41.1 CU	5 CU
	Water	turbidity		ONDWS	AO/OG	235 NTU	5 NTU
	Water	iron, dissolved	Filtration systems should be designed and operated to reduce turbidity levels as low as reasonably achievable and strive to achieve a treated water turbidity target from individual filters of less than 0.1 NTU. Particles can harbour microorganisms, protecting them from disinfection, and can entrap heavy metals and biocides; elevated or fluctuating turbidity in filtered water can indicate a problem with the water treatment process and a potential increased risk of pathogens in treated water. Based on taste and staining of laundry and plumbing fixtures; no evidence exists of dietary iron toxicity in the general population.	ONDWS	AO/OG	1.38 mg/L	0.3 mg/L
	Water	manganese, dissolved		ONDWS	AO/OG	0.119 mg/L	0.05 mg/L

Key:
 ONDWS Ontario Drinking Water Regulation (JAN, 2020)
 AO/OG Aesthetic Objective/Operational Guideline
 MAC Schedule 1 (Microbiological) and 2 (Chemical) Standards (JAN,2020)



Analytical Results

Analyte	Method	LOR	Unit	Client sample ID	OW-3D		ONDWS AO/OG	ONDWS MAC				
				Sampling date/time	25-Oct-2022	00:00						
Sub-Matrix: Water (Matrix: Water)				WT2219367-005								
Physical Tests												
alkalinity, total (as CaCO3)	E290	1.0	mg/L	820			30 - 500 mg/L	--	--	--	--	--
colour, apparent	E330	2.0	CU	41.9			5 CU	--	--	--	--	--
conductivity	E100	1.0	µS/cm	1630			--	--	--	--	--	--
pH	E108	0.10	pH units	7.28			6.5 - 8.5 pH units	--	--	--	--	--
solids, total dissolved [TDS]	E162	10	mg/L	888	DLDS		500 mg/L	--	--	--	--	--
turbidity	E121	0.10	NTU	193			5 NTU	--	--	--	--	--
Anions and Nutrients												
ammonia, total (as N)	E298	0.0050	mg/L	34.1	DLHC		--	--	--	--	--	--
chloride	E235.Cl	0.50	mg/L	46.1	DLDS		250 mg/L	--	--	--	--	--
fluoride	E235.F	0.020	mg/L	<0.100	DLDS		--	1.5 mg/L	--	--	--	--
nitrate (as N)	E235.NO3	0.020	mg/L	<0.100	DLDS		--	10 mg/L	--	--	--	--
nitrite (as N)	E235.NO2	0.010	mg/L	<0.050	DLDS		--	1 mg/L	--	--	--	--
phosphate, ortho-, dissolved (as P)	E378-T	0.0030	mg/L	<0.0030			--	--	--	--	--	--
sulfate (as SO4)	E235.SO4	0.30	mg/L	30.4	DLDS		--	--	--	--	--	--
Dissolved Metals												
aluminum, dissolved	E421	0.0010	mg/L	0.0167	DLHC		0.1 mg/L	--	--	--	--	--
antimony, dissolved	E421	0.00010	mg/L	<0.00100	DLHC		--	0.006 mg/L	--	--	--	--
arsenic, dissolved	E421	0.00010	mg/L	0.00368	DLHC		--	0.01 mg/L	--	--	--	--
barium, dissolved	E421	0.00010	mg/L	0.362	DLHC		--	1 mg/L	--	--	--	--
beryllium, dissolved	E421	0.000020	mg/L	<0.000200	DLHC		--	--	--	--	--	--
bismuth, dissolved	E421	0.000050	mg/L	<0.000500	DLHC		--	--	--	--	--	--
boron, dissolved	E421	0.010	mg/L	0.776	DLHC		--	5 mg/L	--	--	--	--
cadmium, dissolved	E421	0.0000050	mg/L	<0.0000500	DLHC		--	0.005 mg/L	--	--	--	--
calcium, dissolved	E421	0.050	mg/L	183	DLHC		--	--	--	--	--	--
cesium, dissolved	E421	0.000010	mg/L	<0.000100	DLHC		--	--	--	--	--	--
chromium, dissolved	E421	0.00050	mg/L	<0.00500	DLHC		--	0.05 mg/L	--	--	--	--
cobalt, dissolved	E421	0.00010	mg/L	<0.00100	DLHC		--	--	--	--	--	--
copper, dissolved	E421	0.00020	mg/L	<0.00200	DLHC		1 mg/L	--	--	--	--	--
iron, dissolved	E421	0.010	mg/L	14.6	DLHC		0.3 mg/L	--	--	--	--	--
lead, dissolved	E421	0.000050	mg/L	<0.000500	DLHC		--	0.01 mg/L	--	--	--	--



Analyte	Method	LOR	Unit	WT2219367-005 (Continued)		ONDWS AO/OG	ONDWS MAC				
Dissolved Metals - Continued											
lithium, dissolved	E421	0.0010	mg/L	<0.0100	DLHC	--	--	--	--	--	--
magnesium, dissolved	E421	0.0050	mg/L	54.1	DLHC	--	--	--	--	--	--
manganese, dissolved	E421	0.00010	mg/L	0.533	DLHC	0.05 mg/L	--	--	--	--	--
molybdenum, dissolved	E421	0.000050	mg/L	<0.000500	DLHC	--	--	--	--	--	--
nickel, dissolved	E421	0.00050	mg/L	<0.00500	DLHC	--	--	--	--	--	--
phosphorus, dissolved	E421	0.050	mg/L	<0.500	DLHC	--	--	--	--	--	--
potassium, dissolved	E421	0.050	mg/L	21.8	DLHC	--	--	--	--	--	--
rubidium, dissolved	E421	0.00020	mg/L	0.00519	DLHC	--	--	--	--	--	--
selenium, dissolved	E421	0.000050	mg/L	<0.000500	DLHC	--	0.05 mg/L	--	--	--	--
silicon, dissolved	E421	0.050	mg/L	6.96	DLHC	--	--	--	--	--	--
silver, dissolved	E421	0.000010	mg/L	<0.000100	DLHC	--	--	--	--	--	--
sodium, dissolved	E421	0.050	mg/L	39.3	DLHC	200 mg/L	20 mg/L	--	--	--	--
strontium, dissolved	E421	0.00020	mg/L	0.602	DLHC	--	--	--	--	--	--
sulfur, dissolved	E421	0.50	mg/L	9.77	DLHC	--	--	--	--	--	--
tellurium, dissolved	E421	0.00020	mg/L	<0.00200	DLHC	--	--	--	--	--	--
thallium, dissolved	E421	0.000010	mg/L	<0.000100	DLHC	--	--	--	--	--	--
thorium, dissolved	E421	0.00010	mg/L	<0.00100	DLHC	--	--	--	--	--	--
tin, dissolved	E421	0.00010	mg/L	<0.00100	DLHC	--	--	--	--	--	--
titanium, dissolved	E421	0.00030	mg/L	<0.00300	DLHC	--	--	--	--	--	--
tungsten, dissolved	E421	0.00010	mg/L	<0.00100	DLHC	--	--	--	--	--	--
uranium, dissolved	E421	0.000010	mg/L	0.000316	DLHC	--	0.02 mg/L	--	--	--	--
vanadium, dissolved	E421	0.00050	mg/L	<0.00500	DLHC	--	--	--	--	--	--
zinc, dissolved	E421	0.0010	mg/L	<0.0100	DLHC	5 mg/L	--	--	--	--	--
zirconium, dissolved	E421	0.00020	mg/L	<0.00200	DLHC	--	--	--	--	--	--
dissolved metals filtration location	EP421		-	Field		--	--	--	--	--	--

Please refer to the General Comments section for an explanation of any qualifiers detected.



Summary of Guideline Breaches by Sample

SampleID/Client ID	Matrix	Analyte	Analyte Summary	Guideline	Category	Result	Limit
OW-3D	Water	alkalinity, total (as CaCO3)		ONDWS	AO/OG	820 mg/L	30-500 mg/L
	Water	colour, apparent	May interfere with disinfection; removal is important to ensure effective treatment.	ONDWS	AO/OG	41.9 CU	5 CU
	Water	solids, total dissolved [TDS]	Based on taste; TDS above 500 mg/L results in excessive scaling in water pipes, water heaters, boilers and appliances; TDS is composed of calcium, magnesium, sodium, potassium, carbonate, bicarbonate, chloride, sulphate and nitrate.	ONDWS	AO/OG	888 mg/L	500 mg/L
	Water	turbidity	Filtration systems should be designed and operated to reduce turbidity levels as low as reasonably achievable and strive to achieve a treated water turbidity target from individual filters of less than 0.1 NTU. Particles can harbour microorganisms, protecting them from disinfection, and can entrap heavy metals and biocides; elevated or fluctuating turbidity in filtered water can indicate a problem with the water treatment process and a potential increased risk of pathogens in treated water.	ONDWS	AO/OG	193 NTU	5 NTU
	Water	iron, dissolved	Based on taste and staining of laundry and plumbing fixtures; no evidence exists of dietary iron toxicity in the general population.	ONDWS	AO/OG	14.6 mg/L	0.3 mg/L
	Water	manganese, dissolved	Based on taste and staining of laundry and plumbing fixtures.	ONDWS	AO/OG	0.533 mg/L	0.05 mg/L
	Water	sodium, dissolved	Based on taste; where a sodium-based water softener is used, a separate unsoftened supply for cooking and drinking purposes is recommended.	ONDWS	MAC	39.3 mg/L	20 mg/L

Key:

- ONDWS Ontario Drinking Water Regulation (JAN, 2020)
- AO/OG Aesthetic Objective/Operational Guideline
- MAC Schedule 1 (Microbiological) and 2 (Chemical) Standards (JAN,2020)



Analytical Results

Analyte	Method	LOR	Unit	Client sample ID									
				OW-7S	Sub-Matrix: Water	Sampling date/time	25-Oct-2022	00:00	WT2219367-006	ONDWS AO/OG	ONDWS MAC		
Physical Tests													
alkalinity, total (as CaCO3)	E290	1.0	mg/L	533		30 - 500 mg/L	--	--	--	--	--	--	--
colour, apparent	E330	2.0	CU	37.1		5 CU	--	--	--	--	--	--	--
conductivity	E100	1.0	µS/cm	1130		--	--	--	--	--	--	--	--
pH	E108	0.10	pH units	7.54		6.5 - 8.5 pH units	--	--	--	--	--	--	--
solids, total dissolved [TDS]	E162	10	mg/L	758	DLDS	500 mg/L	--	--	--	--	--	--	--
turbidity	E121	0.10	NTU	793		5 NTU	--	--	--	--	--	--	--
Anions and Nutrients													
ammonia, total (as N)	E298	0.0050	mg/L	0.0854		--	--	--	--	--	--	--	--
chloride	E235.Cl	0.50	mg/L	28.3	DLDS	250 mg/L	--	--	--	--	--	--	--
fluoride	E235.F	0.020	mg/L	<0.100	DLDS	--	1.5 mg/L	--	--	--	--	--	--
nitrate (as N)	E235.NO3	0.020	mg/L	<0.100	DLDS	--	10 mg/L	--	--	--	--	--	--
nitrite (as N)	E235.NO2	0.010	mg/L	<0.050	DLDS	--	1 mg/L	--	--	--	--	--	--
phosphate, ortho-, dissolved (as P)	E378-T	0.0030	mg/L	<0.0030		--	--	--	--	--	--	--	--
sulfate (as SO4)	E235.SO4	0.30	mg/L	93.0	DLDS	--	--	--	--	--	--	--	--
Dissolved Metals													
aluminum, dissolved	E421	0.0010	mg/L	0.0395		0.1 mg/L	--	--	--	--	--	--	--
antimony, dissolved	E421	0.00010	mg/L	<0.00010		--	0.006 mg/L	--	--	--	--	--	--
arsenic, dissolved	E421	0.00010	mg/L	0.00982		--	0.01 mg/L	--	--	--	--	--	--
barium, dissolved	E421	0.00010	mg/L	0.0926		--	1 mg/L	--	--	--	--	--	--
beryllium, dissolved	E421	0.000020	mg/L	<0.000020		--	--	--	--	--	--	--	--
bismuth, dissolved	E421	0.000050	mg/L	<0.000050		--	--	--	--	--	--	--	--
boron, dissolved	E421	0.010	mg/L	0.190		--	5 mg/L	--	--	--	--	--	--
cadmium, dissolved	E421	0.0000050	mg/L	<0.0000050		--	0.005 mg/L	--	--	--	--	--	--
calcium, dissolved	E421	0.050	mg/L	181		--	--	--	--	--	--	--	--
cesium, dissolved	E421	0.000010	mg/L	<0.000010		--	--	--	--	--	--	--	--
chromium, dissolved	E421	0.00050	mg/L	0.00054		--	0.05 mg/L	--	--	--	--	--	--
cobalt, dissolved	E421	0.00010	mg/L	0.00087		--	--	--	--	--	--	--	--
copper, dissolved	E421	0.00020	mg/L	0.00106		1 mg/L	--	--	--	--	--	--	--
iron, dissolved	E421	0.010	mg/L	9.63		0.3 mg/L	--	--	--	--	--	--	--
lead, dissolved	E421	0.000050	mg/L	0.000149		--	0.01 mg/L	--	--	--	--	--	--



Analyte	Method	LOR	Unit	WT2219367-006 (Continued)	ONDWS AO/OG	ONDWS MAC				
Dissolved Metals - Continued										
lithium, dissolved	E421	0.0010	mg/L	0.0026	--	--	--	--	--	--
magnesium, dissolved	E421	0.0050	mg/L	52.6	--	--	--	--	--	--
manganese, dissolved	E421	0.00010	mg/L	0.258	0.05 mg/L	--	--	--	--	--
molybdenum, dissolved	E421	0.000050	mg/L	0.00101	--	--	--	--	--	--
nickel, dissolved	E421	0.00050	mg/L	0.00235	--	--	--	--	--	--
phosphorus, dissolved	E421	0.050	mg/L	<0.050	--	--	--	--	--	--
potassium, dissolved	E421	0.050	mg/L	2.54	--	--	--	--	--	--
rubidium, dissolved	E421	0.00020	mg/L	0.00074	--	--	--	--	--	--
selenium, dissolved	E421	0.000050	mg/L	0.000490	--	0.05 mg/L	--	--	--	--
silicon, dissolved	E421	0.050	mg/L	6.83	--	--	--	--	--	--
silver, dissolved	E421	0.000010	mg/L	<0.000010	--	--	--	--	--	--
sodium, dissolved	E421	0.050	mg/L	18.2	200 mg/L	20 mg/L	--	--	--	--
strontium, dissolved	E421	0.00020	mg/L	0.287	--	--	--	--	--	--
sulfur, dissolved	E421	0.50	mg/L	30.3	--	--	--	--	--	--
tellurium, dissolved	E421	0.00020	mg/L	<0.00020	--	--	--	--	--	--
thallium, dissolved	E421	0.000010	mg/L	<0.000010	--	--	--	--	--	--
thorium, dissolved	E421	0.00010	mg/L	<0.00010	--	--	--	--	--	--
tin, dissolved	E421	0.00010	mg/L	<0.00010	--	--	--	--	--	--
titanium, dissolved	E421	0.00030	mg/L	0.00117	--	--	--	--	--	--
tungsten, dissolved	E421	0.00010	mg/L	<0.00010	--	--	--	--	--	--
uranium, dissolved	E421	0.000010	mg/L	0.00308	--	0.02 mg/L	--	--	--	--
vanadium, dissolved	E421	0.00050	mg/L	0.00128	--	--	--	--	--	--
zinc, dissolved	E421	0.0010	mg/L	0.0195	5 mg/L	--	--	--	--	--
zirconium, dissolved	E421	0.00020	mg/L	0.00137	--	--	--	--	--	--
dissolved metals filtration location	EP421		-	Field	--	--	--	--	--	--

Please refer to the General Comments section for an explanation of any qualifiers detected.



Summary of Guideline Breaches by Sample

SampleID/Client ID	Matrix	Analyte	Analyte Summary	Guideline	Category	Result	Limit
OW-7S	Water	alkalinity, total (as CaCO3)		ONDWS	AO/OG	533 mg/L	30-500 mg/L
	Water	colour, apparent	May interfere with disinfection; removal is important to ensure effective treatment.	ONDWS	AO/OG	37.1 CU	5 CU
	Water	solids, total dissolved [TDS]	Based on taste; TDS above 500 mg/L results in excessive scaling in water pipes, water heaters, boilers and appliances; TDS is composed of calcium, magnesium, sodium, potassium, carbonate, bicarbonate, chloride, sulphate and nitrate.	ONDWS	AO/OG	758 mg/L	500 mg/L
	Water	turbidity	Filtration systems should be designed and operated to reduce turbidity levels as low as reasonably achievable and strive to achieve a treated water turbidity target from individual filters of less than 0.1 NTU. Particles can harbour microorganisms, protecting them from disinfection, and can entrap heavy metals and biocides; elevated or fluctuating turbidity in filtered water can indicate a problem with the water treatment process and a potential increased risk of pathogens in treated water.	ONDWS	AO/OG	793 NTU	5 NTU
	Water	iron, dissolved	Based on taste and staining of laundry and plumbing fixtures; no evidence exists of dietary iron toxicity in the general population.	ONDWS	AO/OG	9.63 mg/L	0.3 mg/L
	Water	manganese, dissolved	Based on taste and staining of laundry and plumbing fixtures.	ONDWS	AO/OG	0.258 mg/L	0.05 mg/L

Key:

ONDWS Ontario Drinking Water Regulation (JAN, 2020)
 AO/OG Aesthetic Objective/Operational Guideline
 MAC Schedule 1 (Microbiological) and 2 (Chemical) Standards (JAN,2020)



Analytical Results

Analyte	Method	LOR	Unit	Client sample ID	W-7D	ONDWS AO/OG	ONDWS MAC			
				Sub-Matrix: Water (Matrix: Water)	Sampling date/time					
				WT2219367-007	25-Oct-2022 00:00					
Physical Tests										
alkalinity, total (as CaCO3)	E290	1.0	mg/L	586		30 - 500 mg/L	--	--	--	--
colour, apparent	E330	2.0	CU	11.7		5 CU	--	--	--	--
conductivity	E100	1.0	µS/cm	1360		--	--	--	--	--
pH	E108	0.10	pH units	7.96		6.5 - 8.5 pH units	--	--	--	--
solids, total dissolved [TDS]	E162	10	mg/L	785	DLDS	500 mg/L	--	--	--	--
turbidity	E121	0.10	NTU	29.1		5 NTU	--	--	--	--
Anions and Nutrients										
ammonia, total (as N)	E298	0.0050	mg/L	6.17	DLHC	--	--	--	--	--
chloride	E235.Cl	0.50	mg/L	47.5	DLDS	250 mg/L	--	--	--	--
fluoride	E235.F	0.020	mg/L	<0.100	DLDS	--	1.5 mg/L	--	--	--
nitrate (as N)	E235.NO3	0.020	mg/L	4.90	DLDS	--	10 mg/L	--	--	--
nitrite (as N)	E235.NO2	0.010	mg/L	<0.050	DLDS	--	1 mg/L	--	--	--
phosphate, ortho-, dissolved (as P)	E378-T	0.0030	mg/L	<0.0030		--	--	--	--	--
sulfate (as SO4)	E235.SO4	0.30	mg/L	125	DLDS	--	--	--	--	--
Dissolved Metals										
aluminum, dissolved	E421	0.0010	mg/L	0.0097		0.1 mg/L	--	--	--	--
antimony, dissolved	E421	0.00010	mg/L	0.00011		--	0.006 mg/L	--	--	--
arsenic, dissolved	E421	0.00010	mg/L	0.00300		--	0.01 mg/L	--	--	--
barium, dissolved	E421	0.00010	mg/L	0.119		--	1 mg/L	--	--	--
beryllium, dissolved	E421	0.000020	mg/L	<0.000020		--	--	--	--	--
bismuth, dissolved	E421	0.000050	mg/L	<0.000050		--	--	--	--	--
boron, dissolved	E421	0.010	mg/L	0.576		--	5 mg/L	--	--	--
cadmium, dissolved	E421	0.0000050	mg/L	0.0000116		--	0.005 mg/L	--	--	--
calcium, dissolved	E421	0.050	mg/L	148		--	--	--	--	--
cesium, dissolved	E421	0.000010	mg/L	<0.000010		--	--	--	--	--
chromium, dissolved	E421	0.00050	mg/L	<0.00050		--	0.05 mg/L	--	--	--
cobalt, dissolved	E421	0.00010	mg/L	0.00175		--	--	--	--	--
copper, dissolved	E421	0.00020	mg/L	0.00133		1 mg/L	--	--	--	--
iron, dissolved	E421	0.010	mg/L	2.46		0.3 mg/L	--	--	--	--
lead, dissolved	E421	0.000050	mg/L	0.00124		--	0.01 mg/L	--	--	--



Analyte	Method	LOR	Unit	WT2219367-007 (Continued)	ONDWS AO/OG	ONDWS MAC				
Dissolved Metals - Continued										
lithium, dissolved	E421	0.0010	mg/L	0.0038	--	--	--	--	--	--
magnesium, dissolved	E421	0.0050	mg/L	72.9	--	--	--	--	--	--
manganese, dissolved	E421	0.00010	mg/L	0.140	0.05 mg/L	--	--	--	--	--
molybdenum, dissolved	E421	0.000050	mg/L	0.000564	--	--	--	--	--	--
nickel, dissolved	E421	0.00050	mg/L	0.00834	--	--	--	--	--	--
phosphorus, dissolved	E421	0.050	mg/L	<0.050	--	--	--	--	--	--
potassium, dissolved	E421	0.050	mg/L	23.0	--	--	--	--	--	--
rubidium, dissolved	E421	0.00020	mg/L	0.00665	--	--	--	--	--	--
selenium, dissolved	E421	0.000050	mg/L	0.000136	--	0.05 mg/L	--	--	--	--
silicon, dissolved	E421	0.050	mg/L	6.49	--	--	--	--	--	--
silver, dissolved	E421	0.000010	mg/L	<0.000010	--	--	--	--	--	--
sodium, dissolved	E421	0.050	mg/L	32.1	200 mg/L	20 mg/L	--	--	--	--
strontium, dissolved	E421	0.00020	mg/L	0.402	--	--	--	--	--	--
sulfur, dissolved	E421	0.50	mg/L	39.6	--	--	--	--	--	--
tellurium, dissolved	E421	0.00020	mg/L	<0.00020	--	--	--	--	--	--
thallium, dissolved	E421	0.000010	mg/L	0.000422	--	--	--	--	--	--
thorium, dissolved	E421	0.00010	mg/L	<0.00010	--	--	--	--	--	--
tin, dissolved	E421	0.00010	mg/L	<0.00010	--	--	--	--	--	--
titanium, dissolved	E421	0.00030	mg/L	<0.00030	--	--	--	--	--	--
tungsten, dissolved	E421	0.00010	mg/L	<0.00010	--	--	--	--	--	--
uranium, dissolved	E421	0.000010	mg/L	0.00121	--	0.02 mg/L	--	--	--	--
vanadium, dissolved	E421	0.00050	mg/L	<0.00050	--	--	--	--	--	--
zinc, dissolved	E421	0.0010	mg/L	0.0639	5 mg/L	--	--	--	--	--
zirconium, dissolved	E421	0.00020	mg/L	0.00051	--	--	--	--	--	--
dissolved metals filtration location	EP421		-	Field	--	--	--	--	--	--

Please refer to the General Comments section for an explanation of any qualifiers detected.



Summary of Guideline Breaches by Sample

SampleID/Client ID	Matrix	Analyte	Analyte Summary	Guideline	Category	Result	Limit
W-7D	Water	alkalinity, total (as CaCO3)		ONDWS	AO/OG	586 mg/L	30-500 mg/L
	Water	colour, apparent	May interfere with disinfection; removal is important to ensure effective treatment.	ONDWS	AO/OG	11.7 CU	5 CU
	Water	solids, total dissolved [TDS]	Based on taste; TDS above 500 mg/L results in excessive scaling in water pipes, water heaters, boilers and appliances; TDS is composed of calcium, magnesium, sodium, potassium, carbonate, bicarbonate, chloride, sulphate and nitrate.	ONDWS	AO/OG	785 mg/L	500 mg/L
	Water	turbidity	Filtration systems should be designed and operated to reduce turbidity levels as low as reasonably achievable and strive to achieve a treated water turbidity target from individual filters of less than 0.1 NTU. Particles can harbour microorganisms, protecting them from disinfection, and can entrap heavy metals and biocides; elevated or fluctuating turbidity in filtered water can indicate a problem with the water treatment process and a potential increased risk of pathogens in treated water.	ONDWS	AO/OG	29.1 NTU	5 NTU
	Water	iron, dissolved	Based on taste and staining of laundry and plumbing fixtures; no evidence exists of dietary iron toxicity in the general population.	ONDWS	AO/OG	2.46 mg/L	0.3 mg/L
	Water	manganese, dissolved	Based on taste and staining of laundry and plumbing fixtures.	ONDWS	AO/OG	0.140 mg/L	0.05 mg/L
	Water	sodium, dissolved	Based on taste; where a sodium-based water softener is used, a separate unsoftened supply for cooking and drinking purposes is recommended.	ONDWS	MAC	32.1 mg/L	20 mg/L

Key:

- ONDWS Ontario Drinking Water Regulation (JAN, 2020)
- AO/OG Aesthetic Objective/Operational Guideline
- MAC Schedule 1 (Microbiological) and 2 (Chemical) Standards (JAN,2020)



Analytical Results

Analyte	Method	LOR	Unit	Client sample ID									
				OW-10S	Sub-Matrix: Water	Sampling date/time	25-Oct-2022	00:00	WT2219367-008	ONDWS AO/OG	ONDWS MAC		
Physical Tests													
alkalinity, total (as CaCO3)	E290	1.0	mg/L	523		30 - 500 mg/L	--	--	--	--	--	--	--
colour, apparent	E330	2.0	CU	99.2		5 CU	--	--	--	--	--	--	--
conductivity	E100	1.0	µS/cm	1010		--	--	--	--	--	--	--	--
pH	E108	0.10	pH units	7.58		6.5 - 8.5 pH units	--	--	--	--	--	--	--
solids, total dissolved [TDS]	E162	10	mg/L	586	DLDS	500 mg/L	--	--	--	--	--	--	--
turbidity	E121	0.10	NTU	486		5 NTU	--	--	--	--	--	--	--
Anions and Nutrients													
ammonia, total (as N)	E298	0.0050	mg/L	2.78	DLHC	--	--	--	--	--	--	--	--
chloride	E235.Cl	0.50	mg/L	24.1	DLDS	250 mg/L	--	--	--	--	--	--	--
fluoride	E235.F	0.020	mg/L	<0.100	DLDS	--	1.5 mg/L	--	--	--	--	--	--
nitrate (as N)	E235.NO3	0.020	mg/L	<0.100	DLDS	--	10 mg/L	--	--	--	--	--	--
nitrite (as N)	E235.NO2	0.010	mg/L	<0.050	DLDS	--	1 mg/L	--	--	--	--	--	--
phosphate, ortho-, dissolved (as P)	E378-T	0.0030	mg/L	<0.0030		--	--	--	--	--	--	--	--
sulfate (as SO4)	E235.SO4	0.30	mg/L	25.5	DLDS	--	--	--	--	--	--	--	--
Dissolved Metals													
aluminum, dissolved	E421	0.0010	mg/L	0.0136		0.1 mg/L	--	--	--	--	--	--	--
antimony, dissolved	E421	0.00010	mg/L	<0.00010		--	0.006 mg/L	--	--	--	--	--	--
arsenic, dissolved	E421	0.00010	mg/L	0.00105		--	0.01 mg/L	--	--	--	--	--	--
barium, dissolved	E421	0.00010	mg/L	0.0865		--	1 mg/L	--	--	--	--	--	--
beryllium, dissolved	E421	0.000020	mg/L	<0.000020		--	--	--	--	--	--	--	--
bismuth, dissolved	E421	0.000050	mg/L	<0.000050		--	--	--	--	--	--	--	--
boron, dissolved	E421	0.010	mg/L	0.288		--	5 mg/L	--	--	--	--	--	--
cadmium, dissolved	E421	0.0000050	mg/L	0.0000084		--	0.005 mg/L	--	--	--	--	--	--
calcium, dissolved	E421	0.050	mg/L	141		--	--	--	--	--	--	--	--
cesium, dissolved	E421	0.000010	mg/L	0.000010		--	--	--	--	--	--	--	--
chromium, dissolved	E421	0.00050	mg/L	<0.00050		--	0.05 mg/L	--	--	--	--	--	--
cobalt, dissolved	E421	0.00010	mg/L	0.00188		--	--	--	--	--	--	--	--
copper, dissolved	E421	0.00020	mg/L	0.00063		1 mg/L	--	--	--	--	--	--	--
iron, dissolved	E421	0.010	mg/L	0.533		0.3 mg/L	--	--	--	--	--	--	--
lead, dissolved	E421	0.000050	mg/L	0.00129		--	0.01 mg/L	--	--	--	--	--	--



Analyte	Method	LOR	Unit	WT2219367-008 (Continued)	ONDWS AO/OG	ONDWS MAC				
Dissolved Metals - Continued										
lithium, dissolved	E421	0.0010	mg/L	0.0027	--	--	--	--	--	--
magnesium, dissolved	E421	0.0050	mg/L	55.7	--	--	--	--	--	--
manganese, dissolved	E421	0.00010	mg/L	0.654	0.05 mg/L	--	--	--	--	--
molybdenum, dissolved	E421	0.000050	mg/L	0.000324	--	--	--	--	--	--
nickel, dissolved	E421	0.00050	mg/L	0.00797	--	--	--	--	--	--
phosphorus, dissolved	E421	0.050	mg/L	<0.050	--	--	--	--	--	--
potassium, dissolved	E421	0.050	mg/L	4.09	--	--	--	--	--	--
rubidium, dissolved	E421	0.00020	mg/L	0.00314	--	--	--	--	--	--
selenium, dissolved	E421	0.000050	mg/L	0.000107	--	0.05 mg/L	--	--	--	--
silicon, dissolved	E421	0.050	mg/L	5.42	--	--	--	--	--	--
silver, dissolved	E421	0.000010	mg/L	<0.000010	--	--	--	--	--	--
sodium, dissolved	E421	0.050	mg/L	23.3	200 mg/L	20 mg/L	--	--	--	--
strontium, dissolved	E421	0.00020	mg/L	0.235	--	--	--	--	--	--
sulfur, dissolved	E421	0.50	mg/L	10.4	--	--	--	--	--	--
tellurium, dissolved	E421	0.00020	mg/L	<0.00020	--	--	--	--	--	--
thallium, dissolved	E421	0.000010	mg/L	0.000202	--	--	--	--	--	--
thorium, dissolved	E421	0.00010	mg/L	<0.00010	--	--	--	--	--	--
tin, dissolved	E421	0.00010	mg/L	<0.00010	--	--	--	--	--	--
titanium, dissolved	E421	0.00030	mg/L	0.00036	--	--	--	--	--	--
tungsten, dissolved	E421	0.00010	mg/L	<0.00010	--	--	--	--	--	--
uranium, dissolved	E421	0.000010	mg/L	0.000822	--	0.02 mg/L	--	--	--	--
vanadium, dissolved	E421	0.00050	mg/L	<0.00050	--	--	--	--	--	--
zinc, dissolved	E421	0.0010	mg/L	0.0114	5 mg/L	--	--	--	--	--
zirconium, dissolved	E421	0.00020	mg/L	<0.00020	--	--	--	--	--	--
dissolved metals filtration location	EP421		-	Field	--	--	--	--	--	--

Please refer to the General Comments section for an explanation of any qualifiers detected.



Summary of Guideline Breaches by Sample

SampleID/Client ID	Matrix	Analyte	Analyte Summary	Guideline	Category	Result	Limit
OW-10S	Water	alkalinity, total (as CaCO3)	<p>May interfere with disinfection; removal is important to ensure effective treatment.</p> <p>Based on taste; TDS above 500 mg/L results in excessive scaling in water pipes, water heaters, boilers and appliances; TDS is composed of calcium, magnesium, sodium, potassium, carbonate, bicarbonate, chloride, sulphate and nitrate.</p> <p>Filtration systems should be designed and operated to reduce turbidity levels as low as reasonably achievable and strive to achieve a treated water turbidity target from individual filters of less than 0.1 NTU. Particles can harbour microorganisms, protecting them from disinfection, and can entrap heavy metals and biocides; elevated or fluctuating turbidity in filtered water can indicate a problem with the water treatment process and a potential increased risk of pathogens in treated water.</p> <p>Based on taste and staining of laundry and plumbing fixtures; no evidence exists of dietary iron toxicity in the general population.</p> <p>Based on taste and staining of laundry and plumbing fixtures.</p> <p>Based on taste; where a sodium-based water softener is used, a separate unsoftened supply for cooking and drinking purposes is recommended.</p>	ONDWS	AO/OG	523 mg/L	30-500 mg/L
	Water	colour, apparent		ONDWS	AO/OG	99.2 CU	5 CU
	Water	solids, total dissolved [TDS]		ONDWS	AO/OG	586 mg/L	500 mg/L
	Water	turbidity		ONDWS	AO/OG	486 NTU	5 NTU
	Water	iron, dissolved		ONDWS	AO/OG	0.533 mg/L	0.3 mg/L
	Water	manganese, dissolved		ONDWS	AO/OG	0.654 mg/L	0.05 mg/L
	Water	sodium, dissolved		ONDWS	MAC	23.3 mg/L	20 mg/L

Key:

ONDWS Ontario Drinking Water Regulation (JAN, 2020)
 AO/OG Aesthetic Objective/Operational Guideline
 MAC Schedule 1 (Microbiological) and 2 (Chemical) Standards (JAN,2020)



Analytical Results

Analyte	Method	LOR	Unit	Client sample ID							
				OW-10D	Sub-Matrix: Water	Sampling date/time	25-Oct-2022	00:00	WT2219367-009	ONDWS AO/OG	ONDWS MAC
Physical Tests											
alkalinity, total (as CaCO3)	E290	1.0	mg/L	638		30 - 500 mg/L	--	--	--	--	--
colour, apparent	E330	2.0	CU	23.4		5 CU	--	--	--	--	--
conductivity	E100	1.0	µS/cm	1290		--	--	--	--	--	--
pH	E108	0.10	pH units	7.72		6.5 - 8.5 pH units	--	--	--	--	--
solids, total dissolved [TDS]	E162	10	mg/L	656	DLDS	500 mg/L	--	--	--	--	--
turbidity	E121	0.10	NTU	73.9		5 NTU	--	--	--	--	--
Anions and Nutrients											
ammonia, total (as N)	E298	0.0050	mg/L	12.0	DLHC	--	--	--	--	--	--
chloride	E235.Cl	0.50	mg/L	39.9	DLDS	250 mg/L	--	--	--	--	--
fluoride	E235.F	0.020	mg/L	<0.100	DLDS	--	1.5 mg/L	--	--	--	--
nitrate (as N)	E235.NO3	0.020	mg/L	<0.100	DLDS	--	10 mg/L	--	--	--	--
nitrite (as N)	E235.NO2	0.010	mg/L	<0.050	DLDS	--	1 mg/L	--	--	--	--
phosphate, ortho-, dissolved (as P)	E378-T	0.0030	mg/L	<0.0030		--	--	--	--	--	--
sulfate (as SO4)	E235.SO4	0.30	mg/L	52.0	DLDS	--	--	--	--	--	--
Dissolved Metals											
aluminum, dissolved	E421	0.0010	mg/L	0.0052		0.1 mg/L	--	--	--	--	--
antimony, dissolved	E421	0.00010	mg/L	<0.00010		--	0.006 mg/L	--	--	--	--
arsenic, dissolved	E421	0.00010	mg/L	0.00495		--	0.01 mg/L	--	--	--	--
barium, dissolved	E421	0.00010	mg/L	0.230		--	1 mg/L	--	--	--	--
beryllium, dissolved	E421	0.000020	mg/L	<0.000020		--	--	--	--	--	--
bismuth, dissolved	E421	0.000050	mg/L	<0.000050		--	--	--	--	--	--
boron, dissolved	E421	0.010	mg/L	0.542		--	5 mg/L	--	--	--	--
cadmium, dissolved	E421	0.0000050	mg/L	0.0000175		--	0.005 mg/L	--	--	--	--
calcium, dissolved	E421	0.050	mg/L	147		--	--	--	--	--	--
cesium, dissolved	E421	0.000010	mg/L	0.000015		--	--	--	--	--	--
chromium, dissolved	E421	0.00050	mg/L	0.00056		--	0.05 mg/L	--	--	--	--
cobalt, dissolved	E421	0.00010	mg/L	0.00747		--	--	--	--	--	--
copper, dissolved	E421	0.00020	mg/L	0.00127		1 mg/L	--	--	--	--	--
iron, dissolved	E421	0.010	mg/L	4.15		0.3 mg/L	--	--	--	--	--
lead, dissolved	E421	0.000050	mg/L	0.000775		--	0.01 mg/L	--	--	--	--



Analyte	Method	LOR	Unit	WT2219367-009 (Continued)	ONDWS AO/OG	ONDWS MAC				
Dissolved Metals - Continued										
lithium, dissolved	E421	0.0010	mg/L	0.0038	--	--	--	--	--	--
magnesium, dissolved	E421	0.0050	mg/L	66.6	--	--	--	--	--	--
manganese, dissolved	E421	0.00010	mg/L	1.24	0.05 mg/L	--	--	--	--	--
molybdenum, dissolved	E421	0.000050	mg/L	0.000631	--	--	--	--	--	--
nickel, dissolved	E421	0.00050	mg/L	0.0209	--	--	--	--	--	--
phosphorus, dissolved	E421	0.050	mg/L	<0.050	--	--	--	--	--	--
potassium, dissolved	E421	0.050	mg/L	11.0	--	--	--	--	--	--
rubidium, dissolved	E421	0.00020	mg/L	0.00371	--	--	--	--	--	--
selenium, dissolved	E421	0.000050	mg/L	0.000094	--	0.05 mg/L	--	--	--	--
silicon, dissolved	E421	0.050	mg/L	7.40	--	--	--	--	--	--
silver, dissolved	E421	0.000010	mg/L	<0.000010	--	--	--	--	--	--
sodium, dissolved	E421	0.050	mg/L	37.2	200 mg/L	20 mg/L	--	--	--	--
strontium, dissolved	E421	0.00020	mg/L	0.338	--	--	--	--	--	--
sulfur, dissolved	E421	0.50	mg/L	18.3	--	--	--	--	--	--
tellurium, dissolved	E421	0.00020	mg/L	<0.00020	--	--	--	--	--	--
thallium, dissolved	E421	0.000010	mg/L	0.000689	--	--	--	--	--	--
thorium, dissolved	E421	0.00010	mg/L	<0.00010	--	--	--	--	--	--
tin, dissolved	E421	0.00010	mg/L	<0.00010	--	--	--	--	--	--
titanium, dissolved	E421	0.00030	mg/L	<0.00030	--	--	--	--	--	--
tungsten, dissolved	E421	0.00010	mg/L	<0.00010	--	--	--	--	--	--
uranium, dissolved	E421	0.000010	mg/L	0.00111	--	0.02 mg/L	--	--	--	--
vanadium, dissolved	E421	0.00050	mg/L	<0.00050	--	--	--	--	--	--
zinc, dissolved	E421	0.0010	mg/L	0.0688	5 mg/L	--	--	--	--	--
zirconium, dissolved	E421	0.00020	mg/L	0.00044	--	--	--	--	--	--
dissolved metals filtration location	EP421		-	Field	--	--	--	--	--	--

Please refer to the General Comments section for an explanation of any qualifiers detected.



Summary of Guideline Breaches by Sample

SampleID/Client ID	Matrix	Analyte	Analyte Summary	Guideline	Category	Result	Limit
OW-10D	Water	alkalinity, total (as CaCO3)		ONDWS	AO/OG	638 mg/L	30-500 mg/L
	Water	colour, apparent	May interfere with disinfection; removal is important to ensure effective treatment.	ONDWS	AO/OG	23.4 CU	5 CU
	Water	solids, total dissolved [TDS]	Based on taste; TDS above 500 mg/L results in excessive scaling in water pipes, water heaters, boilers and appliances; TDS is composed of calcium, magnesium, sodium, potassium, carbonate, bicarbonate, chloride, sulphate and nitrate.	ONDWS	AO/OG	656 mg/L	500 mg/L
	Water	turbidity	Filtration systems should be designed and operated to reduce turbidity levels as low as reasonably achievable and strive to achieve a treated water turbidity target from individual filters of less than 0.1 NTU. Particles can harbour microorganisms, protecting them from disinfection, and can entrap heavy metals and biocides; elevated or fluctuating turbidity in filtered water can indicate a problem with the water treatment process and a potential increased risk of pathogens in treated water.	ONDWS	AO/OG	73.9 NTU	5 NTU
	Water	iron, dissolved	Based on taste and staining of laundry and plumbing fixtures; no evidence exists of dietary iron toxicity in the general population.	ONDWS	AO/OG	4.15 mg/L	0.3 mg/L
	Water	manganese, dissolved	Based on taste and staining of laundry and plumbing fixtures.	ONDWS	AO/OG	1.24 mg/L	0.05 mg/L
	Water	sodium, dissolved	Based on taste; where a sodium-based water softener is used, a separate unsoftened supply for cooking and drinking purposes is recommended.	ONDWS	MAC	37.2 mg/L	20 mg/L

Key:

- ONDWS Ontario Drinking Water Regulation (JAN, 2020)
- AO/OG Aesthetic Objective/Operational Guideline
- MAC Schedule 1 (Microbiological) and 2 (Chemical) Standards (JAN,2020)



Analytical Results

Analyte	Method	LOR	Unit	Client sample ID										
				OW-12D	Sub-Matrix: Water	Sampling date/time	25-Oct-2022	00:00	ONDWS AO/OG	ONDWS MAC				
				WT2219367-010										
Physical Tests														
alkalinity, total (as CaCO3)	E290	1.0	mg/L	530		30 - 500 mg/L	--	--	--	--	--	--	--	
colour, apparent	E330	2.0	CU	16.6		5 CU	--	--	--	--	--	--	--	
conductivity	E100	1.0	µS/cm	1030		--	--	--	--	--	--	--	--	
pH	E108	0.10	pH units	7.91		6.5 - 8.5 pH units	--	--	--	--	--	--	--	
solids, total dissolved [TDS]	E162	10	mg/L	521	DLDS	500 mg/L	--	--	--	--	--	--	--	
turbidity	E121	0.10	NTU	16.5		5 NTU	--	--	--	--	--	--	--	
Anions and Nutrients														
ammonia, total (as N)	E298	0.0050	mg/L	0.828	DLHC	--	--	--	--	--	--	--	--	
chloride	E235.Cl	0.50	mg/L	21.4	DLDS	250 mg/L	--	--	--	--	--	--	--	
fluoride	E235.F	0.020	mg/L	<0.100	DLDS	--	1.5 mg/L	--	--	--	--	--	--	
nitrate (as N)	E235.NO3	0.020	mg/L	<0.100	DLDS	--	10 mg/L	--	--	--	--	--	--	
nitrite (as N)	E235.NO2	0.010	mg/L	<0.050	DLDS	--	1 mg/L	--	--	--	--	--	--	
phosphate, ortho-, dissolved (as P)	E378-T	0.0030	mg/L	<0.0030		--	--	--	--	--	--	--	--	
sulfate (as SO4)	E235.SO4	0.30	mg/L	29.7	DLDS	--	--	--	--	--	--	--	--	
Dissolved Metals														
aluminum, dissolved	E421	0.0010	mg/L	0.0105		0.1 mg/L	--	--	--	--	--	--	--	
antimony, dissolved	E421	0.00010	mg/L	<0.00010		--	0.006 mg/L	--	--	--	--	--	--	
arsenic, dissolved	E421	0.00010	mg/L	0.00042		--	0.01 mg/L	--	--	--	--	--	--	
barium, dissolved	E421	0.00010	mg/L	0.0397		--	1 mg/L	--	--	--	--	--	--	
beryllium, dissolved	E421	0.000020	mg/L	<0.000020		--	--	--	--	--	--	--	--	
bismuth, dissolved	E421	0.000050	mg/L	<0.000050		--	--	--	--	--	--	--	--	
boron, dissolved	E421	0.010	mg/L	0.284		--	5 mg/L	--	--	--	--	--	--	
cadmium, dissolved	E421	0.0000050	mg/L	0.0000708		--	0.005 mg/L	--	--	--	--	--	--	
calcium, dissolved	E421	0.050	mg/L	127		--	--	--	--	--	--	--	--	
cesium, dissolved	E421	0.000010	mg/L	0.000018		--	--	--	--	--	--	--	--	
chromium, dissolved	E421	0.00050	mg/L	<0.00050		--	0.05 mg/L	--	--	--	--	--	--	
cobalt, dissolved	E421	0.00010	mg/L	0.00041		--	--	--	--	--	--	--	--	
copper, dissolved	E421	0.00020	mg/L	0.00180		1 mg/L	--	--	--	--	--	--	--	
iron, dissolved	E421	0.010	mg/L	0.058		0.3 mg/L	--	--	--	--	--	--	--	
lead, dissolved	E421	0.000050	mg/L	0.000731		--	0.01 mg/L	--	--	--	--	--	--	



Analyte	Method	LOR	Unit	WT2219367-010 (Continued)	ONDWS AO/OG	ONDWS MAC				
Dissolved Metals - Continued										
lithium, dissolved	E421	0.0010	mg/L	0.0015	--	--	--	--	--	--
magnesium, dissolved	E421	0.0050	mg/L	41.2	--	--	--	--	--	--
manganese, dissolved	E421	0.00010	mg/L	0.518	0.05 mg/L	--	--	--	--	--
molybdenum, dissolved	E421	0.000050	mg/L	0.000716	--	--	--	--	--	--
nickel, dissolved	E421	0.00050	mg/L	0.00612	--	--	--	--	--	--
phosphorus, dissolved	E421	0.050	mg/L	<0.050	--	--	--	--	--	--
potassium, dissolved	E421	0.050	mg/L	1.66	--	--	--	--	--	--
rubidium, dissolved	E421	0.00020	mg/L	0.00205	--	--	--	--	--	--
selenium, dissolved	E421	0.000050	mg/L	0.000101	--	0.05 mg/L	--	--	--	--
silicon, dissolved	E421	0.050	mg/L	4.47	--	--	--	--	--	--
silver, dissolved	E421	0.000010	mg/L	<0.000010	--	--	--	--	--	--
sodium, dissolved	E421	0.050	mg/L	17.2	200 mg/L	20 mg/L	--	--	--	--
strontium, dissolved	E421	0.00020	mg/L	0.155	--	--	--	--	--	--
sulfur, dissolved	E421	0.50	mg/L	8.64	--	--	--	--	--	--
tellurium, dissolved	E421	0.00020	mg/L	<0.00020	--	--	--	--	--	--
thallium, dissolved	E421	0.000010	mg/L	0.000325	--	--	--	--	--	--
thorium, dissolved	E421	0.00010	mg/L	<0.00010	--	--	--	--	--	--
tin, dissolved	E421	0.00010	mg/L	<0.00010	--	--	--	--	--	--
titanium, dissolved	E421	0.00030	mg/L	0.00030	--	--	--	--	--	--
tungsten, dissolved	E421	0.00010	mg/L	0.00039	--	--	--	--	--	--
uranium, dissolved	E421	0.000010	mg/L	0.00684	--	0.02 mg/L	--	--	--	--
vanadium, dissolved	E421	0.00050	mg/L	<0.00050	--	--	--	--	--	--
zinc, dissolved	E421	0.0010	mg/L	0.0538	5 mg/L	--	--	--	--	--
zirconium, dissolved	E421	0.00020	mg/L	0.00021	--	--	--	--	--	--
dissolved metals filtration location	EP421		-	Field	--	--	--	--	--	--

Please refer to the General Comments section for an explanation of any qualifiers detected.



Analytical Results

Analyte	Method	LOR	Unit	Client sample ID	OW-13S	ONDWS AO/OG	ONDWS MAC			
				Sampling date/time	25-Oct-2022 00:00					
				WT2219367-011						
Physical Tests										
alkalinity, total (as CaCO3)	E290	1.0	mg/L	345		30 - 500 mg/L	--	--	--	--
colour, apparent	E330	2.0	CU	97.2		5 CU	--	--	--	--
conductivity	E100	1.0	µS/cm	633		--	--	--	--	--
pH	E108	0.10	pH units	8.16		6.5 - 8.5 pH units	--	--	--	--
solids, total dissolved [TDS]	E162	10	mg/L	374	DLDS	500 mg/L	--	--	--	--
turbidity	E121	0.10	NTU	1160		5 NTU	--	--	--	--
Anions and Nutrients										
ammonia, total (as N)	E298	0.0050	mg/L	0.0179		--	--	--	--	--
chloride	E235.Cl	0.50	mg/L	1.36		250 mg/L	--	--	--	--
fluoride	E235.F	0.020	mg/L	0.037		--	1.5 mg/L	--	--	--
nitrate (as N)	E235.NO3	0.020	mg/L	<0.020		--	10 mg/L	--	--	--
nitrite (as N)	E235.NO2	0.010	mg/L	<0.010		--	1 mg/L	--	--	--
phosphate, ortho-, dissolved (as P)	E378-T	0.0030	mg/L	<0.0030		--	--	--	--	--
sulfate (as SO4)	E235.SO4	0.30	mg/L	23.4		--	--	--	--	--
Dissolved Metals										
aluminum, dissolved	E421	0.0010	mg/L	0.0207		0.1 mg/L	--	--	--	--
antimony, dissolved	E421	0.00010	mg/L	<0.00010		--	0.006 mg/L	--	--	--
arsenic, dissolved	E421	0.00010	mg/L	0.00049		--	0.01 mg/L	--	--	--
barium, dissolved	E421	0.00010	mg/L	0.0246		--	1 mg/L	--	--	--
beryllium, dissolved	E421	0.000020	mg/L	<0.000020		--	--	--	--	--
bismuth, dissolved	E421	0.000050	mg/L	<0.000050		--	--	--	--	--
boron, dissolved	E421	0.010	mg/L	0.018		--	5 mg/L	--	--	--
cadmium, dissolved	E421	0.0000050	mg/L	0.0000075		--	0.005 mg/L	--	--	--
calcium, dissolved	E421	0.050	mg/L	101		--	--	--	--	--
cesium, dissolved	E421	0.000010	mg/L	<0.000010		--	--	--	--	--
chromium, dissolved	E421	0.00050	mg/L	<0.00050		--	0.05 mg/L	--	--	--
cobalt, dissolved	E421	0.00010	mg/L	<0.00010		--	--	--	--	--
copper, dissolved	E421	0.00020	mg/L	0.00160		1 mg/L	--	--	--	--
iron, dissolved	E421	0.010	mg/L	0.120		0.3 mg/L	--	--	--	--
lead, dissolved	E421	0.000050	mg/L	0.000264		--	0.01 mg/L	--	--	--



Analyte	Method	LOR	Unit	WT2219367-011 (Continued)	ONDWS AO/OG	ONDWS MAC				
Dissolved Metals - Continued										
lithium, dissolved	E421	0.0010	mg/L	0.0015	--	--	--	--	--	--
magnesium, dissolved	E421	0.0050	mg/L	31.9	--	--	--	--	--	--
manganese, dissolved	E421	0.00010	mg/L	0.0334	0.05 mg/L	--	--	--	--	--
molybdenum, dissolved	E421	0.000050	mg/L	0.000286	--	--	--	--	--	--
nickel, dissolved	E421	0.00050	mg/L	0.00068	--	--	--	--	--	--
phosphorus, dissolved	E421	0.050	mg/L	<0.050	--	--	--	--	--	--
potassium, dissolved	E421	0.050	mg/L	0.741	--	--	--	--	--	--
rubidium, dissolved	E421	0.00020	mg/L	0.00050	--	--	--	--	--	--
selenium, dissolved	E421	0.000050	mg/L	0.000152	--	0.05 mg/L	--	--	--	--
silicon, dissolved	E421	0.050	mg/L	4.87	--	--	--	--	--	--
silver, dissolved	E421	0.000010	mg/L	<0.000010	--	--	--	--	--	--
sodium, dissolved	E421	0.050	mg/L	3.18	200 mg/L	20 mg/L	--	--	--	--
strontium, dissolved	E421	0.00020	mg/L	0.121	--	--	--	--	--	--
sulfur, dissolved	E421	0.50	mg/L	9.83	--	--	--	--	--	--
tellurium, dissolved	E421	0.00020	mg/L	<0.00020	--	--	--	--	--	--
thallium, dissolved	E421	0.000010	mg/L	<0.000010	--	--	--	--	--	--
thorium, dissolved	E421	0.00010	mg/L	<0.00010	--	--	--	--	--	--
tin, dissolved	E421	0.00010	mg/L	<0.00010	--	--	--	--	--	--
titanium, dissolved	E421	0.00030	mg/L	<0.00060	DLUI	--	--	--	--	--
tungsten, dissolved	E421	0.00010	mg/L	<0.00010	--	--	--	--	--	--
uranium, dissolved	E421	0.000010	mg/L	0.000614	--	0.02 mg/L	--	--	--	--
vanadium, dissolved	E421	0.00050	mg/L	<0.00050	--	--	--	--	--	--
zinc, dissolved	E421	0.0010	mg/L	0.0066	5 mg/L	--	--	--	--	--
zirconium, dissolved	E421	0.00020	mg/L	<0.00020	--	--	--	--	--	--
dissolved metals filtration location	EP421		-	Field	--	--	--	--	--	--

Please refer to the General Comments section for an explanation of any qualifiers detected.



Analytical Results

Analyte	Method	LOR	Unit	Client sample ID	OW-13D	ONDWS AO/OG	ONDWS MAC				
				Sampling date/time	25-Oct-2022 00:00						
Sub-Matrix: Water (Matrix: Water)				WT2219367-012							
Physical Tests											
alkalinity, total (as CaCO3)	E290	1.0	mg/L	409		30 - 500 mg/L	--	--	--	--	--
colour, apparent	E330	2.0	CU	89.6		5 CU	--	--	--	--	--
conductivity	E100	1.0	µS/cm	819		--	--	--	--	--	--
pH	E108	0.10	pH units	8.32		6.5 - 8.5 pH units	--	--	--	--	--
solids, total dissolved [TDS]	E162	10	mg/L	494	DLDS	500 mg/L	--	--	--	--	--
turbidity	E121	0.10	NTU	105		5 NTU	--	--	--	--	--
Anions and Nutrients											
ammonia, total (as N)	E298	0.0050	mg/L	2.16	DLHC	--	--	--	--	--	--
chloride	E235.Cl	0.50	mg/L	7.72		250 mg/L	--	--	--	--	--
fluoride	E235.F	0.020	mg/L	0.024		--	1.5 mg/L	--	--	--	--
nitrate (as N)	E235.NO3	0.020	mg/L	0.076		--	10 mg/L	--	--	--	--
nitrite (as N)	E235.NO2	0.010	mg/L	<0.010		--	1 mg/L	--	--	--	--
phosphate, ortho-, dissolved (as P)	E378-T	0.0030	mg/L	<0.0030		--	--	--	--	--	--
sulfate (as SO4)	E235.SO4	0.30	mg/L	55.9		--	--	--	--	--	--
Dissolved Metals											
aluminum, dissolved	E421	0.0010	mg/L	0.0084		0.1 mg/L	--	--	--	--	--
antimony, dissolved	E421	0.00010	mg/L	<0.00010		--	0.006 mg/L	--	--	--	--
arsenic, dissolved	E421	0.00010	mg/L	0.00136		--	0.01 mg/L	--	--	--	--
barium, dissolved	E421	0.00010	mg/L	0.0561		--	1 mg/L	--	--	--	--
beryllium, dissolved	E421	0.000020	mg/L	<0.000020		--	--	--	--	--	--
bismuth, dissolved	E421	0.000050	mg/L	<0.000050		--	--	--	--	--	--
boron, dissolved	E421	0.010	mg/L	0.111		--	5 mg/L	--	--	--	--
cadmium, dissolved	E421	0.0000050	mg/L	<0.0000050		--	0.005 mg/L	--	--	--	--
calcium, dissolved	E421	0.050	mg/L	123		--	--	--	--	--	--
cesium, dissolved	E421	0.000010	mg/L	<0.000010		--	--	--	--	--	--
chromium, dissolved	E421	0.00050	mg/L	<0.00050		--	0.05 mg/L	--	--	--	--
cobalt, dissolved	E421	0.00010	mg/L	0.00029		--	--	--	--	--	--
copper, dissolved	E421	0.00020	mg/L	0.00170		1 mg/L	--	--	--	--	--
iron, dissolved	E421	0.010	mg/L	2.04		0.3 mg/L	--	--	--	--	--
lead, dissolved	E421	0.000050	mg/L	0.000702		--	0.01 mg/L	--	--	--	--



Analyte	Method	LOR	Unit	WT2219367-012 (Continued)	ONDWS AO/OG	ONDWS MAC				
Dissolved Metals - Continued										
lithium, dissolved	E421	0.0010	mg/L	0.0011	--	--	--	--	--	--
magnesium, dissolved	E421	0.0050	mg/L	36.9	--	--	--	--	--	--
manganese, dissolved	E421	0.00010	mg/L	0.141	0.05 mg/L	--	--	--	--	--
molybdenum, dissolved	E421	0.000050	mg/L	0.000746	--	--	--	--	--	--
nickel, dissolved	E421	0.00050	mg/L	0.00280	--	--	--	--	--	--
phosphorus, dissolved	E421	0.050	mg/L	<0.050	--	--	--	--	--	--
potassium, dissolved	E421	0.050	mg/L	3.39	--	--	--	--	--	--
rubidium, dissolved	E421	0.00020	mg/L	0.00156	--	--	--	--	--	--
selenium, dissolved	E421	0.000050	mg/L	0.000272	--	0.05 mg/L	--	--	--	--
silicon, dissolved	E421	0.050	mg/L	4.44	--	--	--	--	--	--
silver, dissolved	E421	0.000010	mg/L	<0.000010	--	--	--	--	--	--
sodium, dissolved	E421	0.050	mg/L	7.70	200 mg/L	20 mg/L	--	--	--	--
strontium, dissolved	E421	0.00020	mg/L	0.231	--	--	--	--	--	--
sulfur, dissolved	E421	0.50	mg/L	19.5	--	--	--	--	--	--
tellurium, dissolved	E421	0.00020	mg/L	<0.00020	--	--	--	--	--	--
thallium, dissolved	E421	0.000010	mg/L	0.000030	--	--	--	--	--	--
thorium, dissolved	E421	0.00010	mg/L	<0.00010	--	--	--	--	--	--
tin, dissolved	E421	0.00010	mg/L	<0.00010	--	--	--	--	--	--
titanium, dissolved	E421	0.00030	mg/L	<0.00030	--	--	--	--	--	--
tungsten, dissolved	E421	0.00010	mg/L	<0.00010	--	--	--	--	--	--
uranium, dissolved	E421	0.000010	mg/L	0.000658	--	0.02 mg/L	--	--	--	--
vanadium, dissolved	E421	0.00050	mg/L	<0.00050	--	--	--	--	--	--
zinc, dissolved	E421	0.0010	mg/L	0.0613	5 mg/L	--	--	--	--	--
zirconium, dissolved	E421	0.00020	mg/L	0.00035	--	--	--	--	--	--
dissolved metals filtration location	EP421		-	Field	--	--	--	--	--	--

Please refer to the General Comments section for an explanation of any qualifiers detected.



Summary of Guideline Breaches by Sample

SampleID/Client ID	Matrix	Analyte	Analyte Summary	Guideline	Category	Result	Limit
OW-13D	Water	colour, apparent	May interfere with disinfection; removal is important to ensure effective treatment.	ONDWS	AO/OG	89.6 CU	5 CU
	Water	turbidity		ONDWS	AO/OG	105 NTU	5 NTU
	Water	iron, dissolved	Filtration systems should be designed and operated to reduce turbidity levels as low as reasonably achievable and strive to achieve a treated water turbidity target from individual filters of less than 0.1 NTU. Particles can harbour microorganisms, protecting them from disinfection, and can entrap heavy metals and biocides; elevated or fluctuating turbidity in filtered water can indicate a problem with the water treatment process and a potential increased risk of pathogens in treated water. Based on taste and staining of laundry and plumbing fixtures; no evidence exists of dietary iron toxicity in the general population.	ONDWS	AO/OG	2.04 mg/L	0.3 mg/L
	Water	manganese, dissolved		ONDWS	AO/OG	0.141 mg/L	0.05 mg/L

Key:

- ONDWS Ontario Drinking Water Regulation (JAN, 2020)
- AO/OG Aesthetic Objective/Operational Guideline
- MAC Schedule 1 (Microbiological) and 2 (Chemical) Standards (JAN,2020)



Analytical Results

Analyte	Method	LOR	Unit	Client sample ID	OW-16S	ONDWS AO/OG	ONDWS MAC			
				Sub-Matrix: Water (Matrix: Water)	Sampling date/time					
				WT2219367-013						
Physical Tests										
alkalinity, total (as CaCO3)	E290	1.0	mg/L	348		30 - 500 mg/L	--	--	--	--
colour, apparent	E330	2.0	CU	47.5		5 CU	--	--	--	--
conductivity	E100	1.0	µS/cm	638		--	--	--	--	--
pH	E108	0.10	pH units	7.79		6.5 - 8.5 pH units	--	--	--	--
solids, total dissolved [TDS]	E162	10	mg/L	394	DLDS	500 mg/L	--	--	--	--
turbidity	E121	0.10	NTU	351		5 NTU	--	--	--	--
Anions and Nutrients										
ammonia, total (as N)	E298	0.0050	mg/L	0.0187		--	--	--	--	--
chloride	E235.Cl	0.50	mg/L	10.1		250 mg/L	--	--	--	--
fluoride	E235.F	0.020	mg/L	0.043		--	1.5 mg/L	--	--	--
nitrate (as N)	E235.NO3	0.020	mg/L	0.175		--	10 mg/L	--	--	--
nitrite (as N)	E235.NO2	0.010	mg/L	<0.010		--	1 mg/L	--	--	--
phosphate, ortho-, dissolved (as P)	E378-T	0.0030	mg/L	0.0032		--	--	--	--	--
sulfate (as SO4)	E235.SO4	0.30	mg/L	4.58		--	--	--	--	--
Dissolved Metals										
aluminum, dissolved	E421	0.0010	mg/L	0.0763		0.1 mg/L	--	--	--	--
antimony, dissolved	E421	0.00010	mg/L	<0.00010		--	0.006 mg/L	--	--	--
arsenic, dissolved	E421	0.00010	mg/L	0.00052		--	0.01 mg/L	--	--	--
barium, dissolved	E421	0.00010	mg/L	0.0461		--	1 mg/L	--	--	--
beryllium, dissolved	E421	0.000020	mg/L	<0.000020		--	--	--	--	--
bismuth, dissolved	E421	0.000050	mg/L	<0.000050		--	--	--	--	--
boron, dissolved	E421	0.010	mg/L	0.077		--	5 mg/L	--	--	--
cadmium, dissolved	E421	0.0000050	mg/L	0.0000084		--	0.005 mg/L	--	--	--
calcium, dissolved	E421	0.050	mg/L	118		--	--	--	--	--
cesium, dissolved	E421	0.000010	mg/L	<0.000010		--	--	--	--	--
chromium, dissolved	E421	0.00050	mg/L	<0.00050		--	0.05 mg/L	--	--	--
cobalt, dissolved	E421	0.00010	mg/L	0.00043		--	--	--	--	--
copper, dissolved	E421	0.00020	mg/L	0.00102		1 mg/L	--	--	--	--
iron, dissolved	E421	0.010	mg/L	0.399		0.3 mg/L	--	--	--	--
lead, dissolved	E421	0.000050	mg/L	0.000726		--	0.01 mg/L	--	--	--



Analyte	Method	LOR	Unit	WT2219367-013 (Continued)	ONDWS AO/OG	ONDWS MAC				
Dissolved Metals - Continued										
lithium, dissolved	E421	0.0010	mg/L	0.0029	--	--	--	--	--	--
magnesium, dissolved	E421	0.0050	mg/L	34.9	--	--	--	--	--	--
manganese, dissolved	E421	0.00010	mg/L	0.0818	0.05 mg/L	--	--	--	--	--
molybdenum, dissolved	E421	0.000050	mg/L	0.000538	--	--	--	--	--	--
nickel, dissolved	E421	0.00050	mg/L	0.00179	--	--	--	--	--	--
phosphorus, dissolved	E421	0.050	mg/L	<0.050	--	--	--	--	--	--
potassium, dissolved	E421	0.050	mg/L	3.56	--	--	--	--	--	--
rubidium, dissolved	E421	0.00020	mg/L	0.00149	--	--	--	--	--	--
selenium, dissolved	E421	0.000050	mg/L	0.000054	--	0.05 mg/L	--	--	--	--
silicon, dissolved	E421	0.050	mg/L	6.92	--	--	--	--	--	--
silver, dissolved	E421	0.000010	mg/L	<0.000010	--	--	--	--	--	--
sodium, dissolved	E421	0.050	mg/L	6.28	200 mg/L	20 mg/L	--	--	--	--
strontium, dissolved	E421	0.00020	mg/L	0.185	--	--	--	--	--	--
sulfur, dissolved	E421	0.50	mg/L	3.64	--	--	--	--	--	--
tellurium, dissolved	E421	0.00020	mg/L	<0.00020	--	--	--	--	--	--
thallium, dissolved	E421	0.000010	mg/L	0.000037	--	--	--	--	--	--
thorium, dissolved	E421	0.00010	mg/L	<0.00010	--	--	--	--	--	--
tin, dissolved	E421	0.00010	mg/L	<0.00010	--	--	--	--	--	--
titanium, dissolved	E421	0.00030	mg/L	0.00233	--	--	--	--	--	--
tungsten, dissolved	E421	0.00010	mg/L	<0.00010	--	--	--	--	--	--
uranium, dissolved	E421	0.000010	mg/L	0.000986	--	0.02 mg/L	--	--	--	--
vanadium, dissolved	E421	0.00050	mg/L	<0.00050	--	--	--	--	--	--
zinc, dissolved	E421	0.0010	mg/L	0.0037	5 mg/L	--	--	--	--	--
zirconium, dissolved	E421	0.00020	mg/L	<0.00020	--	--	--	--	--	--
dissolved metals filtration location	EP421		-	Field	--	--	--	--	--	--

Please refer to the General Comments section for an explanation of any qualifiers detected.



Summary of Guideline Breaches by Sample

SampleID/Client ID	Matrix	Analyte	Analyte Summary	Guideline	Category	Result	Limit
OW-16S	Water	colour, apparent	May interfere with disinfection; removal is important to ensure effective treatment.	ONDWS	AO/OG	47.5 CU	5 CU
	Water	turbidity		ONDWS	AO/OG	351 NTU	5 NTU
	Water	iron, dissolved	Filtration systems should be designed and operated to reduce turbidity levels as low as reasonably achievable and strive to achieve a treated water turbidity target from individual filters of less than 0.1 NTU. Particles can harbour microorganisms, protecting them from disinfection, and can entrap heavy metals and biocides; elevated or fluctuating turbidity in filtered water can indicate a problem with the water treatment process and a potential increased risk of pathogens in treated water. Based on taste and staining of laundry and plumbing fixtures; no evidence exists of dietary iron toxicity in the general population.	ONDWS	AO/OG	0.399 mg/L	0.3 mg/L
	Water	manganese, dissolved	Based on taste and staining of laundry and plumbing fixtures.	ONDWS	AO/OG	0.0818 mg/L	0.05 mg/L

Key:

ONDWS Ontario Drinking Water Regulation (JAN, 2020)
 AO/OG Aesthetic Objective/Operational Guideline
 MAC Schedule 1 (Microbiological) and 2 (Chemical) Standards (JAN,2020)



Analytical Results

Analyte	Method	LOR	Unit	Client sample ID								
				OW-16D	Sub-Matrix: Water	Sampling date/time	25-Oct-2022	00:00	WT2219367-014	ONDWS AO/OG	ONDWS MAC	
Physical Tests												
alkalinity, total (as CaCO3)	E290	1.0	mg/L	712		30 - 500 mg/L	--	--	--	--	--	--
colour, apparent	E330	2.0	CU	13.7		5 CU	--	--	--	--	--	--
conductivity	E100	1.0	µS/cm	1400		--	--	--	--	--	--	--
pH	E108	0.10	pH units	7.40		6.5 - 8.5 pH units	--	--	--	--	--	--
solids, total dissolved [TDS]	E162	10	mg/L	769	DLDS	500 mg/L	--	--	--	--	--	--
turbidity	E121	0.10	NTU	68.2		5 NTU	--	--	--	--	--	--
Anions and Nutrients												
ammonia, total (as N)	E298	0.0050	mg/L	17.0	DLHC	--	--	--	--	--	--	--
chloride	E235.Cl	0.50	mg/L	29.7	DLDS	250 mg/L	--	--	--	--	--	--
fluoride	E235.F	0.020	mg/L	<0.100	DLDS	--	1.5 mg/L	--	--	--	--	--
nitrate (as N)	E235.NO3	0.020	mg/L	<0.100	DLDS	--	10 mg/L	--	--	--	--	--
nitrite (as N)	E235.NO2	0.010	mg/L	<0.050	DLDS	--	1 mg/L	--	--	--	--	--
phosphate, ortho-, dissolved (as P)	E378-T	0.0030	mg/L	<0.0030		--	--	--	--	--	--	--
sulfate (as SO4)	E235.SO4	0.30	mg/L	57.5	DLDS	--	--	--	--	--	--	--
Dissolved Metals												
aluminum, dissolved	E421	0.0010	mg/L	0.0032		0.1 mg/L	--	--	--	--	--	--
antimony, dissolved	E421	0.00010	mg/L	<0.00010		--	0.006 mg/L	--	--	--	--	--
arsenic, dissolved	E421	0.00010	mg/L	0.00314		--	0.01 mg/L	--	--	--	--	--
barium, dissolved	E421	0.00010	mg/L	0.177		--	1 mg/L	--	--	--	--	--
beryllium, dissolved	E421	0.000020	mg/L	<0.000020		--	--	--	--	--	--	--
bismuth, dissolved	E421	0.000050	mg/L	<0.000050		--	--	--	--	--	--	--
boron, dissolved	E421	0.010	mg/L	0.632		--	5 mg/L	--	--	--	--	--
cadmium, dissolved	E421	0.0000050	mg/L	0.0000227		--	0.005 mg/L	--	--	--	--	--
calcium, dissolved	E421	0.050	mg/L	154		--	--	--	--	--	--	--
cesium, dissolved	E421	0.000010	mg/L	0.000018		--	--	--	--	--	--	--
chromium, dissolved	E421	0.00050	mg/L	0.00052		--	0.05 mg/L	--	--	--	--	--
cobalt, dissolved	E421	0.00010	mg/L	0.00279		--	--	--	--	--	--	--
copper, dissolved	E421	0.00020	mg/L	0.00103		1 mg/L	--	--	--	--	--	--
iron, dissolved	E421	0.010	mg/L	4.62		0.3 mg/L	--	--	--	--	--	--
lead, dissolved	E421	0.000050	mg/L	0.00393		--	0.01 mg/L	--	--	--	--	--



Analyte	Method	LOR	Unit	WT2219367-014 (Continued)	ONDWS AO/OG	ONDWS MAC				
Dissolved Metals - Continued										
lithium, dissolved	E421	0.0010	mg/L	0.0050	--	--	--	--	--	--
magnesium, dissolved	E421	0.0050	mg/L	69.2	--	--	--	--	--	--
manganese, dissolved	E421	0.00010	mg/L	0.524	0.05 mg/L	--	--	--	--	--
molybdenum, dissolved	E421	0.000050	mg/L	0.000464	--	--	--	--	--	--
nickel, dissolved	E421	0.00050	mg/L	0.00692	--	--	--	--	--	--
phosphorus, dissolved	E421	0.050	mg/L	<0.050	--	--	--	--	--	--
potassium, dissolved	E421	0.050	mg/L	23.4	--	--	--	--	--	--
rubidium, dissolved	E421	0.00020	mg/L	0.00891	--	--	--	--	--	--
selenium, dissolved	E421	0.000050	mg/L	0.000096	--	0.05 mg/L	--	--	--	--
silicon, dissolved	E421	0.050	mg/L	7.00	--	--	--	--	--	--
silver, dissolved	E421	0.000010	mg/L	<0.000010	--	--	--	--	--	--
sodium, dissolved	E421	0.050	mg/L	31.9	200 mg/L	20 mg/L	--	--	--	--
strontium, dissolved	E421	0.00020	mg/L	0.448	--	--	--	--	--	--
sulfur, dissolved	E421	0.50	mg/L	19.9	--	--	--	--	--	--
tellurium, dissolved	E421	0.00020	mg/L	<0.00020	--	--	--	--	--	--
thallium, dissolved	E421	0.000010	mg/L	0.000257	--	--	--	--	--	--
thorium, dissolved	E421	0.00010	mg/L	<0.00010	--	--	--	--	--	--
tin, dissolved	E421	0.00010	mg/L	<0.00010	--	--	--	--	--	--
titanium, dissolved	E421	0.00030	mg/L	<0.00030	--	--	--	--	--	--
tungsten, dissolved	E421	0.00010	mg/L	<0.00010	--	--	--	--	--	--
uranium, dissolved	E421	0.000010	mg/L	0.000523	--	0.02 mg/L	--	--	--	--
vanadium, dissolved	E421	0.00050	mg/L	<0.00050	--	--	--	--	--	--
zinc, dissolved	E421	0.0010	mg/L	0.0151	5 mg/L	--	--	--	--	--
zirconium, dissolved	E421	0.00020	mg/L	0.00087	--	--	--	--	--	--
dissolved metals filtration location	EP421		-	Field	--	--	--	--	--	--

Please refer to the General Comments section for an explanation of any qualifiers detected.



Summary of Guideline Breaches by Sample

SampleID/Client ID	Matrix	Analyte	Analyte Summary	Guideline	Category	Result	Limit
OW-16D	Water	alkalinity, total (as CaCO ₃)		ONDWS	AO/OG	712 mg/L	30-500 mg/L
	Water	colour, apparent	May interfere with disinfection; removal is important to ensure effective treatment.	ONDWS	AO/OG	13.7 CU	5 CU
	Water	solids, total dissolved [TDS]	Based on taste; TDS above 500 mg/L results in excessive scaling in water pipes, water heaters, boilers and appliances; TDS is composed of calcium, magnesium, sodium, potassium, carbonate, bicarbonate, chloride, sulphate and nitrate.	ONDWS	AO/OG	769 mg/L	500 mg/L
	Water	turbidity	Filtration systems should be designed and operated to reduce turbidity levels as low as reasonably achievable and strive to achieve a treated water turbidity target from individual filters of less than 0.1 NTU. Particles can harbour microorganisms, protecting them from disinfection, and can entrap heavy metals and biocides; elevated or fluctuating turbidity in filtered water can indicate a problem with the water treatment process and a potential increased risk of pathogens in treated water.	ONDWS	AO/OG	68.2 NTU	5 NTU
	Water	iron, dissolved	Based on taste and staining of laundry and plumbing fixtures; no evidence exists of dietary iron toxicity in the general population.	ONDWS	AO/OG	4.62 mg/L	0.3 mg/L
	Water	manganese, dissolved	Based on taste and staining of laundry and plumbing fixtures.	ONDWS	AO/OG	0.524 mg/L	0.05 mg/L
	Water	sodium, dissolved	Based on taste; where a sodium-based water softener is used, a separate unsoftened supply for cooking and drinking purposes is recommended.	ONDWS	MAC	31.9 mg/L	20 mg/L

Key:

- ONDWS Ontario Drinking Water Regulation (JAN, 2020)
- AO/OG Aesthetic Objective/Operational Guideline
- MAC Schedule 1 (Microbiological) and 2 (Chemical) Standards (JAN,2020)



Analytical Results

Analyte	Method	LOR	Unit	Client sample ID	OW-20S	ONDWS AO/OG	ONDWS MAC			
				Sub-Matrix: Water (Matrix: Water)	Sampling date/time					
				WT2219367-015						
Physical Tests										
alkalinity, total (as CaCO3)	E290	1.0	mg/L	367		30 - 500 mg/L	--	--	--	--
colour, apparent	E330	2.0	CU	218		5 CU	--	--	--	--
conductivity	E100	1.0	µS/cm	707		--	--	--	--	--
pH	E108	0.10	pH units	8.02		6.5 - 8.5 pH units	--	--	--	--
solids, total dissolved [TDS]	E162	10	mg/L	428	DLDS	500 mg/L	--	--	--	--
turbidity	E121	0.10	NTU	2290		5 NTU	--	--	--	--
Anions and Nutrients										
ammonia, total (as N)	E298	0.0050	mg/L	0.142		--	--	--	--	--
chloride	E235.Cl	0.50	mg/L	9.13		250 mg/L	--	--	--	--
fluoride	E235.F	0.020	mg/L	0.184		--	1.5 mg/L	--	--	--
nitrate (as N)	E235.NO3	0.020	mg/L	0.043		--	10 mg/L	--	--	--
nitrite (as N)	E235.NO2	0.010	mg/L	<0.010		--	1 mg/L	--	--	--
phosphate, ortho-, dissolved (as P)	E378-T	0.0030	mg/L	<0.0030		--	--	--	--	--
sulfate (as SO4)	E235.SO4	0.30	mg/L	41.0		--	--	--	--	--
Dissolved Metals										
aluminum, dissolved	E421	0.0010	mg/L	0.527		0.1 mg/L	--	--	--	--
antimony, dissolved	E421	0.00010	mg/L	<0.00010		--	0.006 mg/L	--	--	--
arsenic, dissolved	E421	0.00010	mg/L	0.00418		--	0.01 mg/L	--	--	--
barium, dissolved	E421	0.00010	mg/L	0.0595		--	1 mg/L	--	--	--
beryllium, dissolved	E421	0.000020	mg/L	0.000022		--	--	--	--	--
bismuth, dissolved	E421	0.000050	mg/L	<0.000050		--	--	--	--	--
boron, dissolved	E421	0.010	mg/L	0.159		--	5 mg/L	--	--	--
cadmium, dissolved	E421	0.0000050	mg/L	0.0000263		--	0.005 mg/L	--	--	--
calcium, dissolved	E421	0.050	mg/L	108		--	--	--	--	--
cesium, dissolved	E421	0.000010	mg/L	0.000047		--	--	--	--	--
chromium, dissolved	E421	0.00050	mg/L	0.00080		--	0.05 mg/L	--	--	--
cobalt, dissolved	E421	0.00010	mg/L	0.00080		--	--	--	--	--
copper, dissolved	E421	0.00020	mg/L	0.00141		1 mg/L	--	--	--	--
iron, dissolved	E421	0.010	mg/L	1.44		0.3 mg/L	--	--	--	--
lead, dissolved	E421	0.000050	mg/L	0.00203		--	0.01 mg/L	--	--	--



Analyte	Method	LOR	Unit	WT2219367-015 (Continued)	ONDWS AO/OG	ONDWS MAC				
Dissolved Metals - Continued										
lithium, dissolved	E421	0.0010	mg/L	0.0076	--	--	--	--	--	--
magnesium, dissolved	E421	0.0050	mg/L	52.5	--	--	--	--	--	--
manganese, dissolved	E421	0.00010	mg/L	0.213	0.05 mg/L	--	--	--	--	--
molybdenum, dissolved	E421	0.000050	mg/L	0.00177	--	--	--	--	--	--
nickel, dissolved	E421	0.00050	mg/L	0.00246	--	--	--	--	--	--
phosphorus, dissolved	E421	0.050	mg/L	<0.050	--	--	--	--	--	--
potassium, dissolved	E421	0.050	mg/L	4.90	--	--	--	--	--	--
rubidium, dissolved	E421	0.00020	mg/L	0.00254	--	--	--	--	--	--
selenium, dissolved	E421	0.000050	mg/L	0.000051	--	0.05 mg/L	--	--	--	--
silicon, dissolved	E421	0.050	mg/L	8.56	--	--	--	--	--	--
silver, dissolved	E421	0.000010	mg/L	<0.000010	--	--	--	--	--	--
sodium, dissolved	E421	0.050	mg/L	28.0	200 mg/L	20 mg/L	--	--	--	--
strontium, dissolved	E421	0.00020	mg/L	0.258	--	--	--	--	--	--
sulfur, dissolved	E421	0.50	mg/L	22.5	--	--	--	--	--	--
tellurium, dissolved	E421	0.00020	mg/L	<0.00020	--	--	--	--	--	--
thallium, dissolved	E421	0.000010	mg/L	0.000092	--	--	--	--	--	--
thorium, dissolved	E421	0.00010	mg/L	0.00012	--	--	--	--	--	--
tin, dissolved	E421	0.00010	mg/L	<0.00010	--	--	--	--	--	--
titanium, dissolved	E421	0.00030	mg/L	0.0226	--	--	--	--	--	--
tungsten, dissolved	E421	0.00010	mg/L	0.00011	--	--	--	--	--	--
uranium, dissolved	E421	0.000010	mg/L	0.00122	--	0.02 mg/L	--	--	--	--
vanadium, dissolved	E421	0.00050	mg/L	0.00103	--	--	--	--	--	--
zinc, dissolved	E421	0.0010	mg/L	0.0110	5 mg/L	--	--	--	--	--
zirconium, dissolved	E421	0.00020	mg/L	0.00089	--	--	--	--	--	--
dissolved metals filtration location	EP421		-	Field	--	--	--	--	--	--

Please refer to the General Comments section for an explanation of any qualifiers detected.



Summary of Guideline Breaches by Sample

SampleID/Client ID	Matrix	Analyte	Analyte Summary	Guideline	Category	Result	Limit
OW-20S	Water	colour, apparent	May interfere with disinfection; removal is important to ensure effective treatment.	ONDWS	AO/OG	218 CU	5 CU
	Water	turbidity	Filtration systems should be designed and operated to reduce turbidity levels as low as reasonably achievable and strive to achieve a treated water turbidity target from individual filters of less than 0.1 NTU. Particles can harbour microorganisms, protecting them from disinfection, and can entrap heavy metals and biocides; elevated or fluctuating turbidity in filtered water can indicate a problem with the water treatment process and a potential increased risk of pathogens in treated water.	ONDWS	AO/OG	2290 NTU	5 NTU
	Water	aluminum, dissolved	There is no consistent, convincing evidence that aluminum in drinking water causes adverse health effects in humans. The operational guideline applies to treatment plants using aluminum-based coagulants; it does not apply to naturally occurring aluminum found in groundwater. For treatment plants using aluminum-based coagulants, monthly samples should be taken of the water leaving the plant; the OGs are based on a running annual average of monthly samples.	ONDWS	AO/OG	0.527 mg/L	0.1 mg/L
	Water	iron, dissolved	Based on taste and staining of laundry and plumbing fixtures; no evidence exists of dietary iron toxicity in the general population.	ONDWS	AO/OG	1.44 mg/L	0.3 mg/L
	Water	manganese, dissolved	Based on taste and staining of laundry and plumbing fixtures.	ONDWS	AO/OG	0.213 mg/L	0.05 mg/L
	Water	sodium, dissolved	Based on taste; where a sodium-based water softener is used, a separate unsoftened supply for cooking and drinking purposes is recommended.	ONDWS	MAC	28.0 mg/L	20 mg/L

Key:

ONDWS Ontario Drinking Water Regulation (JAN, 2020)
 AO/OG Aesthetic Objective/Operational Guideline
 MAC Schedule 1 (Microbiological) and 2 (Chemical) Standards (JAN,2020)



Analytical Results

Analyte	Method	LOR	Unit	Client sample ID						
				OW-20D	25-Oct-2022	00:00	WT2219367-016	ONDWS AO/OG	ONDWS MAC	
Sub-Matrix: Water (Matrix: Water)										
Sampling date/time										
Physical Tests										
alkalinity, total (as CaCO3)	E290	1.0	mg/L	546		30 - 500 mg/L	--	--	--	--
colour, apparent	E330	2.0	CU	6.1		5 CU	--	--	--	--
conductivity	E100	1.0	µS/cm	1330		--	--	--	--	--
pH	E108	0.10	pH units	7.97		6.5 - 8.5 pH units	--	--	--	--
solids, total dissolved [TDS]	E162	10	mg/L	824	DLDS	500 mg/L	--	--	--	--
turbidity	E121	0.10	NTU	10.6		5 NTU	--	--	--	--
Anions and Nutrients										
ammonia, total (as N)	E298	0.0050	mg/L	4.77	DLHC	--	--	--	--	--
chloride	E235.Cl	0.50	mg/L	40.2	DLDS	250 mg/L	--	--	--	--
fluoride	E235.F	0.020	mg/L	<0.100	DLDS	--	1.5 mg/L	--	--	--
nitrate (as N)	E235.NO3	0.020	mg/L	1.21	DLDS	--	10 mg/L	--	--	--
nitrite (as N)	E235.NO2	0.010	mg/L	<0.050	DLDS	--	1 mg/L	--	--	--
phosphate, ortho-, dissolved (as P)	E378-T	0.0030	mg/L	<0.0030		--	--	--	--	--
sulfate (as SO4)	E235.SO4	0.30	mg/L	172	DLDS	--	--	--	--	--
Dissolved Metals										
aluminum, dissolved	E421	0.0010	mg/L	0.0030		0.1 mg/L	--	--	--	--
antimony, dissolved	E421	0.00010	mg/L	<0.00010		--	0.006 mg/L	--	--	--
arsenic, dissolved	E421	0.00010	mg/L	0.00037		--	0.01 mg/L	--	--	--
barium, dissolved	E421	0.00010	mg/L	0.112		--	1 mg/L	--	--	--
beryllium, dissolved	E421	0.000020	mg/L	<0.000020		--	--	--	--	--
bismuth, dissolved	E421	0.000050	mg/L	<0.000050		--	--	--	--	--
boron, dissolved	E421	0.010	mg/L	0.533		--	5 mg/L	--	--	--
cadmium, dissolved	E421	0.0000050	mg/L	0.0000155		--	0.005 mg/L	--	--	--
calcium, dissolved	E421	0.050	mg/L	149		--	--	--	--	--
cesium, dissolved	E421	0.000010	mg/L	<0.000010		--	--	--	--	--
chromium, dissolved	E421	0.00050	mg/L	<0.00050		--	0.05 mg/L	--	--	--
cobalt, dissolved	E421	0.00010	mg/L	0.00215		--	--	--	--	--
copper, dissolved	E421	0.00020	mg/L	0.00237		1 mg/L	--	--	--	--
iron, dissolved	E421	0.010	mg/L	0.165		0.3 mg/L	--	--	--	--
lead, dissolved	E421	0.000050	mg/L	0.000742		--	0.01 mg/L	--	--	--



Analyte	Method	LOR	Unit	WT2219367-016 (Continued)	ONDWS AO/OG	ONDWS MAC				
Dissolved Metals - Continued										
lithium, dissolved	E421	0.0010	mg/L	0.0040	--	--	--	--	--	--
magnesium, dissolved	E421	0.0050	mg/L	74.5	--	--	--	--	--	--
manganese, dissolved	E421	0.00010	mg/L	0.510	0.05 mg/L	--	--	--	--	--
molybdenum, dissolved	E421	0.000050	mg/L	0.000399	--	--	--	--	--	--
nickel, dissolved	E421	0.00050	mg/L	0.00851	--	--	--	--	--	--
phosphorus, dissolved	E421	0.050	mg/L	<0.050	--	--	--	--	--	--
potassium, dissolved	E421	0.050	mg/L	19.8	--	--	--	--	--	--
rubidium, dissolved	E421	0.00020	mg/L	0.00573	--	--	--	--	--	--
selenium, dissolved	E421	0.000050	mg/L	<0.000050	--	0.05 mg/L	--	--	--	--
silicon, dissolved	E421	0.050	mg/L	5.82	--	--	--	--	--	--
silver, dissolved	E421	0.000010	mg/L	<0.000010	--	--	--	--	--	--
sodium, dissolved	E421	0.050	mg/L	31.4	200 mg/L	20 mg/L	--	--	--	--
strontium, dissolved	E421	0.00020	mg/L	0.387	--	--	--	--	--	--
sulfur, dissolved	E421	0.50	mg/L	57.8	--	--	--	--	--	--
tellurium, dissolved	E421	0.00020	mg/L	<0.00020	--	--	--	--	--	--
thallium, dissolved	E421	0.000010	mg/L	0.000456	--	--	--	--	--	--
thorium, dissolved	E421	0.00010	mg/L	<0.00010	--	--	--	--	--	--
tin, dissolved	E421	0.00010	mg/L	<0.00010	--	--	--	--	--	--
titanium, dissolved	E421	0.00030	mg/L	<0.00030	--	--	--	--	--	--
tungsten, dissolved	E421	0.00010	mg/L	<0.00010	--	--	--	--	--	--
uranium, dissolved	E421	0.000010	mg/L	0.000871	--	0.02 mg/L	--	--	--	--
vanadium, dissolved	E421	0.00050	mg/L	<0.00050	--	--	--	--	--	--
zinc, dissolved	E421	0.0010	mg/L	0.0230	5 mg/L	--	--	--	--	--
zirconium, dissolved	E421	0.00020	mg/L	<0.00020	--	--	--	--	--	--
dissolved metals filtration location	EP421		-	Field	--	--	--	--	--	--

Please refer to the General Comments section for an explanation of any qualifiers detected.



Summary of Guideline Breaches by Sample

SampleID/Client ID	Matrix	Analyte	Analyte Summary	Guideline	Category	Result	Limit
OW-20D	Water	alkalinity, total (as CaCO3)	<p>May interfere with disinfection; removal is important to ensure effective treatment.</p> <p>Based on taste; TDS above 500 mg/L results in excessive scaling in water pipes, water heaters, boilers and appliances; TDS is composed of calcium, magnesium, sodium, potassium, carbonate, bicarbonate, chloride, sulphate and nitrate.</p> <p>Filtration systems should be designed and operated to reduce turbidity levels as low as reasonably achievable and strive to achieve a treated water turbidity target from individual filters of less than 0.1 NTU. Particles can harbour microorganisms, protecting them from disinfection, and can entrap heavy metals and biocides; elevated or fluctuating turbidity in filtered water can indicate a problem with the water treatment process and a potential increased risk of pathogens in treated water.</p> <p>Based on taste and staining of laundry and plumbing fixtures.</p> <p>Based on taste; where a sodium-based water softener is used, a separate unsoftened supply for cooking and drinking purposes is recommended.</p>	ONDWS	AO/OG	546 mg/L	30-500 mg/L
	Water	colour, apparent		ONDWS	AO/OG	6.1 CU	5 CU
	Water	solids, total dissolved [TDS]		ONDWS	AO/OG	824 mg/L	500 mg/L
	Water	turbidity		ONDWS	AO/OG	10.6 NTU	5 NTU
	Water	manganese, dissolved		ONDWS	AO/OG	0.510 mg/L	0.05 mg/L
	Water	sodium, dissolved		ONDWS	MAC	31.4 mg/L	20 mg/L

Key:

- ONDWS Ontario Drinking Water Regulation (JAN, 2020)
- AO/OG Aesthetic Objective/Operational Guideline
- MAC Schedule 1 (Microbiological) and 2 (Chemical) Standards (JAN,2020)



QUALITY CONTROL INTERPRETIVE REPORT

<p>Work Order : WT2219367</p> <p>Amendment : 1</p> <p>Client : Bluewater Geoscience Consultants Inc.</p> <p>Contact : Breton Lemieux</p> <p>Address : 42 Shadyridge Place Kitchener ON Canada N2N 3J1</p> <p>Telephone : 519 744 4123</p> <p>Project : BG-817</p> <p>PO : ----</p> <p>C-O-C number : 20-1006823,20-1006822</p> <p>Sampler : ----</p> <p>Site : ----</p> <p>Quote number : SOA</p> <p>No. of samples received : 16</p> <p>No. of samples analysed : 16</p>	<p>Page : 1 of 33</p> <p>Laboratory : Waterloo - Environmental</p> <p>Account Manager : Gayle Braun</p> <p>Address : 60 Northland Road, Unit 1 Waterloo, Ontario Canada N2V 2B8</p> <p>Telephone : +1 519 886 6910</p> <p>Date Samples Received : 25-Oct-2022 14:00</p> <p>Issue Date : 16-Nov-2022 17:10</p>
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This report is automatically generated by the ALS LIMS (Laboratory Information Management System) through evaluation of Quality Control (QC) results and other QA parameters associated with this submission, and is intended to facilitate rapid data validation by auditors or reviewers. The report highlights any exceptions and outliers to ALS Data Quality Objectives, provides holding time details and exceptions, summarizes QC sample frequencies, and lists applicable methodology references and summaries.

Key

- Anonymous: Refers to samples which are not part of this work order, but which formed part of the QC process lot.
- CAS Number: Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
- DQO: Data Quality Objective.
- LOR: Limit of Reporting (detection limit).
- RPD: Relative Percent Difference.

Workorder Comments

Holding times are displayed as "----" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Summary of Outliers

Outliers : Quality Control Samples

- No Method Blank value outliers occur.
- No Duplicate outliers occur.
- No Laboratory Control Sample (LCS) outliers occur
- Matrix Spike outliers occur - please see following pages for full details.
- No Test sample Surrogate recovery outliers exist.

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- No Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.



Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **Water**

Analyte Group	Laboratory sample ID	Client/Ref Sample ID	Analyte	CAS Number	Method	Result	Limits	Comment
Matrix Spike (MS) Recoveries								
Dissolved Metals	Anonymous	Anonymous	arsenic, dissolved	7440-38-2	E421	131 % ^{MES}	70.0-130%	Recovery greater than upper data quality objective
Dissolved Metals	Anonymous	Anonymous	selenium, dissolved	7782-49-2	E421	144 % ^{MES}	70.0-130%	Recovery greater than upper data quality objective

Result Qualifiers

Qualifier	Description
MES	Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable as per OMOE & CCME).



Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times, which are selected to meet known provincial and /or federal requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by organizations such as CCME, US EPA, APHA Standard Methods, ASTM, or Environment Canada (where available). Dates and holding times reported below represent the first dates of extraction or analysis. If subsequent tests or dilutions exceeded holding times, qualifiers are added (refer to COA).

If samples are identified below as having been analyzed or extracted outside of recommended holding times, measurement uncertainties may be increased, and this should be taken into consideration when interpreting results.

Where actual sampling date is not provided on the chain of custody, the date of receipt with time at 00:00 is used for calculation purposes.

Where only the sample date without time is provided on the chain of custody, the sampling date at 00:00 is used for calculation purposes.

Matrix: **Water** Evaluation: * = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) OW-1	E298	25-Oct-2022	29-Oct-2022	----	----		01-Nov-2022	28 days	8 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) OW-10D	E298	25-Oct-2022	29-Oct-2022	----	----		01-Nov-2022	28 days	8 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) OW-10S	E298	25-Oct-2022	29-Oct-2022	----	----		01-Nov-2022	28 days	8 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) OW-12D	E298	25-Oct-2022	29-Oct-2022	----	----		01-Nov-2022	28 days	8 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) OW-13D	E298	25-Oct-2022	29-Oct-2022	----	----		01-Nov-2022	28 days	8 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) OW-13S	E298	25-Oct-2022	29-Oct-2022	----	----		01-Nov-2022	28 days	8 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) OW-16D	E298	25-Oct-2022	29-Oct-2022	----	----		01-Nov-2022	28 days	8 days	✓



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis				
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval	
				Rec	Actual			Rec	Actual		
Anions and Nutrients : Ammonia by Fluorescence											
Amber glass total (sulfuric acid) OW-16S	E298	25-Oct-2022	29-Oct-2022	----	----		01-Nov-2022	28 days	8 days	✔	
Anions and Nutrients : Ammonia by Fluorescence											
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Anions and Nutrients : Ammonia by Fluorescence											
Amber glass total (sulfuric acid) OW-2D	E298	25-Oct-2022	29-Oct-2022	----	----		01-Nov-2022	28 days	8 days	✔	
Anions and Nutrients : Ammonia by Fluorescence											
Amber glass total (sulfuric acid) OW-2S	E298	25-Oct-2022	29-Oct-2022	----	----		01-Nov-2022	28 days	8 days	✔	
Anions and Nutrients : Ammonia by Fluorescence											
Amber glass total (sulfuric acid) OW-3D	E298	25-Oct-2022	29-Oct-2022	----	----		01-Nov-2022	28 days	8 days	✔	
Anions and Nutrients : Ammonia by Fluorescence											
Amber glass total (sulfuric acid) OW-3S	E298	25-Oct-2022	29-Oct-2022	----	----		01-Nov-2022	28 days	8 days	✔	
Anions and Nutrients : Ammonia by Fluorescence											
Amber glass total (sulfuric acid) OW-7S	E298	25-Oct-2022	29-Oct-2022	----	----		01-Nov-2022	28 days	8 days	✔	
Anions and Nutrients : Ammonia by Fluorescence											
Amber glass total (sulfuric acid) W-7D	E298	25-Oct-2022	29-Oct-2022	----	----		01-Nov-2022	28 days	8 days	✔	



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			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Chloride in Water by IC										
HDPE [ON MECP] OW-1	E235.Cl	25-Oct-2022	28-Oct-2022	----	----		31-Oct-2022	28 days	7 days	✔
Anions and Nutrients : Chloride in Water by IC										
HDPE [ON MECP] OW-10D	E235.Cl	25-Oct-2022	31-Oct-2022	----	----		31-Oct-2022	28 days	7 days	✔
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HDPE [ON MECP] W-7D	E235.Cl	25-Oct-2022	31-Oct-2022	----	----		31-Oct-2022	28 days	7 days	✔	
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (0.003 mg/L)											
HDPE [ON MECP] OW-13D	E378-T	25-Oct-2022	----	----	----		26-Oct-2022	7 days	1 days	✔	
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (0.003 mg/L)											
HDPE [ON MECP] OW-13S	E378-T	25-Oct-2022	----	----	----		26-Oct-2022	7 days	1 days	✔	



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HDPE [ON MECP] OW-20S	E378-T	25-Oct-2022	----	----	----		26-Oct-2022	7 days	1 days	✔
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (0.003 mg/L)										
HDPE [ON MECP] OW-1	E378-T	25-Oct-2022	----	----	----		26-Oct-2022	7 days	2 days	✔
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (0.003 mg/L)										
HDPE [ON MECP] OW-10D	E378-T	25-Oct-2022	----	----	----		26-Oct-2022	7 days	2 days	✔
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (0.003 mg/L)										
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HDPE [ON MECP] W-7D	E378-T	25-Oct-2022	----	----	----		26-Oct-2022	7 days	2 days	✔
Anions and Nutrients : Fluoride in Water by IC										
HDPE [ON MECP] OW-1	E235.F	25-Oct-2022	28-Oct-2022	----	----		31-Oct-2022	28 days	7 days	✔
Anions and Nutrients : Fluoride in Water by IC										
HDPE [ON MECP] OW-10D	E235.F	25-Oct-2022	31-Oct-2022	----	----		31-Oct-2022	28 days	7 days	✔
Anions and Nutrients : Fluoride in Water by IC										
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Anions and Nutrients : Fluoride in Water by IC											
HDPE [ON MECP] OW-16D	E235.F	25-Oct-2022	31-Oct-2022	----	----		31-Oct-2022	28 days	7 days	✔	
Anions and Nutrients : Fluoride in Water by IC											
HDPE [ON MECP] OW-16S	E235.F	25-Oct-2022	31-Oct-2022	----	----		31-Oct-2022	28 days	7 days	✔	
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Anions and Nutrients : Nitrate in Water by IC											
HDPE [ON MECP] OW-1	E235.NO3	25-Oct-2022	28-Oct-2022	----	----		31-Oct-2022	7 days	7 days	✔	
Anions and Nutrients : Nitrate in Water by IC											
HDPE [ON MECP] OW-10D	E235.NO3	25-Oct-2022	31-Oct-2022	----	----		31-Oct-2022	7 days	7 days	✔	
Anions and Nutrients : Nitrate in Water by IC											
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Anions and Nutrients : Nitrate in Water by IC											
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Anions and Nutrients : Nitrate in Water by IC											
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Anions and Nutrients : Nitrate in Water by IC											
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Anions and Nutrients : Nitrite in Water by IC											
HDPE [ON MECP] OW-1	E235.NO2	25-Oct-2022	28-Oct-2022	----	----		31-Oct-2022	7 days	7 days	✔	
Anions and Nutrients : Nitrite in Water by IC											
HDPE [ON MECP] OW-10D	E235.NO2	25-Oct-2022	31-Oct-2022	----	----		31-Oct-2022	7 days	7 days	✔	
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Anions and Nutrients : Nitrite in Water by IC											
HDPE [ON MECP] OW-2S	E235.NO2	25-Oct-2022	28-Oct-2022	----	----		31-Oct-2022	7 days	7 days	✔	
Anions and Nutrients : Nitrite in Water by IC											
HDPE [ON MECP] OW-3D	E235.NO2	25-Oct-2022	31-Oct-2022	----	----		31-Oct-2022	7 days	7 days	✔	
Anions and Nutrients : Nitrite in Water by IC											
HDPE [ON MECP] OW-3S	E235.NO2	25-Oct-2022	28-Oct-2022	----	----		31-Oct-2022	7 days	7 days	✔	
Anions and Nutrients : Nitrite in Water by IC											
HDPE [ON MECP] OW-7S	E235.NO2	25-Oct-2022	31-Oct-2022	----	----		31-Oct-2022	7 days	7 days	✔	
Anions and Nutrients : Nitrite in Water by IC											
HDPE [ON MECP] W-7D	E235.NO2	25-Oct-2022	31-Oct-2022	----	----		31-Oct-2022	7 days	7 days	✔	
Anions and Nutrients : Sulfate in Water by IC											
HDPE [ON MECP] OW-1	E235.SO4	25-Oct-2022	28-Oct-2022	----	----		31-Oct-2022	28 days	7 days	✔	



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis				
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval	
				Rec	Actual			Rec	Actual		
Anions and Nutrients : Sulfate in Water by IC											
HDPE [ON MECP] OW-10D	E235.S04	25-Oct-2022	31-Oct-2022	----	----		31-Oct-2022	28 days	7 days	✔	
Anions and Nutrients : Sulfate in Water by IC											
HDPE [ON MECP] OW-10S	E235.S04	25-Oct-2022	31-Oct-2022	----	----		31-Oct-2022	28 days	7 days	✔	
Anions and Nutrients : Sulfate in Water by IC											
HDPE [ON MECP] OW-12D	E235.S04	25-Oct-2022	31-Oct-2022	----	----		31-Oct-2022	28 days	7 days	✔	
Anions and Nutrients : Sulfate in Water by IC											
HDPE [ON MECP] OW-13D	E235.S04	25-Oct-2022	31-Oct-2022	----	----		31-Oct-2022	28 days	7 days	✔	
Anions and Nutrients : Sulfate in Water by IC											
HDPE [ON MECP] OW-13S	E235.S04	25-Oct-2022	31-Oct-2022	----	----		31-Oct-2022	28 days	7 days	✔	
Anions and Nutrients : Sulfate in Water by IC											
HDPE [ON MECP] OW-16D	E235.S04	25-Oct-2022	31-Oct-2022	----	----		31-Oct-2022	28 days	7 days	✔	
Anions and Nutrients : Sulfate in Water by IC											
HDPE [ON MECP] OW-16S	E235.S04	25-Oct-2022	31-Oct-2022	----	----		31-Oct-2022	28 days	7 days	✔	
Anions and Nutrients : Sulfate in Water by IC											
HDPE [ON MECP] OW-20D	E235.S04	25-Oct-2022	31-Oct-2022	----	----		31-Oct-2022	28 days	7 days	✔	
Anions and Nutrients : Sulfate in Water by IC											
HDPE [ON MECP] OW-20S	E235.S04	25-Oct-2022	31-Oct-2022	----	----		31-Oct-2022	28 days	7 days	✔	



Matrix: **Water** Evaluation: * = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis				
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval	
				Rec	Actual			Rec	Actual		
Anions and Nutrients : Sulfate in Water by IC											
HDPE [ON MECP] OW-2D	E235.S04	25-Oct-2022	28-Oct-2022	----	----		31-Oct-2022	28 days	7 days	✓	
Anions and Nutrients : Sulfate in Water by IC											
HDPE [ON MECP] OW-2S	E235.S04	25-Oct-2022	28-Oct-2022	----	----		31-Oct-2022	28 days	7 days	✓	
Anions and Nutrients : Sulfate in Water by IC											
HDPE [ON MECP] OW-3D	E235.S04	25-Oct-2022	31-Oct-2022	----	----		31-Oct-2022	28 days	7 days	✓	
Anions and Nutrients : Sulfate in Water by IC											
HDPE [ON MECP] OW-3S	E235.S04	25-Oct-2022	28-Oct-2022	----	----		31-Oct-2022	28 days	7 days	✓	
Anions and Nutrients : Sulfate in Water by IC											
HDPE [ON MECP] OW-7S	E235.S04	25-Oct-2022	31-Oct-2022	----	----		31-Oct-2022	28 days	7 days	✓	
Anions and Nutrients : Sulfate in Water by IC											
HDPE [ON MECP] W-7D	E235.S04	25-Oct-2022	31-Oct-2022	----	----		31-Oct-2022	28 days	7 days	✓	
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS											
HDPE dissolved (nitric acid) OW-1	E421	25-Oct-2022	26-Oct-2022	----	----		26-Oct-2022	180 days	1 days	✓	
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS											
HDPE dissolved (nitric acid) OW-10D	E421	25-Oct-2022	26-Oct-2022	----	----		26-Oct-2022	180 days	1 days	✓	
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS											
HDPE dissolved (nitric acid) OW-10S	E421	25-Oct-2022	26-Oct-2022	----	----		26-Oct-2022	180 days	1 days	✓	



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis				
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval	
				Rec	Actual			Rec	Actual		
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS											
HDPE dissolved (nitric acid) OW-12D	E421	25-Oct-2022	26-Oct-2022	----	----		26-Oct-2022	180 days	1 days	✔	
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS											
HDPE dissolved (nitric acid) OW-13D	E421	25-Oct-2022	26-Oct-2022	----	----		26-Oct-2022	180 days	1 days	✔	
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS											
HDPE dissolved (nitric acid) OW-13S	E421	25-Oct-2022	26-Oct-2022	----	----		26-Oct-2022	180 days	1 days	✔	
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS											
HDPE dissolved (nitric acid) OW-16D	E421	25-Oct-2022	26-Oct-2022	----	----		26-Oct-2022	180 days	1 days	✔	
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS											
HDPE dissolved (nitric acid) OW-16S	E421	25-Oct-2022	26-Oct-2022	----	----		26-Oct-2022	180 days	1 days	✔	
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS											
HDPE dissolved (nitric acid) OW-20D	E421	25-Oct-2022	26-Oct-2022	----	----		26-Oct-2022	180 days	1 days	✔	
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS											
HDPE dissolved (nitric acid) OW-20S	E421	25-Oct-2022	26-Oct-2022	----	----		26-Oct-2022	180 days	1 days	✔	
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS											
HDPE dissolved (nitric acid) OW-2D	E421	25-Oct-2022	26-Oct-2022	----	----		26-Oct-2022	180 days	1 days	✔	
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS											
HDPE dissolved (nitric acid) OW-2S	E421	25-Oct-2022	26-Oct-2022	----	----		26-Oct-2022	180 days	1 days	✔	



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis				
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval	
				Rec	Actual			Rec	Actual		
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS											
HDPE dissolved (nitric acid) OW-3D	E421	25-Oct-2022	26-Oct-2022	----	----		26-Oct-2022	180 days	1 days	✔	
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS											
HDPE dissolved (nitric acid) OW-3S	E421	25-Oct-2022	26-Oct-2022	----	----		26-Oct-2022	180 days	1 days	✔	
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS											
HDPE dissolved (nitric acid) OW-7S	E421	25-Oct-2022	26-Oct-2022	----	----		26-Oct-2022	180 days	1 days	✔	
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS											
HDPE dissolved (nitric acid) W-7D	E421	25-Oct-2022	26-Oct-2022	----	----		26-Oct-2022	180 days	1 days	✔	
Physical Tests : Alkalinity Species by Titration											
HDPE [ON MECP] OW-1	E290	25-Oct-2022	28-Oct-2022	----	----		02-Nov-2022	14 days	9 days	✔	
Physical Tests : Alkalinity Species by Titration											
HDPE [ON MECP] OW-10D	E290	25-Oct-2022	31-Oct-2022	----	----		02-Nov-2022	14 days	9 days	✔	
Physical Tests : Alkalinity Species by Titration											
HDPE [ON MECP] OW-10S	E290	25-Oct-2022	31-Oct-2022	----	----		02-Nov-2022	14 days	9 days	✔	
Physical Tests : Alkalinity Species by Titration											
HDPE [ON MECP] OW-12D	E290	25-Oct-2022	31-Oct-2022	----	----		02-Nov-2022	14 days	9 days	✔	
Physical Tests : Alkalinity Species by Titration											
HDPE [ON MECP] OW-13D	E290	25-Oct-2022	31-Oct-2022	----	----		02-Nov-2022	14 days	9 days	✔	



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : Alkalinity Species by Titration										
HDPE [ON MECP] OW-13S	E290	25-Oct-2022	31-Oct-2022	----	----		02-Nov-2022	14 days	9 days	✔
Physical Tests : Alkalinity Species by Titration										
HDPE [ON MECP] OW-16D	E290	25-Oct-2022	31-Oct-2022	----	----		02-Nov-2022	14 days	9 days	✔
Physical Tests : Alkalinity Species by Titration										
HDPE [ON MECP] OW-16S	E290	25-Oct-2022	31-Oct-2022	----	----		02-Nov-2022	14 days	9 days	✔
Physical Tests : Alkalinity Species by Titration										
HDPE [ON MECP] OW-20D	E290	25-Oct-2022	31-Oct-2022	----	----		02-Nov-2022	14 days	9 days	✔
Physical Tests : Alkalinity Species by Titration										
HDPE [ON MECP] OW-20S	E290	25-Oct-2022	31-Oct-2022	----	----		02-Nov-2022	14 days	9 days	✔
Physical Tests : Alkalinity Species by Titration										
HDPE [ON MECP] OW-2D	E290	25-Oct-2022	28-Oct-2022	----	----		02-Nov-2022	14 days	9 days	✔
Physical Tests : Alkalinity Species by Titration										
HDPE [ON MECP] OW-2S	E290	25-Oct-2022	28-Oct-2022	----	----		02-Nov-2022	14 days	9 days	✔
Physical Tests : Alkalinity Species by Titration										
HDPE [ON MECP] OW-3D	E290	25-Oct-2022	31-Oct-2022	----	----		02-Nov-2022	14 days	9 days	✔
Physical Tests : Alkalinity Species by Titration										
HDPE [ON MECP] OW-3S	E290	25-Oct-2022	28-Oct-2022	----	----		02-Nov-2022	14 days	9 days	✔



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : Alkalinity Species by Titration										
HDPE [ON MECP] OW-7S	E290	25-Oct-2022	31-Oct-2022	----	----		02-Nov-2022	14 days	9 days	✔
Physical Tests : Alkalinity Species by Titration										
HDPE [ON MECP] W-7D	E290	25-Oct-2022	31-Oct-2022	----	----		02-Nov-2022	14 days	9 days	✔
Physical Tests : Colour (Apparent) by Spectrometer										
HDPE [ON MECP] OW-1	E330	25-Oct-2022	----	----	----		26-Oct-2022	48 hrs	41 hrs	✔
Physical Tests : Colour (Apparent) by Spectrometer										
HDPE [ON MECP] OW-10D	E330	25-Oct-2022	----	----	----		26-Oct-2022	48 hrs	41 hrs	✔
Physical Tests : Colour (Apparent) by Spectrometer										
HDPE [ON MECP] OW-10S	E330	25-Oct-2022	----	----	----		26-Oct-2022	48 hrs	41 hrs	✔
Physical Tests : Colour (Apparent) by Spectrometer										
HDPE [ON MECP] OW-12D	E330	25-Oct-2022	----	----	----		26-Oct-2022	48 hrs	41 hrs	✔
Physical Tests : Colour (Apparent) by Spectrometer										
HDPE [ON MECP] OW-13D	E330	25-Oct-2022	----	----	----		26-Oct-2022	48 hrs	41 hrs	✔
Physical Tests : Colour (Apparent) by Spectrometer										
HDPE [ON MECP] OW-13S	E330	25-Oct-2022	----	----	----		26-Oct-2022	48 hrs	41 hrs	✔
Physical Tests : Colour (Apparent) by Spectrometer										
HDPE [ON MECP] OW-16D	E330	25-Oct-2022	----	----	----		26-Oct-2022	48 hrs	41 hrs	✔



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : Colour (Apparent) by Spectrometer										
HDPE [ON MECP] OW-16S	E330	25-Oct-2022	----	----	----		26-Oct-2022	48 hrs	41 hrs	✔
Physical Tests : Colour (Apparent) by Spectrometer										
HDPE [ON MECP] OW-20D	E330	25-Oct-2022	----	----	----		26-Oct-2022	48 hrs	41 hrs	✔
Physical Tests : Colour (Apparent) by Spectrometer										
HDPE [ON MECP] OW-20S	E330	25-Oct-2022	----	----	----		26-Oct-2022	48 hrs	41 hrs	✔
Physical Tests : Colour (Apparent) by Spectrometer										
HDPE [ON MECP] OW-2D	E330	25-Oct-2022	----	----	----		26-Oct-2022	48 hrs	41 hrs	✔
Physical Tests : Colour (Apparent) by Spectrometer										
HDPE [ON MECP] OW-2S	E330	25-Oct-2022	----	----	----		26-Oct-2022	48 hrs	41 hrs	✔
Physical Tests : Colour (Apparent) by Spectrometer										
HDPE [ON MECP] OW-3D	E330	25-Oct-2022	----	----	----		26-Oct-2022	48 hrs	41 hrs	✔
Physical Tests : Colour (Apparent) by Spectrometer										
HDPE [ON MECP] OW-3S	E330	25-Oct-2022	----	----	----		26-Oct-2022	48 hrs	41 hrs	✔
Physical Tests : Colour (Apparent) by Spectrometer										
HDPE [ON MECP] OW-7S	E330	25-Oct-2022	----	----	----		26-Oct-2022	48 hrs	41 hrs	✔
Physical Tests : Colour (Apparent) by Spectrometer										
HDPE [ON MECP] W-7D	E330	25-Oct-2022	----	----	----		26-Oct-2022	48 hrs	41 hrs	✔



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis				
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval	
				Rec	Actual			Rec	Actual		
Physical Tests : Conductivity in Water											
HDPE [ON MECP] OW-1	E100	25-Oct-2022	28-Oct-2022	----	----		02-Nov-2022	28 days	9 days	✔	
Physical Tests : Conductivity in Water											
HDPE [ON MECP] OW-10D	E100	25-Oct-2022	31-Oct-2022	----	----		02-Nov-2022	28 days	9 days	✔	
Physical Tests : Conductivity in Water											
HDPE [ON MECP] OW-10S	E100	25-Oct-2022	31-Oct-2022	----	----		02-Nov-2022	28 days	9 days	✔	
Physical Tests : Conductivity in Water											
HDPE [ON MECP] OW-12D	E100	25-Oct-2022	31-Oct-2022	----	----		02-Nov-2022	28 days	9 days	✔	
Physical Tests : Conductivity in Water											
HDPE [ON MECP] OW-13D	E100	25-Oct-2022	31-Oct-2022	----	----		02-Nov-2022	28 days	9 days	✔	
Physical Tests : Conductivity in Water											
HDPE [ON MECP] OW-13S	E100	25-Oct-2022	31-Oct-2022	----	----		02-Nov-2022	28 days	9 days	✔	
Physical Tests : Conductivity in Water											
HDPE [ON MECP] OW-16D	E100	25-Oct-2022	31-Oct-2022	----	----		02-Nov-2022	28 days	9 days	✔	
Physical Tests : Conductivity in Water											
HDPE [ON MECP] OW-16S	E100	25-Oct-2022	31-Oct-2022	----	----		02-Nov-2022	28 days	9 days	✔	
Physical Tests : Conductivity in Water											
HDPE [ON MECP] OW-20D	E100	25-Oct-2022	31-Oct-2022	----	----		02-Nov-2022	28 days	9 days	✔	



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : Conductivity in Water										
HDPE [ON MECP] OW-20S	E100	25-Oct-2022	31-Oct-2022	----	----		02-Nov-2022	28 days	9 days	✔
Physical Tests : Conductivity in Water										
HDPE [ON MECP] OW-2D	E100	25-Oct-2022	28-Oct-2022	----	----		02-Nov-2022	28 days	9 days	✔
Physical Tests : Conductivity in Water										
HDPE [ON MECP] OW-2S	E100	25-Oct-2022	28-Oct-2022	----	----		02-Nov-2022	28 days	9 days	✔
Physical Tests : Conductivity in Water										
HDPE [ON MECP] OW-3D	E100	25-Oct-2022	31-Oct-2022	----	----		02-Nov-2022	28 days	9 days	✔
Physical Tests : Conductivity in Water										
HDPE [ON MECP] OW-3S	E100	25-Oct-2022	28-Oct-2022	----	----		02-Nov-2022	28 days	9 days	✔
Physical Tests : Conductivity in Water										
HDPE [ON MECP] OW-7S	E100	25-Oct-2022	31-Oct-2022	----	----		02-Nov-2022	28 days	9 days	✔
Physical Tests : Conductivity in Water										
HDPE [ON MECP] W-7D	E100	25-Oct-2022	31-Oct-2022	----	----		02-Nov-2022	28 days	9 days	✔
Physical Tests : pH by Meter										
HDPE [ON MECP] OW-1	E108	25-Oct-2022	28-Oct-2022	----	----		02-Nov-2022	14 days	9 days	✔
Physical Tests : pH by Meter										
HDPE [ON MECP] OW-10D	E108	25-Oct-2022	31-Oct-2022	----	----		02-Nov-2022	14 days	9 days	✔



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis				
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval	
				Rec	Actual			Rec	Actual		
Physical Tests : pH by Meter											
HDPE [ON MECP] OW-10S	E108	25-Oct-2022	31-Oct-2022	----	----		02-Nov-2022	14 days	9 days	✔	
Physical Tests : pH by Meter											
HDPE [ON MECP] OW-12D	E108	25-Oct-2022	31-Oct-2022	----	----		02-Nov-2022	14 days	9 days	✔	
Physical Tests : pH by Meter											
HDPE [ON MECP] OW-13D	E108	25-Oct-2022	31-Oct-2022	----	----		02-Nov-2022	14 days	9 days	✔	
Physical Tests : pH by Meter											
HDPE [ON MECP] OW-13S	E108	25-Oct-2022	31-Oct-2022	----	----		02-Nov-2022	14 days	9 days	✔	
Physical Tests : pH by Meter											
HDPE [ON MECP] OW-16D	E108	25-Oct-2022	31-Oct-2022	----	----		02-Nov-2022	14 days	9 days	✔	
Physical Tests : pH by Meter											
HDPE [ON MECP] OW-16S	E108	25-Oct-2022	31-Oct-2022	----	----		02-Nov-2022	14 days	9 days	✔	
Physical Tests : pH by Meter											
HDPE [ON MECP] OW-20D	E108	25-Oct-2022	31-Oct-2022	----	----		02-Nov-2022	14 days	9 days	✔	
Physical Tests : pH by Meter											
HDPE [ON MECP] OW-20S	E108	25-Oct-2022	31-Oct-2022	----	----		02-Nov-2022	14 days	9 days	✔	
Physical Tests : pH by Meter											
HDPE [ON MECP] OW-2D	E108	25-Oct-2022	28-Oct-2022	----	----		02-Nov-2022	14 days	9 days	✔	



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis				
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval	
				Rec	Actual			Rec	Actual		
Physical Tests : pH by Meter											
HDPE [ON MECP] OW-2S	E108	25-Oct-2022	28-Oct-2022	----	----		02-Nov-2022	14 days	9 days	✔	
Physical Tests : pH by Meter											
HDPE [ON MECP] OW-3D	E108	25-Oct-2022	31-Oct-2022	----	----		02-Nov-2022	14 days	9 days	✔	
Physical Tests : pH by Meter											
HDPE [ON MECP] OW-3S	E108	25-Oct-2022	28-Oct-2022	----	----		02-Nov-2022	14 days	9 days	✔	
Physical Tests : pH by Meter											
HDPE [ON MECP] OW-7S	E108	25-Oct-2022	31-Oct-2022	----	----		02-Nov-2022	14 days	9 days	✔	
Physical Tests : pH by Meter											
HDPE [ON MECP] W-7D	E108	25-Oct-2022	31-Oct-2022	----	----		02-Nov-2022	14 days	9 days	✔	
Physical Tests : TDS by Gravimetry											
HDPE [ON MECP] OW-1	E162	25-Oct-2022	----	----	----		28-Oct-2022	7 days	4 days	✔	
Physical Tests : TDS by Gravimetry											
HDPE [ON MECP] OW-10D	E162	25-Oct-2022	----	----	----		28-Oct-2022	7 days	4 days	✔	
Physical Tests : TDS by Gravimetry											
HDPE [ON MECP] OW-10S	E162	25-Oct-2022	----	----	----		28-Oct-2022	7 days	4 days	✔	
Physical Tests : TDS by Gravimetry											
HDPE [ON MECP] OW-12D	E162	25-Oct-2022	----	----	----		28-Oct-2022	7 days	4 days	✔	



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : TDS by Gravimetry										
HDPE [ON MECP] OW-13D	E162	25-Oct-2022	----	----	----		28-Oct-2022	7 days	4 days	✔
Physical Tests : TDS by Gravimetry										
HDPE [ON MECP] OW-13S	E162	25-Oct-2022	----	----	----		28-Oct-2022	7 days	4 days	✔
Physical Tests : TDS by Gravimetry										
HDPE [ON MECP] OW-16D	E162	25-Oct-2022	----	----	----		28-Oct-2022	7 days	4 days	✔
Physical Tests : TDS by Gravimetry										
HDPE [ON MECP] OW-16S	E162	25-Oct-2022	----	----	----		28-Oct-2022	7 days	4 days	✔
Physical Tests : TDS by Gravimetry										
HDPE [ON MECP] OW-20D	E162	25-Oct-2022	----	----	----		28-Oct-2022	7 days	4 days	✔
Physical Tests : TDS by Gravimetry										
HDPE [ON MECP] OW-20S	E162	25-Oct-2022	----	----	----		28-Oct-2022	7 days	4 days	✔
Physical Tests : TDS by Gravimetry										
HDPE [ON MECP] OW-2D	E162	25-Oct-2022	----	----	----		28-Oct-2022	7 days	4 days	✔
Physical Tests : TDS by Gravimetry										
HDPE [ON MECP] OW-2S	E162	25-Oct-2022	----	----	----		28-Oct-2022	7 days	4 days	✔
Physical Tests : TDS by Gravimetry										
HDPE [ON MECP] OW-3D	E162	25-Oct-2022	----	----	----		28-Oct-2022	7 days	4 days	✔



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : TDS by Gravimetry										
HDPE [ON MECP] OW-3S	E162	25-Oct-2022	----	----	----		28-Oct-2022	7 days	4 days	✔
Physical Tests : TDS by Gravimetry										
HDPE [ON MECP] OW-7S	E162	25-Oct-2022	----	----	----		28-Oct-2022	7 days	4 days	✔
Physical Tests : TDS by Gravimetry										
HDPE [ON MECP] W-7D	E162	25-Oct-2022	----	----	----		28-Oct-2022	7 days	4 days	✔
Physical Tests : Turbidity by Nephelometry										
HDPE [ON MECP] OW-1	E121	25-Oct-2022	----	----	----		27-Oct-2022	3 days	2 days	✔
Physical Tests : Turbidity by Nephelometry										
HDPE [ON MECP] OW-10D	E121	25-Oct-2022	----	----	----		27-Oct-2022	3 days	2 days	✔
Physical Tests : Turbidity by Nephelometry										
HDPE [ON MECP] OW-10S	E121	25-Oct-2022	----	----	----		27-Oct-2022	3 days	2 days	✔
Physical Tests : Turbidity by Nephelometry										
HDPE [ON MECP] OW-12D	E121	25-Oct-2022	----	----	----		27-Oct-2022	3 days	2 days	✔
Physical Tests : Turbidity by Nephelometry										
HDPE [ON MECP] OW-13D	E121	25-Oct-2022	----	----	----		27-Oct-2022	3 days	2 days	✔
Physical Tests : Turbidity by Nephelometry										
HDPE [ON MECP] OW-13S	E121	25-Oct-2022	----	----	----		27-Oct-2022	3 days	2 days	✔



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : Turbidity by Nephelometry										
HDPE [ON MECP] OW-16D	E121	25-Oct-2022	----	----	----		27-Oct-2022	3 days	2 days	✔
Physical Tests : Turbidity by Nephelometry										
HDPE [ON MECP] OW-16S	E121	25-Oct-2022	----	----	----		27-Oct-2022	3 days	2 days	✔
Physical Tests : Turbidity by Nephelometry										
HDPE [ON MECP] OW-20D	E121	25-Oct-2022	----	----	----		27-Oct-2022	3 days	2 days	✔
Physical Tests : Turbidity by Nephelometry										
HDPE [ON MECP] OW-20S	E121	25-Oct-2022	----	----	----		27-Oct-2022	3 days	2 days	✔
Physical Tests : Turbidity by Nephelometry										
HDPE [ON MECP] OW-2D	E121	25-Oct-2022	----	----	----		27-Oct-2022	3 days	2 days	✔
Physical Tests : Turbidity by Nephelometry										
HDPE [ON MECP] OW-2S	E121	25-Oct-2022	----	----	----		27-Oct-2022	3 days	2 days	✔
Physical Tests : Turbidity by Nephelometry										
HDPE [ON MECP] OW-3D	E121	25-Oct-2022	----	----	----		27-Oct-2022	3 days	2 days	✔
Physical Tests : Turbidity by Nephelometry										
HDPE [ON MECP] OW-3S	E121	25-Oct-2022	----	----	----		27-Oct-2022	3 days	2 days	✔
Physical Tests : Turbidity by Nephelometry										
HDPE [ON MECP] OW-7S	E121	25-Oct-2022	----	----	----		27-Oct-2022	3 days	2 days	✔



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : Turbidity by Nephelometry										
HDPE [ON MECP] W-7D	E121	25-Oct-2022	----	----	----		27-Oct-2022	3 days	2 days	✔

Legend & Qualifier Definitions

Rec. HT: ALS recommended hold time (see units).



Quality Control Parameter Frequency Compliance

The following report summarizes the frequency of laboratory QC samples analyzed within the analytical batches (QC lots) in which the submitted samples were processed. The actual frequency should be greater than or equal to the expected frequency.

Matrix: **Water** Evaluation: * = QC frequency outside specification; ✓ = QC frequency within specification.

Quality Control Sample Type	Method	QC Lot #	Count		Frequency (%)		
			QC	Regular	Actual	Expected	Evaluation
Analytical Methods							
Laboratory Duplicates (DUP)							
Alkalinity Species by Titration	E290	720680	2	30	6.6	5.0	✓
Ammonia by Fluorescence	E298	719712	1	19	5.2	5.0	✓
Chloride in Water by IC	E235.Cl	720672	2	39	5.1	5.0	✓
Colour (Apparent) by Spectrometer	E330	716171	2	40	5.0	5.0	✓
Conductivity in Water	E100	720679	2	34	5.8	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	715112	1	20	5.0	5.0	✓
Dissolved Orthophosphate by Colourimetry (0.003 mg/L)	E378-T	715033	2	26	7.6	5.0	✓
Fluoride in Water by IC	E235.F	720673	2	36	5.5	5.0	✓
Nitrate in Water by IC	E235.NO3	720674	2	30	6.6	5.0	✓
Nitrite in Water by IC	E235.NO2	720675	2	30	6.6	5.0	✓
pH by Meter	E108	720678	2	40	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	720671	2	36	5.5	5.0	✓
TDS by Gravimetry	E162	720032	1	20	5.0	5.0	✓
Turbidity by Nephelometry	E121	717205	1	20	5.0	5.0	✓
Laboratory Control Samples (LCS)							
Alkalinity Species by Titration	E290	720680	2	30	6.6	5.0	✓
Ammonia by Fluorescence	E298	719712	1	19	5.2	5.0	✓
Chloride in Water by IC	E235.Cl	720672	2	39	5.1	5.0	✓
Colour (Apparent) by Spectrometer	E330	716171	2	40	5.0	5.0	✓
Conductivity in Water	E100	720679	2	34	5.8	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	715112	1	20	5.0	5.0	✓
Dissolved Orthophosphate by Colourimetry (0.003 mg/L)	E378-T	715033	2	26	7.6	5.0	✓
Fluoride in Water by IC	E235.F	720673	2	36	5.5	5.0	✓
Nitrate in Water by IC	E235.NO3	720674	2	30	6.6	5.0	✓
Nitrite in Water by IC	E235.NO2	720675	2	30	6.6	5.0	✓
pH by Meter	E108	720678	2	40	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	720671	2	36	5.5	5.0	✓
TDS by Gravimetry	E162	720032	1	20	5.0	5.0	✓
Turbidity by Nephelometry	E121	717205	1	20	5.0	5.0	✓
Method Blanks (MB)							
Alkalinity Species by Titration	E290	720680	2	30	6.6	5.0	✓
Ammonia by Fluorescence	E298	719712	1	19	5.2	5.0	✓
Chloride in Water by IC	E235.Cl	720672	2	39	5.1	5.0	✓
Colour (Apparent) by Spectrometer	E330	716171	2	40	5.0	5.0	✓
Conductivity in Water	E100	720679	2	34	5.8	5.0	✓



Matrix: **Water** Evaluation: ✖ = QC frequency outside specification; ✔ = QC frequency within specification.

Quality Control Sample Type	Method	QC Lot #	Count		Frequency (%)		
			QC	Regular	Actual	Expected	Evaluation
<i>Analytical Methods</i>							
Method Blanks (MB) - Continued							
Dissolved Metals in Water by CRC ICPMS	E421	715112	1	20	5.0	5.0	✔
Dissolved Orthophosphate by Colourimetry (0.003 mg/L)	E378-T	715033	2	26	7.6	5.0	✔
Fluoride in Water by IC	E235.F	720673	2	36	5.5	5.0	✔
Nitrate in Water by IC	E235.NO3	720674	2	30	6.6	5.0	✔
Nitrite in Water by IC	E235.NO2	720675	2	30	6.6	5.0	✔
Sulfate in Water by IC	E235.SO4	720671	2	36	5.5	5.0	✔
TDS by Gravimetry	E162	720032	1	20	5.0	5.0	✔
Turbidity by Nephelometry	E121	717205	1	20	5.0	5.0	✔
Matrix Spikes (MS)							
Ammonia by Fluorescence	E298	719712	1	19	5.2	5.0	✔
Chloride in Water by IC	E235.Cl	720672	2	39	5.1	5.0	✔
Dissolved Metals in Water by CRC ICPMS	E421	715112	1	20	5.0	5.0	✔
Dissolved Orthophosphate by Colourimetry (0.003 mg/L)	E378-T	715033	2	26	7.6	5.0	✔
Fluoride in Water by IC	E235.F	720673	2	36	5.5	5.0	✔
Nitrate in Water by IC	E235.NO3	720674	2	30	6.6	5.0	✔
Nitrite in Water by IC	E235.NO2	720675	2	30	6.6	5.0	✔
Sulfate in Water by IC	E235.SO4	720671	2	36	5.5	5.0	✔



Methodology References and Summaries

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Reference methods may incorporate modifications to improve performance (indicated by "mod").

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Conductivity in Water	E100 Waterloo - Environmental	Water	APHA 2510 (mod)	Conductivity, also known as Electrical Conductivity (EC) or Specific Conductance, is measured by immersion of a conductivity cell with platinum electrodes into a water sample. Conductivity measurements are temperature-compensated to 25°C.
pH by Meter	E108 Waterloo - Environmental	Water	APHA 4500-H (mod)	pH is determined by potentiometric measurement with a pH electrode, and is conducted at ambient laboratory temperature (normally 20 ± 5°C). For high accuracy test results, pH should be measured in the field within the recommended 15 minute hold time.
Turbidity by Nephelometry	E121 Waterloo - Environmental	Water	APHA 2130 B (mod)	Turbidity is measured by the nephelometric method, by measuring the intensity of light scatter under defined conditions.
TDS by Gravimetry	E162 Waterloo - Environmental	Water	APHA 2540 C (mod)	Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, with evaporation of the filtrate at 180 ± 2°C for 16 hours or to constant weight, with gravimetric measurement of the residue.
Chloride in Water by IC	E235.Cl Waterloo - Environmental	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Fluoride in Water by IC	E235.F Waterloo - Environmental	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrite in Water by IC	E235.NO2 Waterloo - Environmental	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrate in Water by IC	E235.NO3 Waterloo - Environmental	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Sulfate in Water by IC	E235.SO4 Waterloo - Environmental	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Alkalinity Species by Titration	E290 Waterloo - Environmental	Water	APHA 2320 B (mod)	Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.



Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Ammonia by Fluorescence	E298 Waterloo - Environmental	Water	Method Fialab 100, 2018	Ammonia in water is determined by automated continuous flow analysis with membrane diffusion and fluorescence detection, after reaction with OPA (ortho-phthalaldehyde). This method is approved under US EPA 40 CFR Part 136 (May 2021)
Colour (Apparent) by Spectrometer	E330 Waterloo - Environmental	Water	APHA 2120 C (mod)	Colour (Apparent) is measured in an unfiltered sample spectrophotometrically using the single wavelength method. The colour contribution of settleable solids are not included in the result. This method is intended for potable waters. Colour measurements can be highly pH dependent, and apply to the pH of the sample as received (at time of testing), without pH adjustment.
Dissolved Orthophosphate by Colourimetry (0.003 mg/L)	E378-T Waterloo - Environmental	Water	APHA 4500-P E (mod)	Dissolved Orthophosphate is determined colourimetrically on a water sample that has been lab or field filtered through a 0.45 micron membrane filter. Field filtration is recommended to ensure test results represent conditions at time of sampling.
Dissolved Metals in Water by CRC ICPMS	E421 Waterloo - Environmental	Water	APHA 3030B/EPA 6020B (mod)	Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by Collision/Reaction Cell ICPMS. Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Preparation for Ammonia	EP298 Waterloo - Environmental	Water		Sample preparation for Preserved Nutrients Water Quality Analysis.
Dissolved Metals Water Filtration	EP421 Waterloo - Environmental	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HNO3.

QUALITY CONTROL REPORT

Work Order	: WT2219367	Page	: 1 of 14
Amendment	: 1		
Client	: Bluewater Geoscience Consultants Inc.	Laboratory	: Waterloo - Environmental
Contact	: Breton Lemieux	Account Manager	: Gayle Braun
Address	: 42 Shadyridge Place Kitchener ON Canada N2N 3J1	Address	: 60 Northland Road, Unit 1 Waterloo, Ontario Canada N2V 2B8
Telephone	:	Telephone	: +1 519 886 6910
Project	: BG-817	Date Samples Received	: 25-Oct-2022 14:00
PO	: ----	Date Analysis Commenced	: 26-Oct-2022
C-O-C number	: 20-1006823,20-1006822	Issue Date	: 16-Nov-2022 17:11
Sampler	: ---- 519 744 4123		
Site	: ----		
Quote number	: SOA		
No. of samples received	: 16		
No. of samples analysed	: 16		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percent Difference (RPD) and Data Quality Objectives
- Matrix Spike (MS) Report; Recovery and Data Quality Objectives
- Method Blank (MB) Report; Recovery and Data Quality Objectives
- Laboratory Control Sample (LCS) Report; Recovery and Data Quality Objectives

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Laboratory Department</i>
Greg Pokocky	Supervisor - Inorganic	Waterloo Inorganics, Waterloo, Ontario
Jon Fisher	Department Manager - Inorganics	Waterloo Inorganics, Waterloo, Ontario
Jon Fisher	Department Manager - Inorganics	Waterloo Metals, Waterloo, Ontario

Page : 2 of 14
Work Order : WT2219367 Amendment 1
Client : Bluewater Geoscience Consultants Inc.
Project : BG-817



General Comments

The ALS Quality Control (QC) report is optionally provided to ALS clients upon request. ALS test methods include comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against predetermined Data Quality Objectives (DQOs) to provide confidence in the accuracy of associated test results. This report contains detailed results for all QC results applicable to this sample submission. Please refer to the ALS Quality Control Interpretation report (QCI) for applicable method references and methodology summaries.

Key :

Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.

CAS Number = Chemical Abstracts Service number is a unique identifier assigned to discrete substances.

DQO = Data Quality Objective.

LOR = Limit of Reporting (detection limit).

RPD = Relative Percent Difference

= Indicates a QC result that did not meet the ALS DQO.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.



Laboratory Duplicate (DUP) Report

A Laboratory Duplicate (DUP) is a randomly selected intralaboratory replicate sample. Laboratory Duplicates provide information regarding method precision and sample heterogeneity. ALS DQOs for Laboratory Duplicates are expressed as test-specific limits for Relative Percent Difference (RPD), or as an absolute difference limit of 2 times the LOR for low concentration duplicates within ~ 4-10 times the LOR (cut-off is test-specific).

Sub-Matrix: Water					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Physical Tests (QC Lot: 716171)											
WR2201337-001	Anonymous	colour, apparent	----	E330	2.0	CU	<2.0	<2.0	0	Diff <2x LOR	----
Physical Tests (QC Lot: 716172)											
WT2219367-005	OW-3D	colour, apparent	----	E330	2.0	CU	41.9	43.8	4.29%	20%	----
Physical Tests (QC Lot: 717205)											
WT2219367-001	OW-1	turbidity	----	E121	0.10	NTU	76.9	82.5	7.03%	15%	----
Physical Tests (QC Lot: 720032)											
WT2219367-001	OW-1	solids, total dissolved [TDS]	----	E162	20	mg/L	394	401	1.89%	20%	----
Physical Tests (QC Lot: 720678)											
WT2219367-001	OW-1	pH	----	E108	0.10	pH units	7.89	7.98	1.13%	4%	----
Physical Tests (QC Lot: 720679)											
WT2219367-001	OW-1	conductivity	----	E100	1.0	µS/cm	568	564	0.707%	10%	----
Physical Tests (QC Lot: 720680)											
WT2219367-001	OW-1	alkalinity, total (as CaCO ₃)	----	E290	1.0	mg/L	330	309	6.64%	20%	----
Physical Tests (QC Lot: 722967)											
WT2219367-005	OW-3D	pH	----	E108	0.10	pH units	7.28	7.33	0.684%	4%	----
Physical Tests (QC Lot: 722968)											
WT2219367-005	OW-3D	conductivity	----	E100	1.0	µS/cm	1630	1660	1.46%	10%	----
Physical Tests (QC Lot: 722969)											
WT2219367-005	OW-3D	alkalinity, total (as CaCO ₃)	----	E290	1.0	mg/L	820	820	0.00%	20%	----
Anions and Nutrients (QC Lot: 715033)											
WT2219367-011	OW-13S	phosphate, ortho-, dissolved (as P)	14265-44-2	E378-T	0.0030	mg/L	<0.0030	<0.0030	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 715564)											
WT2219219-001	Anonymous	phosphate, ortho-, dissolved (as P)	14265-44-2	E378-T	0.0030	mg/L	<0.0030	<0.0030	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 719712)											
WT2219293-001	Anonymous	ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 720671)											
WT2219419-001	Anonymous	sulfate (as SO ₄)	14808-79-8	E235.SO4	0.30	mg/L	16.3	16.3	0.0819%	20%	----
Anions and Nutrients (QC Lot: 720672)											
WT2219419-001	Anonymous	chloride	16887-00-6	E235.Cl	0.50	mg/L	12.9	13.0	0.607%	20%	----
Anions and Nutrients (QC Lot: 720673)											



Sub-Matrix: Water					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Anions and Nutrients (QC Lot: 720673) - continued											
WT2219419-001	Anonymous	fluoride	16984-48-8	E235.F	0.020	mg/L	0.513	0.530	3.21%	20%	----
Anions and Nutrients (QC Lot: 720674)											
WT2219419-001	Anonymous	nitrate (as N)	14797-55-8	E235.NO3	0.020	mg/L	0.060	0.065	0.005	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 720675)											
WT2219419-001	Anonymous	nitrite (as N)	14797-65-0	E235.NO2	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 722960)											
WT2219497-001	Anonymous	chloride	16887-00-6	E235.Cl	0.50	mg/L	20.5	20.5	0.209%	20%	----
Anions and Nutrients (QC Lot: 722961)											
WT2219497-001	Anonymous	fluoride	16984-48-8	E235.F	0.020	mg/L	0.058	0.059	0.001	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 722962)											
WT2219497-001	Anonymous	nitrate (as N)	14797-55-8	E235.NO3	0.020	mg/L	<0.020	<0.020	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 722963)											
WT2219497-001	Anonymous	nitrite (as N)	14797-65-0	E235.NO2	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 722964)											
WT2219497-001	Anonymous	sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	48.8	49.0	0.373%	20%	----
Dissolved Metals (QC Lot: 715112)											
WT2219219-001	Anonymous	aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		antimony, dissolved	7440-36-0	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	0.00386	0.00388	0.364%	20%	----
		barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.114	0.115	0.840%	20%	----
		beryllium, dissolved	7440-41-7	E421	0.000020	mg/L	<0.000020	<0.000020	0	Diff <2x LOR	----
		bismuth, dissolved	7440-69-9	E421	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		boron, dissolved	7440-42-8	E421	0.010	mg/L	0.087	0.086	0.0008	Diff <2x LOR	----
		cadmium, dissolved	7440-43-9	E421	0.0000050	mg/L	0.0000056	0.0000055	0.0000001	Diff <2x LOR	----
		calcium, dissolved	7440-70-2	E421	0.050	mg/L	52.8	52.5	0.498%	20%	----
		cesium, dissolved	7440-46-2	E421	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		chromium, dissolved	7440-47-3	E421	0.00050	mg/L	0.00150	0.00150	0.000005	Diff <2x LOR	----
		cobalt, dissolved	7440-48-4	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		copper, dissolved	7440-50-8	E421	0.00020	mg/L	0.00301	0.00302	0.308%	20%	----
		iron, dissolved	7439-89-6	E421	0.010	mg/L	0.097	0.096	0.001	Diff <2x LOR	----
		lead, dissolved	7439-92-1	E421	0.000050	mg/L	0.000403	0.000400	0.000003	Diff <2x LOR	----
		lithium, dissolved	7439-93-2	E421	0.0010	mg/L	0.0040	0.0039	0.00009	Diff <2x LOR	----
		magnesium, dissolved	7439-95-4	E421	0.0050	mg/L	24.0	23.7	1.40%	20%	----
		manganese, dissolved	7439-96-5	E421	0.00010	mg/L	0.00628	0.00637	1.40%	20%	----



Sub-Matrix: Water					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Dissolved Metals (QC Lot: 715112) - continued											
WT2219219-001	Anonymous	molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	0.00578	0.00570	1.26%	20%	----
		nickel, dissolved	7440-02-0	E421	0.000050	mg/L	0.00079	0.00082	0.00003	Diff <2x LOR	----
		phosphorus, dissolved	7723-14-0	E421	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		potassium, dissolved	7440-09-7	E421	0.050	mg/L	1.02	1.02	0.246%	20%	----
		rubidium, dissolved	7440-17-7	E421	0.000020	mg/L	0.00040	0.00040	0.000007	Diff <2x LOR	----
		selenium, dissolved	7782-49-2	E421	0.000050	mg/L	0.000058	0.000063	0.000005	Diff <2x LOR	----
		silicon, dissolved	7440-21-3	E421	0.050	mg/L	5.37	5.38	0.298%	20%	----
		silver, dissolved	7440-22-4	E421	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		sodium, dissolved	7440-23-5	E421	0.050	mg/L	29.0	29.2	0.506%	20%	----
		strontium, dissolved	7440-24-6	E421	0.000020	mg/L	0.954	0.959	0.490%	20%	----
		sulfur, dissolved	7704-34-9	E421	0.50	mg/L	37.6	37.5	0.446%	20%	----
		tellurium, dissolved	13494-80-9	E421	0.000020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
		thallium, dissolved	7440-28-0	E421	0.000010	mg/L	0.000042	0.000047	0.000004	Diff <2x LOR	----
		thorium, dissolved	7440-29-1	E421	0.000010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		tin, dissolved	7440-31-5	E421	0.000010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		titanium, dissolved	7440-32-6	E421	0.000030	mg/L	<0.00030	<0.00030	0	Diff <2x LOR	----
		tungsten, dissolved	7440-33-7	E421	0.000010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		uranium, dissolved	7440-61-1	E421	0.000010	mg/L	0.000662	0.000669	0.991%	20%	----
		vanadium, dissolved	7440-62-2	E421	0.000050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		zinc, dissolved	7440-66-6	E421	0.0010	mg/L	0.0160	0.0159	0.833%	20%	----
		zirconium, dissolved	7440-67-7	E421	0.000020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----



Method Blank (MB) Report

A Method Blank is an analyte-free matrix that undergoes sample processing identical to that carried out for test samples. Method Blank results are used to monitor and control for potential contamination from the laboratory environment and reagents. For most tests, the DQO for Method Blanks is for the result to be < LOR.

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 716171)						
colour, apparent	---	E330	2	CU	<2.0	---
Physical Tests (QCLot: 716172)						
colour, apparent	---	E330	2	CU	<2.0	---
Physical Tests (QCLot: 717205)						
turbidity	---	E121	0.1	NTU	<0.10	---
Physical Tests (QCLot: 720032)						
solids, total dissolved [TDS]	---	E162	10	mg/L	<10	---
Physical Tests (QCLot: 720679)						
conductivity	---	E100	1	µS/cm	<1.0	---
Physical Tests (QCLot: 720680)						
alkalinity, total (as CaCO ₃)	---	E290	1	mg/L	1.1	---
Physical Tests (QCLot: 722968)						
conductivity	---	E100	1	µS/cm	<1.0	---
Physical Tests (QCLot: 722969)						
alkalinity, total (as CaCO ₃)	---	E290	1	mg/L	<1.0	---
Anions and Nutrients (QCLot: 715033)						
phosphate, ortho-, dissolved (as P)	14265-44-2	E378-T	0.003	mg/L	<0.0030	---
Anions and Nutrients (QCLot: 715564)						
phosphate, ortho-, dissolved (as P)	14265-44-2	E378-T	0.003	mg/L	<0.0030	---
Anions and Nutrients (QCLot: 719712)						
ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	<0.0050	---
Anions and Nutrients (QCLot: 720671)						
sulfate (as SO ₄)	14808-79-8	E235.SO4	0.3	mg/L	<0.30	---
Anions and Nutrients (QCLot: 720672)						
chloride	16887-00-6	E235.Cl	0.5	mg/L	<0.50	---
Anions and Nutrients (QCLot: 720673)						
fluoride	16984-48-8	E235.F	0.02	mg/L	<0.020	---
Anions and Nutrients (QCLot: 720674)						
nitrate (as N)	14797-55-8	E235.NO3	0.02	mg/L	<0.020	---
Anions and Nutrients (QCLot: 720675)						
nitrite (as N)	14797-65-0	E235.NO2	0.01	mg/L	<0.010	---
Anions and Nutrients (QCLot: 722960)						



Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Anions and Nutrients (QCLot: 722960) - continued						
chloride	16887-00-6	E235.Cl	0.5	mg/L	<0.50	----
Anions and Nutrients (QCLot: 722961)						
fluoride	16984-48-8	E235.F	0.02	mg/L	<0.020	----
Anions and Nutrients (QCLot: 722962)						
nitrate (as N)	14797-55-8	E235.NO3	0.02	mg/L	<0.020	----
Anions and Nutrients (QCLot: 722963)						
nitrite (as N)	14797-65-0	E235.NO2	0.01	mg/L	<0.010	----
Anions and Nutrients (QCLot: 722964)						
sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	<0.30	----
Dissolved Metals (QCLot: 715112)						
aluminum, dissolved	7429-90-5	E421	0.001	mg/L	<0.0010	----
antimony, dissolved	7440-36-0	E421	0.0001	mg/L	<0.00010	----
arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	<0.00010	----
barium, dissolved	7440-39-3	E421	0.0001	mg/L	<0.00010	----
beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	<0.000020	----
bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	<0.000050	----
boron, dissolved	7440-42-8	E421	0.01	mg/L	<0.010	----
cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	<0.0000050	----
calcium, dissolved	7440-70-2	E421	0.05	mg/L	<0.050	----
cesium, dissolved	7440-46-2	E421	0.00001	mg/L	<0.000010	----
chromium, dissolved	7440-47-3	E421	0.0005	mg/L	<0.00050	----
cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	<0.00010	----
copper, dissolved	7440-50-8	E421	0.0002	mg/L	<0.00020	----
iron, dissolved	7439-89-6	E421	0.01	mg/L	<0.010	----
lead, dissolved	7439-92-1	E421	0.00005	mg/L	<0.000050	----
lithium, dissolved	7439-93-2	E421	0.001	mg/L	<0.0010	----
magnesium, dissolved	7439-95-4	E421	0.005	mg/L	<0.0050	----
manganese, dissolved	7439-96-5	E421	0.0001	mg/L	<0.00010	----
molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	<0.000050	----
nickel, dissolved	7440-02-0	E421	0.0005	mg/L	<0.00050	----
phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	<0.050	----
potassium, dissolved	7440-09-7	E421	0.05	mg/L	<0.050	----
rubidium, dissolved	7440-17-7	E421	0.0002	mg/L	<0.00020	----
selenium, dissolved	7782-49-2	E421	0.00005	mg/L	<0.000050	----
silicon, dissolved	7440-21-3	E421	0.05	mg/L	<0.050	----



Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Dissolved Metals (QCLot: 715112) - continued						
silver, dissolved	7440-22-4	E421	0.00001	mg/L	<0.000010	----
sodium, dissolved	7440-23-5	E421	0.05	mg/L	<0.050	----
strontium, dissolved	7440-24-6	E421	0.0002	mg/L	<0.00020	----
sulfur, dissolved	7704-34-9	E421	0.5	mg/L	<0.50	----
tellurium, dissolved	13494-80-9	E421	0.0002	mg/L	<0.00020	----
thallium, dissolved	7440-28-0	E421	0.00001	mg/L	<0.000010	----
thorium, dissolved	7440-29-1	E421	0.0001	mg/L	<0.00010	----
tin, dissolved	7440-31-5	E421	0.0001	mg/L	<0.00010	----
titanium, dissolved	7440-32-6	E421	0.0003	mg/L	<0.00030	----
tungsten, dissolved	7440-33-7	E421	0.0001	mg/L	<0.00010	----
uranium, dissolved	7440-61-1	E421	0.00001	mg/L	<0.000010	----
vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	<0.00050	----
zinc, dissolved	7440-66-6	E421	0.001	mg/L	<0.0010	----
zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	<0.00020	----



Laboratory Control Sample (LCS) Report

A Laboratory Control Sample (LCS) is an analyte-free matrix that has been fortified (spiked) with test analytes at known concentration and processed in an identical manner to test samples. LCS results are expressed as percent recovery, and are used to monitor and control test method accuracy and precision, independent of test sample matrix.

Sub-Matrix: Water

					Laboratory Control Sample (LCS) Report				
Analyte	CAS Number	Method	LOR	Unit	Spike	Recovery (%)	Recovery Limits (%)		Qualifier
					Concentration	LCS	Low	High	
Physical Tests (QCLot: 716171)									
colour, apparent	---	E330	2	CU	25 CU	99.5	70.0	130	---
Physical Tests (QCLot: 716172)									
colour, apparent	---	E330	2	CU	25 CU	106	70.0	130	---
Physical Tests (QCLot: 717205)									
turbidity	---	E121	0.1	NTU	200 NTU	94.4	85.0	115	---
Physical Tests (QCLot: 720032)									
solids, total dissolved [TDS]	---	E162	10	mg/L	1000 mg/L	102	85.0	115	---
Physical Tests (QCLot: 720678)									
pH	---	E108	---	pH units	7 pH units	101	98.0	102	---
Physical Tests (QCLot: 720679)									
conductivity	---	E100	1	µS/cm	1409 µS/cm	98.2	90.0	110	---
Physical Tests (QCLot: 720680)									
alkalinity, total (as CaCO ₃)	---	E290	1	mg/L	150 mg/L	105	85.0	115	---
Physical Tests (QCLot: 722967)									
pH	---	E108	---	pH units	7 pH units	101	98.0	102	---
Physical Tests (QCLot: 722968)									
conductivity	---	E100	1	µS/cm	1409 µS/cm	97.9	90.0	110	---
Physical Tests (QCLot: 722969)									
alkalinity, total (as CaCO ₃)	---	E290	1	mg/L	150 mg/L	104	85.0	115	---
Anions and Nutrients (QCLot: 715033)									
phosphate, ortho-, dissolved (as P)	14265-44-2	E378-T	0.003	mg/L	0.0212 mg/L	106	80.0	120	---
Anions and Nutrients (QCLot: 715564)									
phosphate, ortho-, dissolved (as P)	14265-44-2	E378-T	0.003	mg/L	0.0212 mg/L	107	80.0	120	---
Anions and Nutrients (QCLot: 719712)									
ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	100	85.0	115	---
Anions and Nutrients (QCLot: 720671)									
sulfate (as SO ₄)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	103	90.0	110	---
Anions and Nutrients (QCLot: 720672)									
chloride	16887-00-6	E235.Cl	0.5	mg/L	100 mg/L	101	90.0	110	---
Anions and Nutrients (QCLot: 720673)									
fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	100	90.0	110	---



Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Anions and Nutrients (QCLot: 720674)									
nitrate (as N)	14797-55-8	E235.NO3	0.02	mg/L	2.5 mg/L	101	90.0	110	----
Anions and Nutrients (QCLot: 720675)									
nitrite (as N)	14797-65-0	E235.NO2	0.01	mg/L	0.5 mg/L	101	90.0	110	----
Anions and Nutrients (QCLot: 722960)									
chloride	16887-00-6	E235.Cl	0.5	mg/L	100 mg/L	100	90.0	110	----
Anions and Nutrients (QCLot: 722961)									
fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	99.4	90.0	110	----
Anions and Nutrients (QCLot: 722962)									
nitrate (as N)	14797-55-8	E235.NO3	0.02	mg/L	2.5 mg/L	99.4	90.0	110	----
Anions and Nutrients (QCLot: 722963)									
nitrite (as N)	14797-65-0	E235.NO2	0.01	mg/L	0.5 mg/L	98.6	90.0	110	----
Anions and Nutrients (QCLot: 722964)									
sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	102	90.0	110	----
Dissolved Metals (QCLot: 715112)									
aluminum, dissolved	7429-90-5	E421	0.001	mg/L	0.1 mg/L	108	80.0	120	----
antimony, dissolved	7440-36-0	E421	0.0001	mg/L	0.05 mg/L	101	80.0	120	----
arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	0.05 mg/L	107	80.0	120	----
barium, dissolved	7440-39-3	E421	0.0001	mg/L	0.0125 mg/L	108	80.0	120	----
beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	0.005 mg/L	103	80.0	120	----
bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	0.05 mg/L	101	80.0	120	----
boron, dissolved	7440-42-8	E421	0.01	mg/L	0.05 mg/L	100.0	80.0	120	----
cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	0.005 mg/L	105	80.0	120	----
calcium, dissolved	7440-70-2	E421	0.05	mg/L	2.5 mg/L	106	80.0	120	----
cesium, dissolved	7440-46-2	E421	0.00001	mg/L	0.0025 mg/L	104	80.0	120	----
chromium, dissolved	7440-47-3	E421	0.0005	mg/L	0.0125 mg/L	104	80.0	120	----
cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	0.0125 mg/L	105	80.0	120	----
copper, dissolved	7440-50-8	E421	0.0002	mg/L	0.0125 mg/L	103	80.0	120	----
iron, dissolved	7439-89-6	E421	0.01	mg/L	0.05 mg/L	110	80.0	120	----
lead, dissolved	7439-92-1	E421	0.00005	mg/L	0.025 mg/L	104	80.0	120	----
lithium, dissolved	7439-93-2	E421	0.001	mg/L	0.0125 mg/L	103	80.0	120	----
magnesium, dissolved	7439-95-4	E421	0.005	mg/L	2.5 mg/L	106	80.0	120	----
manganese, dissolved	7439-96-5	E421	0.0001	mg/L	0.0125 mg/L	104	80.0	120	----
molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	0.0125 mg/L	101	80.0	120	----
nickel, dissolved	7440-02-0	E421	0.0005	mg/L	0.025 mg/L	105	80.0	120	----
phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	0.5 mg/L	113	80.0	120	----



Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Dissolved Metals (QCLot: 715112) - continued									
potassium, dissolved	7440-09-7	E421	0.05	mg/L	2.5 mg/L	107	80.0	120	----
rubidium, dissolved	7440-17-7	E421	0.0002	mg/L	0.005 mg/L	109	80.0	120	----
selenium, dissolved	7782-49-2	E421	0.00005	mg/L	0.05 mg/L	103	80.0	120	----
silicon, dissolved	7440-21-3	E421	0.05	mg/L	0.5 mg/L	105	60.0	140	----
silver, dissolved	7440-22-4	E421	0.00001	mg/L	0.005 mg/L	108	80.0	120	----
sodium, dissolved	7440-23-5	E421	0.05	mg/L	2.5 mg/L	107	80.0	120	----
strontium, dissolved	7440-24-6	E421	0.0002	mg/L	0.0125 mg/L	103	80.0	120	----
sulfur, dissolved	7704-34-9	E421	0.5	mg/L	2.5 mg/L	98.5	80.0	120	----
tellurium, dissolved	13494-80-9	E421	0.0002	mg/L	0.005 mg/L	99.7	80.0	120	----
thallium, dissolved	7440-28-0	E421	0.00001	mg/L	0.05 mg/L	104	80.0	120	----
thorium, dissolved	7440-29-1	E421	0.0001	mg/L	0.005 mg/L	104	80.0	120	----
tin, dissolved	7440-31-5	E421	0.0001	mg/L	0.025 mg/L	103	80.0	120	----
titanium, dissolved	7440-32-6	E421	0.0003	mg/L	0.0125 mg/L	99.8	80.0	120	----
tungsten, dissolved	7440-33-7	E421	0.0001	mg/L	0.005 mg/L	106	80.0	120	----
uranium, dissolved	7440-61-1	E421	0.00001	mg/L	0.00025 mg/L	107	80.0	120	----
vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	0.025 mg/L	106	80.0	120	----
zinc, dissolved	7440-66-6	E421	0.001	mg/L	0.025 mg/L	119	80.0	120	----
zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	0.005 mg/L	99.3	80.0	120	----



Matrix Spike (MS) Report

A Matrix Spike (MS) is a randomly selected intra-laboratory replicate sample that has been fortified (spiked) with test analytes at known concentration, and processed in an identical manner to test samples. Matrix Spikes provide information regarding analyte recovery and potential matrix effects. MS DQO exceedances due to sample matrix may sometimes be unavoidable; in such cases, test results for the associated sample (or similar samples) may be subject to bias. ND – Recovery not determined, background level >= 1x spike level.

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Anions and Nutrients (QCLot: 715033)										
WT2219367-011	OW-13S	phosphate, ortho-, dissolved (as P)	14265-44-2	E378-T	0.0219 mg/L	0.0196 mg/L	112	70.0	130	----
Anions and Nutrients (QCLot: 715564)										
WT2219219-001	Anonymous	phosphate, ortho-, dissolved (as P)	14265-44-2	E378-T	0.0208 mg/L	0.0196 mg/L	106	70.0	130	----
Anions and Nutrients (QCLot: 719712)										
WT2219293-001	Anonymous	ammonia, total (as N)	7664-41-7	E298	0.0985 mg/L	0.1 mg/L	98.5	75.0	125	----
Anions and Nutrients (QCLot: 720671)										
WT2219419-001	Anonymous	sulfate (as SO4)	14808-79-8	E235.SO4	98.8 mg/L	100 mg/L	98.8	75.0	125	----
Anions and Nutrients (QCLot: 720672)										
WT2219419-001	Anonymous	chloride	16887-00-6	E235.Cl	99.6 mg/L	100 mg/L	99.6	75.0	125	----
Anions and Nutrients (QCLot: 720673)										
WT2219419-001	Anonymous	fluoride	16984-48-8	E235.F	1.03 mg/L	1 mg/L	103	75.0	125	----
Anions and Nutrients (QCLot: 720674)										
WT2219419-001	Anonymous	nitrate (as N)	14797-55-8	E235.NO3	2.45 mg/L	2.5 mg/L	97.9	75.0	125	----
Anions and Nutrients (QCLot: 720675)										
WT2219419-001	Anonymous	nitrite (as N)	14797-65-0	E235.NO2	0.499 mg/L	0.5 mg/L	99.8	75.0	125	----
Anions and Nutrients (QCLot: 722960)										
WT2219497-001	Anonymous	chloride	16887-00-6	E235.Cl	96.9 mg/L	100 mg/L	96.9	75.0	125	----
Anions and Nutrients (QCLot: 722961)										
WT2219497-001	Anonymous	fluoride	16984-48-8	E235.F	0.958 mg/L	1 mg/L	95.8	75.0	125	----
Anions and Nutrients (QCLot: 722962)										
WT2219497-001	Anonymous	nitrate (as N)	14797-55-8	E235.NO3	2.24 mg/L	2.5 mg/L	89.7	75.0	125	----
Anions and Nutrients (QCLot: 722963)										
WT2219497-001	Anonymous	nitrite (as N)	14797-65-0	E235.NO2	0.506 mg/L	0.5 mg/L	101	75.0	125	----
Anions and Nutrients (QCLot: 722964)										
WT2219497-001	Anonymous	sulfate (as SO4)	14808-79-8	E235.SO4	96.9 mg/L	100 mg/L	96.9	75.0	125	----
Dissolved Metals (QCLot: 715112)										
WT2219303-009	Anonymous	aluminum, dissolved	7429-90-5	E421	0.111 mg/L	0.1 mg/L	111	70.0	130	----



Sub-Matrix: Water

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Dissolved Metals (QCLot: 715112) - continued										
WT2219303-009	Anonymous	antimony, dissolved	7440-36-0	E421	0.0540 mg/L	0.05 mg/L	108	70.0	130	----
		arsenic, dissolved	7440-38-2	E421	0.0655 mg/L	0.05 mg/L	131	70.0	130	MES
		barium, dissolved	7440-39-3	E421	ND mg/L	0.0125 mg/L	ND	70.0	130	----
		beryllium, dissolved	7440-41-7	E421	0.00516 mg/L	0.005 mg/L	103	70.0	130	----
		bismuth, dissolved	7440-69-9	E421	0.0445 mg/L	0.05 mg/L	89.0	70.0	130	----
		boron, dissolved	7440-42-8	E421	ND mg/L	0.05 mg/L	ND	70.0	130	----
		cadmium, dissolved	7440-43-9	E421	0.00543 mg/L	0.005 mg/L	108	70.0	130	----
		calcium, dissolved	7440-70-2	E421	ND mg/L	2.5 mg/L	ND	70.0	130	----
		cesium, dissolved	7440-46-2	E421	0.00282 mg/L	0.0025 mg/L	113	70.0	130	----
		chromium, dissolved	7440-47-3	E421	0.0136 mg/L	0.0125 mg/L	109	70.0	130	----
		cobalt, dissolved	7440-48-4	E421	0.0132 mg/L	0.0125 mg/L	106	70.0	130	----
		copper, dissolved	7440-50-8	E421	0.0123 mg/L	0.0125 mg/L	98.7	70.0	130	----
		iron, dissolved	7439-89-6	E421	0.055 mg/L	0.05 mg/L	109	70.0	130	----
		lead, dissolved	7439-92-1	E421	0.0251 mg/L	0.025 mg/L	100	70.0	130	----
		lithium, dissolved	7439-93-2	E421	ND mg/L	0.0125 mg/L	ND	70.0	130	----
		magnesium, dissolved	7439-95-4	E421	ND mg/L	2.5 mg/L	ND	70.0	130	----
		manganese, dissolved	7439-96-5	E421	ND mg/L	0.0125 mg/L	ND	70.0	130	----
		molybdenum, dissolved	7439-98-7	E421	ND mg/L	0.0125 mg/L	ND	70.0	130	----
		nickel, dissolved	7440-02-0	E421	0.0250 mg/L	0.025 mg/L	100	70.0	130	----
		phosphorus, dissolved	7723-14-0	E421	0.647 mg/L	0.5 mg/L	129	70.0	130	----
		potassium, dissolved	7440-09-7	E421	2.74 mg/L	2.5 mg/L	110	70.0	130	----
		rubidium, dissolved	7440-17-7	E421	0.00556 mg/L	0.005 mg/L	111	70.0	130	----
		selenium, dissolved	7782-49-2	E421	0.0723 mg/L	0.05 mg/L	144	70.0	130	MES
		silicon, dissolved	7440-21-3	E421	ND mg/L	0.5 mg/L	ND	70.0	130	----
		silver, dissolved	7440-22-4	E421	0.00393 mg/L	0.005 mg/L	78.6	70.0	130	----
		sodium, dissolved	7440-23-5	E421	ND mg/L	2.5 mg/L	ND	70.0	130	----
		strontium, dissolved	7440-24-6	E421	ND mg/L	0.0125 mg/L	ND	70.0	130	----
		sulfur, dissolved	7704-34-9	E421	ND mg/L	2.5 mg/L	ND	70.0	130	----
		tellurium, dissolved	13494-80-9	E421	0.00566 mg/L	0.005 mg/L	113	70.0	130	----
		thallium, dissolved	7440-28-0	E421	0.0504 mg/L	0.05 mg/L	101	70.0	130	----
		thorium, dissolved	7440-29-1	E421	0.00529 mg/L	0.005 mg/L	106	70.0	130	----
		tin, dissolved	7440-31-5	E421	0.0271 mg/L	0.025 mg/L	108	70.0	130	----
		titanium, dissolved	7440-32-6	E421	0.0135 mg/L	0.0125 mg/L	108	70.0	130	----
		tungsten, dissolved	7440-33-7	E421	0.00538 mg/L	0.005 mg/L	108	70.0	130	----
		uranium, dissolved	7440-61-1	E421	ND mg/L	0.00025 mg/L	ND	70.0	130	----



Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Dissolved Metals (QCLot: 715112) - continued										
WT2219303-009	Anonymous	vanadium, dissolved	7440-62-2	E421	0.0282 mg/L	0.025 mg/L	113	70.0	130	----
		zinc, dissolved	7440-66-6	E421	0.0245 mg/L	0.025 mg/L	97.9	70.0	130	----
		zirconium, dissolved	7440-67-7	E421	0.00565 mg/L	0.005 mg/L	113	70.0	130	----

Qualifiers

Qualifier	Description
MES	Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable as per OMOE & CCME).



Telephone: +1 519 886 6910

Report To Contact and company name below will appear on the final report Company: Bluewater Geoscience Contact: B. LEMIEUX Phone: Company address below will appear on the final report Street: City/Province: Postal Code:		Reports / Recipients Select Report Format: <input checked="" type="checkbox"/> PDF <input type="checkbox"/> EXCEL <input type="checkbox"/> EDD (DIGITAL) Merge QC/QCI Reports with COA <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> N/A <input checked="" type="checkbox"/> Compare Results to Criteria on Report - provide details below if box checked Select Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX Email 1 or Fax: Email 2: Email 3:		Turnaround Time (TAT) Requested <input checked="" type="checkbox"/> Routine [R] if received by 3pm M-F - no surcharges apply <input type="checkbox"/> 4 day [P4] if received by 3pm M-F - 20% rush surcharge minimum <input type="checkbox"/> 3 day [P3] if received by 3pm M-F - 25% rush surcharge minimum <input type="checkbox"/> 2 day [P2] if received by 3pm M-F - 50% rush surcharge minimum <input type="checkbox"/> 1 day [E] if received by 3pm M-F - 100% rush surcharge minimum <input type="checkbox"/> Same day [E2] if received by 10am M-S - 200% rush surcharge. Add may apply to rush requests on weekends, statutory holidays and non-	
Invoice To Same as Report To <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO Copy of Invoice with Report <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO		Invoice Recipients Select Invoice Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX Email 1 or Fax: Email 2:		Date and Time Required for all E&P TATs:	
Project Information ALS Account # / Quote #: Q07598 Job #: BE-017 PO / AFE: LSD:		Oil and Gas Required Fields (client use) AFE/Cost Center: Major/Minor Code: Requisitioner: Location:		Analysis Request Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below	
ALS Lab Work Order # (ALS use only): WT2219367		ALS Contact: GAYLE		Sampler: BJL	
ALS Sample # (ALS use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS
	DW-1	25/10/22		GW	4
	DW-2S				
	DW-2D				
	DW-3S				
	DW-3D				
	DW-7S				
	DW-7D				
	DW-10S				
	DW-10D				
	DW-12S				
	DW-12D				
	DW-13S				
Drinking Water (DW) Samples¹ (client use) Are samples taken from a Regulated DW System? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO Are samples for human consumption/ use? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO		Notes / Specify Limits for result evaluation by selecting from drop-down below (Excel COC only) Metals are filt'd/pres'd ODWS		SAMPLE RECEIPT DETAILS (ALS use only) Cooling Method: <input type="checkbox"/> NONE <input type="checkbox"/> ICE <input checked="" type="checkbox"/> ICE PACKS <input type="checkbox"/> FROZEN <input type="checkbox"/> COOLING INITIATED Submission Comments identified on Sample Receipt Notification: <input type="checkbox"/> YES <input type="checkbox"/> NO Cooler Custody Seals Intact: <input type="checkbox"/> YES <input type="checkbox"/> N/A Sample Custody Seals Intact: <input type="checkbox"/> YES <input type="checkbox"/> N/A INITIAL COOLER TEMPERATURES °C: 13.6 FINAL COOLER TEMPERATURES °C: 7.6	
SHIPMENT RELEASE (client use) Released by: BJL Date: Oct 25/22 Time:		INITIAL SHIPMENT RECEPTION (ALS use only) Received by: Date: Time:		FINAL SHIPMENT RECEPTION (ALS use only) Received by: JA Date: 10/25/22 Time: 14:00	

GC-634, MM-352, N-350



www.alsglobal.com

Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878

COC Number: 20 - 1006822

Page 2 of 2

Report To Company: Bluewater Geoscience Contact: B. Lemire Phone: _____ Company address below will appear on the final report		Reports / Recipients Select Report Format: <input checked="" type="checkbox"/> PDF <input type="checkbox"/> EXCEL <input type="checkbox"/> EDD (DIGITAL) Merge QC/QCI Reports with COA <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> N/A <input checked="" type="checkbox"/> Compare Results to Criteria on Report - provide details below if box checked Select Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX		Turnaround Time (TAT) Requested <input checked="" type="checkbox"/> Routine [R] if received by 3pm M-F - no surcharges apply <input type="checkbox"/> 4 day [P4] if received by 3pm M-F - 20% rush surcharge minimum <input type="checkbox"/> 3 day [P3] if received by 3pm M-F - 25% rush surcharge minimum <input type="checkbox"/> 2 day [P2] if received by 3pm M-F - 50% rush surcharge minimum <input type="checkbox"/> 1 day [E] if received by 3pm M-F - 100% rush surcharge minimum <input type="checkbox"/> Same day [E2] if received by 10am M-S - 200% rush surcharge. Additional fees may apply to rush requests on weekends, statutory holidays and non-routine tests		AFFIX ALS BARCODE LABEL HERE (ALS use only)	
Street: _____ City/Province: _____ Postal Code: _____		Email 1 or Fax: _____ Email 2: _____ Email 3: _____		Date and Time Required for all E&P TATs: _____			
Invoice To Same as Report To <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO Copy of Invoice with Report <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO		Invoice Recipients Select Invoice Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX		Analysis Request Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below		SAMPLES ON HOLD EXTENDED STORAGE REQUIRED SUSPECTED HAZARD (see notes)	
Company: _____ Contact: _____		Email 1 or Fax: _____ Email 2: _____		For all tests with rush TATs requested, please contact your AM to confirm availability.			
Project Information ALS Account # / Quote #: Q87598 Job #: B5-B17 PO / AFE: _____ LSD: _____		Oil and Gas Required Fields (client use) AFE/Cost Center: _____ PO#: _____ Major/Minor Code: _____ Routing Code: _____ Requisitioner: _____ Location: _____		NUMBER OF CONTAINERS <i>Gen Chem Pkg. 1</i>			
ALS Lab Work Order # (ALS use only): W17219307		ALS Contact: GAYLE Sampler: BCL					
ALS Sample # (ALS use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type			
	DW-13D	25/10/22		GW	4		
	DW-16S	↓		↓	↓		
	DW-16D						
	DW-20S						
	DW-20D						
Drinking Water (DW) Samples (client use)		Notes / Specify Limits for result evaluation by selecting from drop-down below (Excel COC only)		SAMPLE RECEIPT DETAILS (ALS use only)			
Are samples taken from a Regulated DW System? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO		METAL ARE FILT'D/PRES'D ODWS		Cooling Method: <input type="checkbox"/> NONE <input type="checkbox"/> ICE <input checked="" type="checkbox"/> ICE PACKS <input type="checkbox"/> FROZEN <input type="checkbox"/> COOLING INITIATED			
Are samples for human consumption/ use? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO				Submission Comments identified on Sample Receipt Notification: <input type="checkbox"/> YES <input type="checkbox"/> NO			
				Cooler Custody Seals Intact: <input type="checkbox"/> YES <input type="checkbox"/> N/A Sample Custody Seals Intact: <input type="checkbox"/> YES <input type="checkbox"/> N/A			
				INITIAL COOLER TEMPERATURES °C		FINAL COOLER TEMPERATURES °C	
						B. Lemire	
SHIPMENT RELEASE (client use)		INITIAL SHIPMENT RECEPTION (ALS use only)		FINAL SHIPMENT RECEPTION (ALS use only)			
Released by: BCL	Date: 007-25/22	Time: _____	Received by: _____	Date: _____	Time: _____	Received by: _____	Date: 10/25/22
							1900

Denise Holmes

From: Kathy Hillis <K.Hillis@lsrca.on.ca>
Sent: Wednesday, February 15, 2023 9:30 AM
To: Denise Holmes
Subject: Source Protection Municipal Introduction
Attachments: Source Protection Municipal Introduction_Melancthon.pdf

Please see attached letter from Bill Thompson regarding the protection of raw sources of municipal drinking water through the Drinking Water Source Protection Program. Please circulate as appropriate.

Thank you

Kathy Hillis

Sr. Administrative Assistant, Scanlon Operations and Restoration

Lake Simcoe Region Conservation Authority

120 Bayview Parkway,

Newmarket, Ontario L3Y 3W3

B. 905-895-1281 ext. 222 | 1-800-465-0437

C. 289-338-0154

k.hillis@LSRCA.on.ca | www.LSRCA.on.ca

Twitter: @LSRCA

Facebook: LakeSimcoeConservation

The information in this message (including attachments) is directed in confidence solely to the person(s) named above and may not be otherwise distributed, copied or disclosed. The message may contain information that is privileged, confidential and exempt from disclosure under the Municipal Freedom of Information and Protection of Privacy Act and by the Personal Information Protection Electronic Documents Act. If you have received this message in error, please notify the sender immediately and delete the message without making a copy. Thank you.



South Georgian Bay Lake Simcoe Source Protection Region

February 14, 2023

Sent via email dholmes@melancthontownship.ca

Denise Holmes
CAO/Clerk
Township of Melancthon
157101 Highway 10
R. R. #6 Shelburne, ON L0N 1S9

Dear Mayor and Councillors:

Re: Protection of raw sources of municipal drinking water through the Drinking Water Source Protection Program

For some of you, this will be your first term on municipal Council, and your first introduction to Ontario's Drinking Water Source Protection Program.

Township of Melancthon is part of the South Georgian Bay – Lake Simcoe Source Protection Region. In this Region, the Lake Simcoe Region Conservation Authority, Nottawasaga Valley Conservation Authority and Severn Sound Environmental Association work in close partnership with the South Georgian Bay – Lake Simcoe Source Protection Committee and municipalities to protect the raw sources of municipal drinking water (Attachment 1).

In this Source Protection Region, municipal drinking water is drawn from both surface water and groundwater sources. Both surface water and groundwater can become exposed to contamination, and long-term problems can develop that can be costly or even impossible to correct. There have been many lessons learned and advances made in protecting municipal drinking water sources since the Walkerton Tragedy in 2000.

The Clean Water Act is part of the multi-barrier approach to ensure clean, safe and sustainable drinking water for Ontarians, by protecting the raw sources of municipal drinking water such as lakes, rivers and aquifers. Under this legislation, the Drinking Water Source Protection Program was established, which resulted in the development of science-based assessment reports and local source protection plans by multi-stakeholder source protection committees, supported by source protection authorities. Municipalities play a large role in the implementation of the source protection plans and are a key partner.

Municipal Responsibilities Under the Clean Water Act

Source protection plans require municipalities to implement policies to protect the source water for their drinking water systems. Municipal requirements: including identified vulnerable areas in Official Plan mapping, reviewing planning applications within vulnerable areas to ensure new threats to drinking water are not introduced, and negotiating Risk Management Plans with residents and businesses to manage any existing threats to drinking water. Our Source Protection Plan has been in effect since July 2015, and your staff has put procedures in place to ensure that these requirements are being met.

The Safe Drinking Water Act also requires municipalities to work with your local Source Protection Authority to add any new or expanded municipal drinking water systems to our Source Protection Plan before those systems can come into use. This is an important step to ensure that all future sources of drinking water receive the same level of protection as the ones you are currently using. When this need arises in your municipality, Source Protection Authority staff will work with staff from your municipality to ensure the work is completed, including seeking a resolution from your Council supporting the amendment.

Please find enclosed a primer on Municipal responsibilities under the Clean Water Act (Attachment 2). If there is interest, a brief presentation on the topic could be provided at a future Council meeting.

Sincerely,



Bill Thompson

Project Manager

South Georgian Bay – Lake Simcoe Source Protection Region

Attachments: 2

Drinking Water Source Protection Primer: For Municipal Councillors

Your community relies on safe, sustainable drinking water. Protecting the water at its source is an important first step in the drinking water safety net.

Ontario has a comprehensive Drinking Water Source Protection Program to ensure sources of municipal drinking water are protected now and into the future. Under this program, local source protection plans developed under the Clean Water Act, 2006, are in place. These plans contain policies that protect municipal drinking water sources (water found in lakes, rivers and groundwater aquifers) from contamination and overuse.

Meet your statutory standard of care responsibilities

Source protection plans require municipalities to implement policies to protect the source water for their drinking water systems. The Safe Drinking Water Act, 2002, includes a statutory standard of care (section 19) for individuals with oversight responsibilities for municipal drinking water systems, including municipal councillors.

This standard ensures that you are practicing due diligence to protect public health when making decisions that could affect drinking water. This includes a consideration of the source water characteristics as well as the risks posed to it.



Learn more at: ontario.ca/page/taking-care-your-drinking-water-guide-members-municipal-councils.

Ensure source protection planning is in place

New regulation 205/18 has been established under the Safe Drinking Water Act, 2002, to ensure that source protection planning is in place for new and changing municipal systems, before treated drinking water is provided to the public.



Review the source protection plan for your area to find out what policies are to be implemented within your municipality and what actions are being taken to protect drinking water vulnerable areas.

- Understand how **source protection plan policies** can impact building requirements. Development applications and planning or building permits may be flagged at a municipality for land use planning policies. These applications or permits often need to be reviewed by the local risk management official (RMO) before they can be submitted to the municipality. Proposed activities may require a risk management plan, or in some cases are prohibited.
- When a **risk management plan** is needed, a risk management official works with the landowners/renters to develop a plan that contains measures to protect drinking water sources. A risk management plan is only required when a property is in a vulnerable area and the activity being undertaken poses a significant level risk to drinking water sources.
- **Sewage systems** identified under the Clean Water Act as causing significant level risks to drinking water sources, are subject to mandatory inspections through the Building Code Act, 1992.
- The Drinking Water Source Protection Program does not include **individual private wells**. A private well owner needs to regularly sample their water to test its quality, and properly maintain their well to protect water sources. [The Best Practices for Source Water Protection](#) developed by the Ministry of the Environment, Conservation and Parks, provides guidance for systems not covered under Clean Water Act.

The regulation came into effect on July 1, 2018. Municipal residential drinking water system owners are now responsible for ensuring that vulnerable areas are delineated and vulnerability scores are identified before they apply for a drinking water works permit. Source protection plans must also be amended and approved prior to the treated water being supplied to the public.

Notify your local conservation authority immediately, when planning changes to your drinking water systems, or planning for a new well/intake or a new system.

Provincial Policy Statement

Municipalities and other planning authorities must follow the Provincial Policy Statement. Section 2.2.1 mandates planning authorities to protect, improve or restore the quality and quantity of water. This includes protecting vulnerable areas associated with drinking water sources.

Be informed

- **Your constituents** may come to you with questions about the source of their drinking water supply. Find out how drinking water source protection benefits your region, and the cost of the protection. Know how many municipal wells/surface water intakes there are, where they are located, and who they serve in your municipality. Determine these with help from your municipal staff and local conservation authority.
- **Municipalities** are responsible for implementing more than half of the policies found in source protection plans. Many of these policies are legally binding.



What's a vulnerable area?

Drinking water source protection is based on science. Local scientific data was used to create maps that show drinking water vulnerable areas. In these areas, we need to pay attention to activities causing contamination and overuse of our municipal drinking water sources.

To find out if a property is located in a drinking water vulnerable area, search the Source Protection Information Atlas at ontario.ca/page/source-protection.

There are four types of vulnerable areas:

Wellhead protection areas (WHPAs) are areas around municipal wells where the groundwater is travelling toward that well when the well is being pumped. These areas should be protected from risks to the quality and quantity of the drinking water source.

Intake protection zones (IPZs) are areas of land and water around surface water intakes that should be protected from risks to the quality and quantity of the drinking water source.

Significant groundwater recharge areas (SGRAs) are areas where a relatively high percentage of precipitation seeps into the ground to help maintain the water level in an aquifer that supplies a community or private residence with drinking water.

Highly vulnerable aquifers (HVAs) are areas that are particularly susceptible to contamination based on factors such as the aquifer depth underground, the soil types, soil permeability and other characteristics of the surrounding soil or rock.

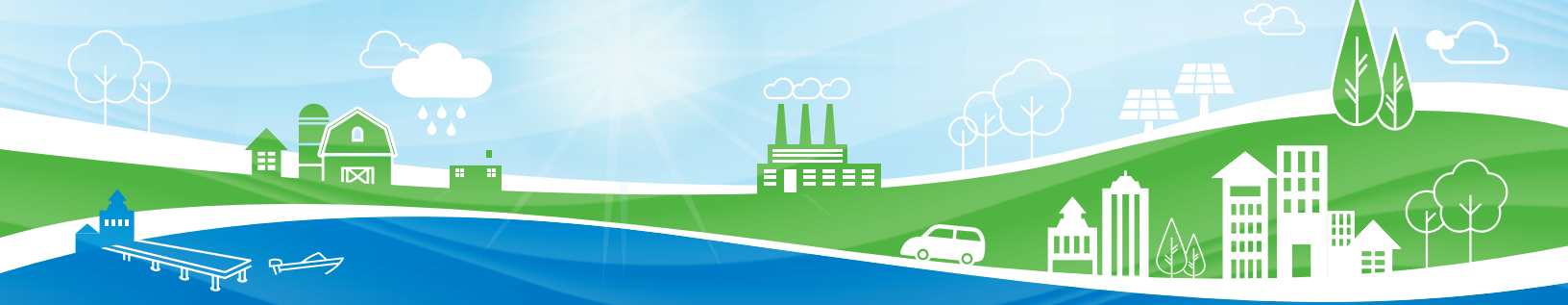
If a water quality issue is identified by source protection committees under the Clean Water Act, issue contributing areas (ICAs) can be delineated within the vulnerable areas. Examples of issues identified in Ontario include nitrate and sodium. Mandatory policies apply within issue contributing areas in order to ensure that the source water quality is protected or improved.

Know the threats to drinking water sources

The Clean Water Act identifies activities that could pose a threat to drinking water sources under certain circumstances. These threat activities may be significant, moderate or low level risks. Identified threats include:

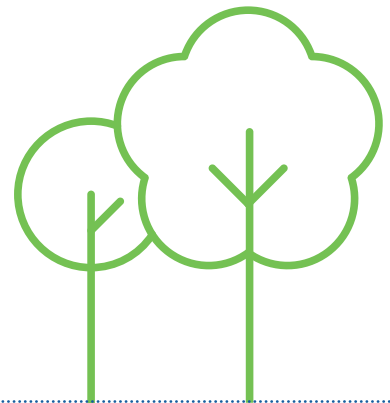
- **Application, handling and storage of agricultural source material (such as manure), non-agricultural source material (such as biosolids), commercial fertilizer, and pesticides.**
- **Handling and storage of fuel, dense non-aqueous phase liquids (DNAPLs*), and organic solvents.**
- **Management of aircraft de-icing chemical runoff.**
- **Land used for livestock grazing or pasturing, outdoor confinement areas, and farm-animal yards.**
- **Application, handling and storage of road salt, and storage of snow.**
- **The establishment, operation and maintenance of systems that collect, store, transmit, treat or dispose of sewage (such as septic systems and sewage treatment plants, stormwater management facilities).**
- **The establishment, operation and maintenance of waste disposal sites (such as landfills).**
- **Activities that take water from a water body without returning the water to the same water body.**
- **An activity that reduces the recharge of an aquifer.**
- **The establishment and operation of a liquid hydrocarbon pipeline (added in April 2018, through an amendment to the Clean Water Act).**

**DNAPLs, or dense non-aqueous phase liquids, are a particularly hazardous group of substances that are heavier than water and are difficult to remove once they contaminate a water source.*



Have you seen this Drinking Water Protection Zone sign?

These signs are appearing across Ontario to raise awareness about the vulnerability of our municipal drinking water sources. Governments at the local and provincial level are placing signs along roadways where a pollution spill could have a negative impact on our drinking water sources.



120 Bayview Pkwy
Newmarket, ON L3Y 3W3
905-895-0716

DRINKING WATER
SOURCE PROTECTION
Our Actions Matter

THE CORPORATION OF THE TOWN OF DEEP RIVER



P.O. BOX 400 • 100 DEEP RIVER ROAD • DEEP RIVER, ONTARIO K0J 1P0
Tel: (613) 584-2000 • www.deepriver.ca • Fax: (613) 584-3237

February 16, 2023

Via: Email

The Honourable Stephen Lecce, Minister of Education
Ministry of Education

Re: Ontario School Board Elections

Dear Honourable Stephen Lecce,

Please be advised that Council of the Town of Deep River, at the Regular Meeting of Council on February 1st, 2023, adopted the following Resolution:

- 6.1.1 School Board Elections Correspondence
Mandi Pearson, Clerk / Operations Clerk, Town of Petrolia

RESOLUTION 2023 29

MOVED BY: Councillor Fitton
SECONDED BY: Councillor Myers

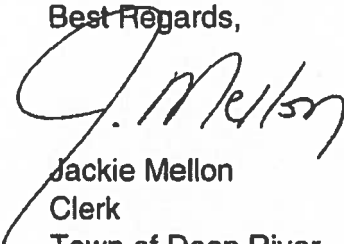
BE IT RESOLVED THAT the correspondence from Ms. Mandi Pearson of the Town of Petrolia, regarding School Board Elections, be received,

THAT Council of the Town of Deep River supports the Resolution passed by the Town of Petrolia Council to request that School Boards become responsible for conducting their own Trustee elections, or at minimum municipalities be compensated by the School Boards for overseeing such Trustee elections; and

THAT staff forward this Resolution to the Honourable Stephen Lecce, Minister of Education, and to Ontario Municipal Councils.

CARRIED

Best Regards,



Jackie Mellon
Clerk
Town of Deep River

cc: Ontario Municipal Councils

MAR 2 2023
INFO #4

Denise Holmes

From: Fitzpatrick, Spencer (MMAH) <Spencer.Fitzpatrick@ontario.ca>
Sent: Thursday, February 16, 2023 4:22 PM
Subject: 2022 Municipal Election Survey Roll Up
Attachments: 2022 Municipal Election Statistics 2023-02-02.pdf

Dear Municipal Clerks:

As you know, the Ministry asked all clerks to complete a survey containing results from the October 2022 municipal election. Thank you for completing and submitting the survey and helping us with our data collection efforts. We understand that was a busy time for clerks and we appreciate the cooperation in providing us with the requested information. I can assure you that the information is a valued resource for the ministry.

I am pleased to share with you the roll up of the information obtained from all municipalities for most of the data collected. Should you have any questions, please do not hesitate to contact me.

Once again, a sincere thank you for providing this information to the ministry.

Best Regards,

Spencer Fitzpatrick

Municipal Advisor
Ministry of Municipal Affairs and Housing
Municipal Services Office – Western Ontario
659 Exeter Road, 2nd Floor
London ON N6E 1L3
Cell: 226-927-0124
Email: spencer.fitzpatrick@ontario.ca



Please note: As part of providing accessible customer service, please let me know if you have any accommodation needs or require communication supports or alternative formats

2022 Municipal Election Statistics

Local Council Statistics (414 single and lower tier municipalities)	PROVINCE		Central		East		West		North		North (Sudbury)		North (Thunder Bay)	
	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage
Total number of local councils	414		62		103		105		144		110		34	
All offices acclaimed	30	7%	1	2%	3	3%	6	6%	20	14%	17	15%	3	9%
At least one office acclaimed ¹	183	44%	24	39%	49	48%	56	53%	54	38%	40	36%	14	41%
With no offices acclaimed	201	49%	37	60%	51	50%	43	41%	70	49%	53	48%	17	50%
Have 50% or more change in membership	137	33%	18	29%	36	35%	29	28%	54	38%	42	38%	12	35%
All new members (included in ≥50% statistic)	10		0		3		3		4		3		1	
No new members	21		3		7		4		7		5		2	
Restricted Acts BEFORE Election	231	56%	34	55%	56	54%	62	59%	79	55%	58	53%	21	62%
Restricted Acts AFTER Election	323	78%	50	81%	82	80%	82	78%	109	76%	83	75%	26	76%
Number of Councils with Vacant Seats¹	2		0		0		0		2		2		0	
Municipalities with nomination period extensions	11		3		1		0		7		5		2	
Municipalities with 3rd Party Advertisers (how many)	58 (103)		24 (57)		12 (20)		17 (20)		5 (6)		3 (4)		2 (2)	

¹ Blind River and Hilliard each have a vacancy with all the other offices acclaimed. They are in the "at least one office acclaimed" for the chart above as technically not all offices were acclaimed. They are not included in voting methods statistics as they did not hold voting for any municipal council office.

Voting Method Statistics (382 municipalities that had voting)	PROVINCE		Central		East		West		North		North (Sudbury)		North (Thunder Bay)	
	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage
Voter Turnout Percentage		32%		29%		39%		31%		40%		39%		43%
Total number who voted	3231821		1661276		686531		649642		234372		171671		62701	
Total number of electors	10215243		5782846		1758082		2088739		585576		438899		146677	
Had voting for municipal council office¹	382		61		100		99		122		91		31	
Advanced voting - more than 1 day	285	75%	58	95%	87	87%	87	88%	53	43%	36	40%	17	55%
Advanced voting - 1 day	54	14%	0	0%	3	3%	6	6%	45	37%	34	37%	11	35%
No advanced voting	43	11%	3	5%	10	10%	6	6%	24	20%	21	23%	3	10%
Municipalities with recounts for any office	16		3		3		2		8		7		1	
Voting Method Summary														
Traditional/paper ballots only	89	23%	8	13%	6	6%	15	15%	60	49%	44	48%	16	52%
Alternative only	201	53%	19	31%	66	66%	66	67%	50	41%	36	40%	14	45%
Traditional and at least 1 alternative	92	24%	34	56%	28	28%	18	18%	12	10%	11	12%	1	3%
Voting Methods Used²														
Traditional/paper ballots	181		42		34		33		72		55		17	
Internet	221		36		83		66		36		22		14	
Telephone	176		17		74		55		30		19		11	
Mail	69		15		9		19		26		25		1	
Touch Screen	30		3		13		11		3		1		2	
Using at least one accessible voting device³	301	79%	57	93%	75	75%	75	76%	94	77%	65	71%	29	94%
Vote counting equipment⁴	112	29%	45	74%	19	19%	36	36%	12	10%	11	12%	1	3%

² municipalities could have more than one voting method so numbers will not add up to number of municipalities.

³ Devices include braille, magnifiers, paddles, sip and puff, and other options mentioned by municipalities included support persons or personal assistance, help centres/desks, descriptions of physical space, specific voting locations and telephone/internet voting methods.

⁴ Counting equipment are for only those with traditional/paper ballots and/or mail in ballots.

2022 Municipal Election Statistics

Office Statistics <small>There were 2802 offices in 2018-2022, there are 2798 in 2022-2026.</small>	PROVINCE		Central		East		West		North		North (Sudbury)		North (Thunder Bay)	
	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage
TOTAL NUMBER OF OFFICES FILLED⁴	2796		550		673		742		831		635		196	
HEADS OF COUNCIL	414	% of category	62	% of category	103	% of category	105	% of category	144	% of category	110	% of category	34	% of category
New to council	80	19%	10	16%	20	19%	16	15%	34	24%	27	25%	7	21%
Incumbent for office	217	52%	35	56%	48	47%	60	57%	74	51%	57	52%	17	50%
Incumbent for council only	117	28%	17	27%	35	34%	29	28%	36	25%	26	24%	10	29%
Acclaimed Heads of Council	139	34%	9	15%	31	30%	35	33%	64	44%	49	45%	15	44%
New to council	6	4%	0	0%	2	6%	0	0%	4	6%	4	8%	0	0%
Incumbent for office	105	76%	8	89%	20	65%	30	86%	47	73%	36	73%	11	73%
Incumbent for council only	28	20%	1	11%	9	29%	5	14%	13	20%	9	18%	4	27%
Elected Heads of Council	275	66%	53	85%	72	70%	70	67%	80	56%	61	55%	19	56%
New to council	74	27%	10	19%	18	25%	16	23%	30	38%	23	38%	7	37%
Incumbent for office	112	41%	27	51%	28	39%	30	43%	27	34%	21	34%	6	32%
Incumbent for council only	89	32%	16	30%	26	36%	24	34%	23	29%	17	28%	6	32%
DEPUTIES AND COUNCILLORS	2382	% of category	488	% of category	570	% of category	637	% of category	687	% of category	525	% of category	162	% of category
New to council	1081	45%	204	42%	267	47%	275	43%	335	49%	253	48%	82	51%
Incumbent for office	1208	51%	259	53%	273	48%	329	52%	347	51%	268	51%	79	49%
Incumbent for council only	93	4%	25	5%	30	5%	33	5%	5	1%	4	1%	1	1%
Acclaimed Deputies and Councillors	405	17%	57	12%	78	14%	122	19%	148	22%	122	23%	26	16%
New to council	106	26%	11	19%	15	19%	33	27%	47	32%	41	34%	6	23%
Incumbent for office	277	68%	41	72%	57	73%	79	65%	100	68%	80	66%	20	77%
Incumbent for council only	22	5%	5	9%	6	8%	10	8%	1	1%	1	1%	0	0%
Elected Deputies and Councillors	1977	83%	431	88%	492	86%	515	81%	539	78%	403	77%	136	84%
New to council	975	49%	193	45%	252	51%	242	47%	288	53%	212	53%	76	56%
Incumbent for office	931	47%	218	51%	216	44%	250	49%	247	46%	188	47%	59	43%
Incumbent for council only	71	4%	20	5%	24	5%	23	4%	4	1%	3	1%	1	1%
TOTAL NUMBER OF CANDIDATES	6221		1703		1415		1624		1479		1105		374	
HEADS OF COUNCIL	971	% of category	225	% of category	229	% of category	242	% of category	275	% of category	212	% of category	63	% of category
New candidate	461	47%	144	64%	97	42%	104	43%	116	42%	89	42%	27	43%
Incumbent for office	281	29%	43	19%	69	30%	75	31%	94	34%	74	35%	20	32%
Incumbent for council only	229	24%	38	17%	63	28%	63	26%	65	24%	49	23%	16	25%
DEPUTIES AND COUNCILLORS	5250	% of category	1478	% of category	1186	% of category	1382	% of category	1204	% of category	893	% of category	311	% of category
New candidate	3629	69%	1126	76%	805	68%	945	68%	753	63%	543	61%	210	68%
Incumbent for office	1493	28%	316	21%	341	29%	391	28%	445	37%	346	39%	99	32%
Incumbent for council only	128	2%	36	2%	40	3%	46	3%	6	0%	4	0%	2	1%
INCUMBENTS NOT RUNNING AGAIN	671		120		159		167		225		166		59	
Head of Council	118		18		29		27		44		32		12	
Deputies and Councillors	553		102		130		140		181		134		47	

⁴ Blind River and Hilliard each have a vacancy to fill post-election, with all the other offices acclaimed.

Incumbent for office won an office they held prior to the election. For example, a mayor re-elected as mayor.

Incumbent for council only won an office on council different from the one they held prior to the election. For example, a councillor elected as mayor.

Deputies and Councillors include the following office classifications that are filled during the election: Deputy Mayor, Vice Deputy Mayor, Deputy Reeve, Reeve (Not Head of Council), Local and County Councillor, Local and District Councillor and Local and Regional Councillor.

Denise Holmes

From: Nanci Malek <promotions@dufferinmuseum.com>
Sent: Tuesday, February 21, 2023 12:45 PM
To: Denise Holmes
Subject: Council is invited
Attachments: Your Invite.jpg

Please join us for this special opening event.

The Museum of Dufferin (MoD) and the Dufferin County Cultural Resource Circle (DCCRC) are presenting the exhibit, Our Story: Past & Present. The exhibit will be in place from March 3rd, 2023 until March 29th, 2023 in the Lodge Gallery.

The exhibit will feature artworks from Josh Morley, Sharon Rigby, Josy Thomas, and Janice Toulouse. The Indigenous artists are presented by Dufferin County Cultural Resource Circle (www.dccrc.ca). This project is funded in part by the Government of Canada through the Federal Economic Development Agency for Southern Ontario.

“Wow, the Indigenous Artwork the audience gets to discover are “terrific”, as my late mom use to say. She was a residential school survivor.” – Elder Karen Vandenberg – DCCRC

If attending the opening, please RSVP to: <https://www.eventbrite.ca/e/our-story-past-present-tickets-537993993517>

Kind regards,

Nanci

Nanci Malek (she/her), Events/Marketing Coordinator, **MoD | Development and Tourism | County of Dufferin**
Phone: 519.941.1114 x 4015 | promotions@dufferinmuseum.com
936029 Airport Rd, Mulmur, ON L9V 0L3
DufferinCounty.ca | JoininDufferin | DufferinMuseum.com

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Our Story

Past & Present

Exhibition Opening Event

Join us!
Friday, March 3
6:30pm

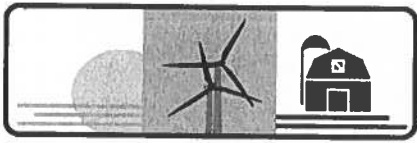
Museum of Dufferin
936029 Airport Road
Mulmur, ON

With Special Guests:
Elder Shelley Charles
Chippewa Travellers
Jingle Dress Dancers
Chef Shawn Adler

info@dufferinmuseum.com ... 519-941-1114

Le Canada est
l'endroit où l'histoire, l'écologie, l'environnement
s'ajoutent à la culture et à la diversité.
Partagez vos
histoires avec nous et
développez votre communauté
pour le bien de tous.
Canada





TOWNSHIP OF
ASHFIELD-COLBORNE-WAWANOSH

82133 Council Line, R.R. #5
Goderich, Ontario N7A 3Y2
PHONE: 519-524-4669
FAX: 519-524-1951
E-MAIL: clerk@acwtownship.ca

The Honourable Steve Clark, Minister of Municipal Affairs and Housing

February 22, 2023

Re: Future Accuracy of the Permanent Register of Electors

Dear Minister,

Please be advised that at the February 21st meeting, the Council of the Township of Ashfield-Colborne-Wawanosh adopted the following resolution,

Moved by Anita Snobelen
Seconded by Evan Hickey

WHEREAS concerns surrounding the accuracy of the Voters' List has been highlighted in elections past and inaccuracies continue to plague municipal elections;

AND WHEREAS the Chief Electoral Officer for the Province of Ontario now has the responsibility to prepare and maintain a Permanent Register of Electors, under the Elections Act, for future municipal elections;

AND WHEREAS an accurate Permanent Register of Electors is paramount in upholding the integrity of democratic government;

AND WHEREAS an accurate Permanent Register of Electors could increase voter turnout statistics and possibly contribute to positive voter apathy;

NOW THEREFORE BE IT RESOLVED THAT the Council of the Township of Ashfield-Colborne-Wawanosh requests that the Province of Ontario, through Elections Ontario and the Chief Electoral Officer utilize any resources available to produce the highest quality Permanent Register of Electors;

AND FURTHER THAT this resolution be circulated to the Minister of Municipal Affairs and Housing, Elections Ontario, MPP Lisa Thompson and Ontario Municipal Councils for their support.

Carried

Sincerely,

Florence Witherspoon
Municipal Clerk

cc. Greg Essensa, Chief Electoral Officer for Ontario, Huron-Bruce MPP Lisa Thompson, and Ontario Municipal Councils

acwtownship.ca

MAR 2 2023
INFO #7



Dundalk Fall Fair

SINCE 1855 "TEAM WORK MAKES THE DREAM WORK"

PO Box 497, Dundalk, ON N0C 1B0 dundalkfair.com facebook.com/Dundalkfairsociety Instagram @dundalkagsociety

February 19th, 2023

Dear Sponsor,

Our annual fall fair will take place on September 8-10, 2023 at the Dundalk Fairgrounds. Last year, we made a wonderful return and are hoping to build on this momentum.

The Dundalk Agricultural Society has been supporting the community since 1855. We put on several other events throughout the year, but our fall fair is the highlight and by far the largest event of them all. The fair is a community-minded, not-for-profit event run by a group of dedicated volunteers who strive to host an entertaining and educational weekend for all ages. The Dundalk Fall Fair is the longest running annual event in our community. With over 20 classes of exhibitor categories, including special sections for kids, youth and seniors, everyone has the opportunity to display and exhibit a multitude of items from horticulture, field crops, arts and crafts, baking, sewing, and quilting. Other popular features of our fair include the 4-H club shows, the truck and tractor pull, the demolition derby, and the Fair Ambassador Program.

Please help us to maintain these traditions and enhance our fall fair experience. We welcome businesses and individuals to support our efforts through our sponsorship program. The cost of organizing and promoting successful events is forever increasing, thus, our reliance upon generous donations grows each year. We recognize that sponsors are the major contributors to the success and future of our fair. Your support and assistance is greatly appreciated. In return for your financial support, we provide as much promotion and reward as we possibly can. See the sponsorship levels below:

<p>Recognition on our social media</p> <p>Free vendor spot at the fair (Fri - Sun)</p> <p>Logo on our website dundalkfair.com</p> <p>Name mentioned in Dundalk Herald</p> <p>May supply and erect a sign at this year's Dundalk Fall Fair</p> <p>4 Weekend Passes to this year's Dundalk Fall Fair</p> <p>Name in our fair book and on our website dundalkfair.com</p> <p>Name on our Sponsor Board</p> <p style="text-align: right; font-size: 2em; font-weight: bold; color: white;">DIAMOND</p>	 <p>Logo on our website dundalkfair.com</p> <p>Name mentioned in Dundalk Herald</p> <p>May supply and erect a sign at this year's Dundalk Fall Fair</p> <p>2 Weekend Passes to this year's Dundalk Fall Fair</p> <p>Name in our fair book and on our website dundalkfair.com</p> <p>Name on our Sponsor Board</p> <p style="text-align: right; font-size: 2em; font-weight: bold; color: black;">GOLD</p>	 <p>1 Weekend Pass to this year's Dundalk Fall Fair</p> <p>Name in our fair book and on our website dundalkfair.com</p> <p>Name on our Sponsor Board</p> <p style="text-align: right; font-size: 2em; font-weight: bold; color: white;">SILVER</p>	 <p>Name in our fair book and on our website dundalkfair.com</p> <p>Name on our Sponsor Board</p> <p style="text-align: right; font-size: 2em; font-weight: bold; color: white;">BRONZE</p>
\$750 +	\$749 - \$300	\$299 - \$100	\$99 & under

With sincerest thanks,

The Dundalk Agricultural Society

Andrea Riddell, President & Jessica Cook, DDAS Director/Sponsorship

MAR 2 2023

ACT #1

2023 SPONSORSHIP FORM

Company Name: _____

Name of Contact: _____

Address: _____

Telephone Number: _____

Email address: _____

We/I wish to be considered a (please check off):

* Diamond (\$750.00 +) _____

* Gold (\$300.00 - \$749.00) _____

* Silver (\$100.00 - \$299.00) _____

* Bronze (\$99.00 and under) _____

Form of donation: Cheque or E-transfer to dundalkagsoc@gmail.com

(For e-transfer please put in the comments name of business to allocate the sponsorship to for recognition)

Please complete this registration form and email or mail your donation payable to:

'Dundalk Agricultural Society'

PO Box 497, Dundalk, ON. N0C 1B0

If we could please receive your donation by May 1st to ensure that it gets put into our fair book. Any questions please call/text or email Jessica Cook at 226-923-0247

PLEASE SPECIFY HOW YOU WOULD LIKE YOUR DONATION ALLOCATED.

General Fair \$ _____ 4-H Invitational \$ _____ Ambassador Program \$ _____

Other (please specify) \$ _____

_____ Yes, I will provide a sign/banner (3'x3' or under) for the fair committee to erect on fair weekend (only applies to Gold and Diamond Sponsors).

_____ I would like to receive a Charitable Receipt for my donation.

Thank you very much for your support!

Sincerely,

Jessica Cook, DDAS Director, Sponsorship Chair

The Corporation of the Township of Melancthon

By-Law Number _____ - 2023

**"HENDERSON DRAINAGE WORKS, 1975,
MAINTENANCE LEVYING BY-LAW"**

A by-law to provide for the levying of the costs
resulting from the maintenance and repair of the
Henderson Drainage Works, 1975

WHEREAS a number of owners, under Section 79 of the Drainage Act, R.S.O. 1990, c. D.17 (the Act), have notified the Township of Melancthon of the deteriorating conditions of the Henderson Drainage Works, 1975 (the Drain);

AND WHEREAS under Section 74 of the Act, it is the duty of the Township of Melancthon to maintain and repair those parts of the Drain lying within its limits;

AND WHEREAS the Drain has been constructed under By-law No. 16-75 of the Township of Melancthon;

AND WHEREAS the Council of the Township of Melancthon, pursuant to the recommendations made by the Township's Drainage Superintendent, has ordered certain maintenance and repair work to be performed on the Henderson Drainage Works, 1975 under the supervision and to the satisfaction of the Drainage Superintendent.

AND WHEREAS the work has now been completed

AND WHEREAS the cost of the work is \$25,989.50

AND WHEREAS the amount of grant expected is \$6,107.79

AND WHEREAS the amount to be raised is \$19,881.71

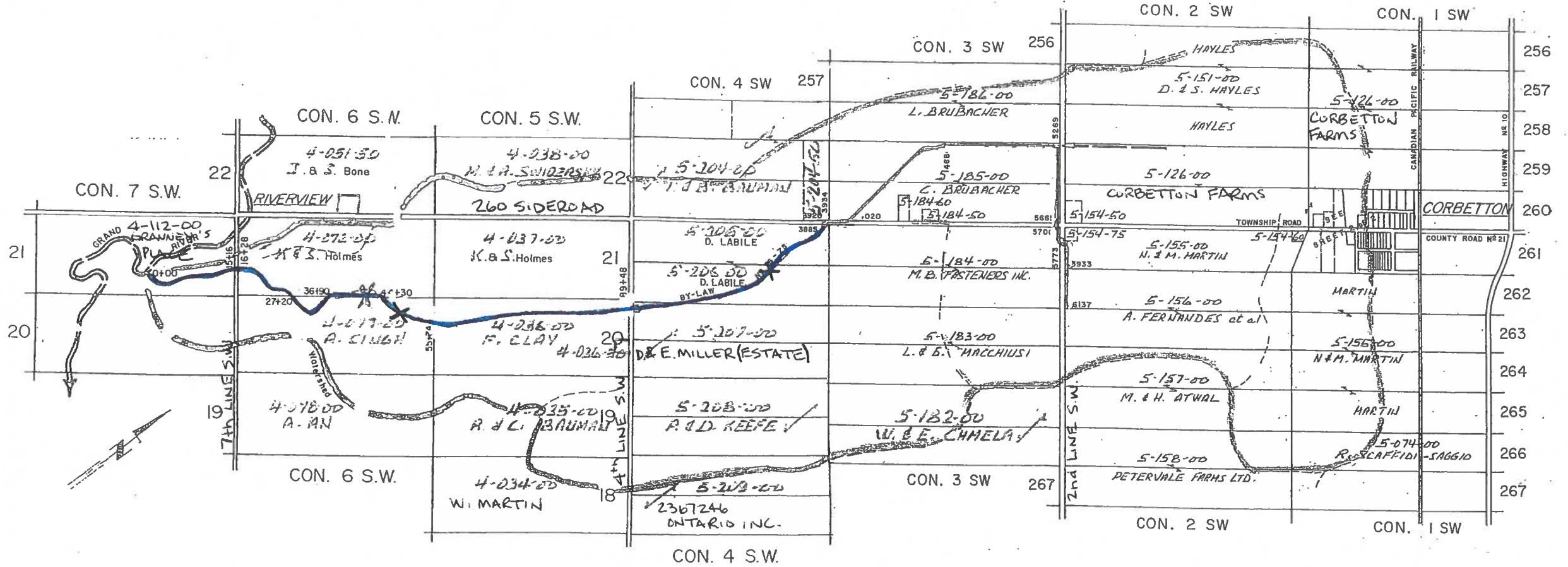
NOW THEREFORE the Council of the Township of Melancthon enacts as follows:

1. The assessments shall be imposed in accordance with Section 74 of the Act and in proportion to the governing By-law No. 16-75 as amended in accordance with Section 65(3) of the Act.
2. The amount of \$19,881.71 necessary to be raised for such work, shall be made a cash assessment upon the upstream lands and roads affected, as shown in the attached Schedule, with interest at the rate set for collecting taxes in arrears being added after the date payment is called on the same.
3. This By-law shall be cited as the "Henderson Drainage Works, 1975 Maintenance Levying By-law".
4. That this By-law shall come into force and take effect upon passing thereof.

READ A FIRST, SECOND AND THIRD TIME AND FINALLY PASSED THIS _____ DAY OF _____, 2023.

MAYOR

CLERK



HENDERSON DRAINAGE WORKS - 1975

LOCATION PLAN

DATED JULY 2020

R. J. BURNSIDE & ASSOC. LTD.
 Drainage Superintendent



Corporation of the Township of Melancthon

Moved by”J. McLean”.....

Seconded by

DateMarch 2,, 2023

Be it resolved that:

Council for the Township of Melancthon hereby rescinds the Covid-19 Vaccination Staff Policy, approved by Council on November 4, 2021, effective immediately.

Recorded Vote	<u>Yea</u>	<u>Nay</u>
Mayor Darren White		
Deputy Mayor James McLean		
Councillor Ralph Moore		
Councillor Bill Neilson		
Councillor Ruth Plowright		

Carried/Lost: _____
MAYOR



The Corporation of

THE TOWNSHIP OF MELANCTHON

157101 Highway 10, Melancthon, Ontario, L9V 2E6

Telephone - (519) 925-5525

Fax No. - (519) 925-1110

Website: www.melancthontownship.ca

Email: info@melancthontownship.ca

MEMORANDUM

TO: MAYOR WHITE AND MEMBERS OF COUNCIL

FROM: DENISE B. HOLMES, AMCT, CAO/CLERK

SUBJECT: COVID-19 Vaccination Policy

DATE: October 29, 2021

As per the direction of Council, the attached Covid-19 Vaccination Policy mirrors the policy that Dufferin County Council approved on October 14, 2021.

The purpose of the policy is to provide guidelines pertaining to the expectations and requirements the Township has of employees with respect to Covid-19 and vaccinations and will apply to all current employees, as well as new or rehired employees. This policy does not address Council or Board volunteers.

I recommend that the attached Covid-19 Vaccination Policy be adopted.

November 4, 2021

Moved by Besley, Seconded by Mercer
that Council adopt the Township of
Melancthon COVID-19 Vaccination Policy
as presented and attached. Carried

DBH

GB# 17.3.1

NOV 04 2021



**TOWNSHIP OF MELANCTHON
POLICY & PROCEDURE MANUAL**

SECTION	Health and Safety	APPROVED BY COUNCIL: November 4, 2021
SUB-SECTION	Infection Prevention and Control	
SUBJECT	COVID-19 Vaccination	
AUTHORITY	Council	

The Township of Melancthon is committed to providing a safe working environment and taking every precaution reasonable in the circumstances for the protection of our employees, volunteers, contractors, elected officials and members of the public, from the hazard of COVID-19. A key element to help ensure this protection is putting in place a program requiring that employees are Fully Vaccinated (defined below) against COVID-19. The Township of Melancthon has a legal duty under the *Occupational Health and Safety Act* (OHS), to take every reasonable precaution to protect workplace health and safety, including hazards posed by infectious disease such as COVID-19 and associated variants.

The Township of Melancthon considers vaccinations to be fundamental to the protection of individuals and the community, and to be consistent with the best available public health advice for prevention of the spread of COVID-19 and variants. This policy recognizes that those who are unvaccinated or partially vaccinated pose a significantly increased risk of becoming seriously ill from COVID-19 and also of spreading the SARS-CoV-2 virus to others, with significant impact on human health and service continuity. This policy aims to achieve full vaccination amongst Township employees in alignment with Public Health recommendations and subject to limited exceptions in accordance with the *Human Rights Code* (Ontario).

PURPOSE:

The purpose of the COVID-19 Vaccination Policy is to provide guidelines pertaining to the expectations and requirements the Township has of employees with respect to COVID-19 and vaccinations.

SCOPE:

This policy applies to all Township of Melancthon employees.

All new or rehired Township of Melancthon employees, including returning seasonal and student employees, are required to be Fully Vaccinated against COVID-19 as a condition of being hired or rehired by the Township of Melancthon, subject to limited exceptions in accordance with the *Human Rights Code* (Ontario).

The Township of Melancthon also reserves the right to amend this policy as the Township determines to be appropriate or required.

DEFINITIONS:**Fully Vaccinated**

An individual is defined as "Fully Vaccinated" once 14 days have passed after receiving their second dose of a two-dose COVID-19 vaccine series or their first dose of a one-dose COVID-19 vaccine series that is approved by Health Canada. This definition may be further broadened to include any additional doses of COVID-19 vaccination recommended by Health Canada.

PROCEDURES:**Responsibilities**

All levels of management are responsible for the administration of this Policy.

Managers are expected to:

- lead by example;
- provide proof of their COVID-19 Vaccination status and meet all other requirements outlined in this policy; and,
- ensure employees provide proof of their COVID-19 Vaccination Status, as outlined in this policy; and,
- ensure employees complete any required education or training related to Infection Prevention and Control, COVID-19, vaccinations and safety protocols.
- create and foster a work environment free from harassment and disrespectful behaviour, as outlined in the Township's Harassment and Respectful Workplace Policy.

Employees are expected to:

- follow all health and safety policies and protocols;

- provide proof of their COVID-19 Vaccination status and meet the requirements outlined in this policy; and
- complete any required education or training related to Infection Prevention and Control, COVID-19, vaccinations and safety protocols.
- foster a work environment free from harassment and disrespectful behaviour, as outlined in the Township's Harassment and Respectful Workplace Policy.

Support for Vaccinations

The Township of Melancthon supports employees in obtaining their COVID-19 vaccination.

Wherever possible, employees are to schedule vaccination appointments around their work schedule. When not possible and with the permission of their immediate supervisor, Township employees may be released on work time to be vaccinated while on-duty. If an employee cannot work because of vaccine-related side effects, employees are able to access any paid sick days or short term disability benefits available to them by the Township and as outlined in policy or by other government initiatives.

Continued Compliance with all Health and Safety Precautions

Unless a legislated or regulatory exemption applies, all Township of Melancthon employees, elected officials, volunteers, contractors, and students working on an unpaid placement or internship are expected and required to continue to comply with applicable health and safety measures to reduce the hazard of COVID-19, including but not limited to compliance with established workplace access controls (e.g. screening), wearing a mask or face covering, using provided Personal Protective Equipment (PPE), maintaining appropriate physical distancing and self-monitoring of potential COVID-19 symptoms when at work or otherwise engaged in Township business. The applicable Health and Safety measures are outlined in the Township's COVID-19 Protocols.

Confidentiality

The information collected under this policy will only be used to the extent necessary for implementation of this policy, for administering health and safety protocols and infection and prevention control measures in the workplace, in accordance with applicable privacy legislation.

Proof of Vaccination Status

The Township of Melancthon requires all employees to disclose their COVID-19 vaccination status. This requirement includes any applicable future COVID-19 vaccination(s) as determined by the Health Canada or the Ontario Ministry of Health.

By November 15, 2021, employees who have received one or more doses of an approved COVID-19 vaccine are required to provide proof of vaccination to the Township CAO. The only acceptable proof of vaccination is the COVID-19 Vaccine Dose Administration Receipt or other documentation provided by the Ministry of Health/Public Health, or equivalent out-

of-province health body to the person who was vaccinated.

Individuals can download copies of their vaccination documentation at this link: covid19.ontariohealth.ca.

Individuals who have an outdated (red and white) health card or who do not have a health card issued by the province of Ontario can call 1-833-943-3900.

Employees may also be required to disclose their vaccination status by law or to otherwise give effect to this policy, including, but not limited to, situations where employees are directed to stay home as a result of the daily screening tool in order to comply with the clearance criteria to return to work (e.g. after experiencing symptoms, a COVID-19 exposure, or a travel quarantine exemption).

All new or rehired employees must provide the required proof of vaccination prior to commencing their employment. This policy shall form one of the conditions of employment which new employees accept as part of an offer of employment into such positions.

Request for Medical Exemptions for COVID-19 Vaccination

If an employee has a medical reason for not being vaccinated now or in the future, it is the individual's responsibility to provide the required medical documentation from a licensed physician or nurse practitioner to the Township CAO that sets out (i) a documented medical reason for not being Fully Vaccinated against COVID-19, and (ii) the effective time-period for the medical reason. Medical exemptions will be considered based on the criteria as set out by the Ministry of Health.

This information is to be submitted to the Township CAO by November 15, 2021. The Township will be notified as to the outcome of their assessment.

The Township will work with the individual to determine whether and how they may be accommodated, as required, in accordance with the *Human Rights Code* (Ontario). Without limitation, such measures may include changes to work assignments, work location, as well as regular rapid antigen testing.

Request for Exemption under the Ontario Human Rights Code for COVID-19 Vaccination

An employee may submit a written request for exemption under the Ontario Human Rights Code. The request must include an explanation of the ground and/or any supporting

documentation to assist in the determination of exemption. Exemption requests and any related accommodation provisions under the Ontario *Human Rights Code* will be reviewed with the employee in consultation with Human Resources.

This information must be provided to the Township CAO in accordance with the established process by no later than November 15, 2021.

The Township will work with the individual to determine whether and how they may be accommodated, as required, in accordance with the *Human Rights Code* (Ontario). Without limitation, such measures may include changes to work assignments, work location, as well as regular rapid antigen testing.

Rapid Antigen Testing

Effective Monday, November 22, 2021, employees must participate in regular rapid antigen testing, as determined by the Township, and confirm completion of testing and results to Health and Safety until such time as they are considered Fully Vaccinated, if any of the following apply:

1. The individual has not received a complete COVID-19 vaccine series, or it has not been 14 days since their final dose of a complete COVID-19 vaccine series; or
2. The individual has not met requirements related to additional dose(s) as may be determined by Health Canada or the Ontario Ministry of Health; or
3. The individual has not disclosed their vaccination status as required; or
4. The individual has not provided proof of vaccination as required; or
5. The individual requires an exemption from the vaccination requirement in accordance with the *Human Rights Code* (Ontario), provided that all necessary documentation is submitted and kept updated to substantiate the exemption.

Testing frequency and timing will be determined based on the employee's onsite work schedule in conjunction with Health and Safety. The cost of this testing will be paid by the Township.

Should an individual test positive on an antigen test, they are required to remain out of the workplace, notify Health and Safety, complete a PCR test and follow the direction of Public Health. Employees may use any available banks to offset the time away from work until they are able to return to the workplace based on Public Health guidance.

The Township of Melancthon otherwise reserves the right to require rapid antigen testing of any employee at any time.

Vaccine Education Requirements

Every employee who has chosen not to be vaccinated, without an exemption (as noted above), will be required to actively participate in a mandatory vaccine training session(s) outlining:

- How COVID-19 vaccines work;
- Vaccine safety related to the development of the COVID-19 vaccines;
- Benefits of vaccination against COVID-19;
- Risks of not being vaccinated against COVID-19 and
- Possible side effects of COVID-19 vaccination.

The Township will pay the employee their regular hourly rate to attend this training, which may be held outside of the employee's regular working hours.

Ongoing Monitoring and Assessment of COVID-19 Workplace Safety Measures

The Township of Melancthon will continue to closely monitor its COVID-19 risk mitigation strategy and the evolving public health information and context, to ensure that it continues to optimally protect the health and safety of employees in the workplace, volunteers, contractors, students working on an unpaid placement or internship, elected officials and the public that they serve. To that end, and in consultation with Wellington-Dufferin-Guelph Public Health (WDGPH) and occupational health and safety resources, the Township will continue to assess other available workplace risk mitigation measures. If it is determined that changes to precautions are necessary and/or appropriate, the Township of Melancthon may decide to remove existing measures and/or deploy new measures (including at an individual level) to protect employees, volunteers, contractors, students working on an unpaid placement or internship, and elected officials and the public from COVID-19, and may amend this policy accordingly and/or communicate the required precautions to impacted employees.

Non-Compliance with Policy

Employees who fail to comply with this policy (i.e. who refuse to disclose their vaccination status, complete required education or who refuse to undergo rapid antigen testing) will be subject to disciplinary action up to, and including, termination of employment. In addition, knowingly providing falsified documentation will result in disciplinary action up to, and including, termination of employment.

As of December 31, 2021, rapid antigen testing will no longer be conducted for employees

who have chosen not to be vaccinated and who do not have a medical or other *Human Rights Code* exemption.

For greater clarity, if an employee has chosen not to be vaccinated and does not have an exemption (as noted above) as of December 31, 2021, they will be deemed as being non-compliant with the policy and will be placed on a 6-week unpaid suspension until no later than February 11, 2022.

While on an unpaid suspension, an employee may return to work once they are confirmed as being fully vaccinated or having a medical or other *Human Rights Code* exemption.

Effective February 11, 2022, an employee who continues to be non-compliant with the policy will have their employment with the Township end.

Training

All employees to whom this policy applies will have this policy shared with them on, or as soon as possible following, the effective Date of this policy. All new hires will have the policy shared with them on their first day of employment, or prior to commencement of first day of employment, where possible. Employees will be required to acknowledge that they have read and understood the policy.

Any questions about this policy can be directed to the Township CAO.

MELANCTHON RECREATION TASK FORCE REPORT

1. BACKGROUND TO TASK FORCE

The Melancthon Recreation Task Force was created on May 19, 2022 by the Municipal Council of the Township of Melancthon following a suggestion and then discussion on the need for a greater understanding of the needs and wants of the residents of Melancthon in the area of Recreation and Sports that might facilitate and assist Council's planning for the future, including the allocation of financial resources required.

Council then invited Melancthon residents to submit their name if they wished to be considered for membership on the Task Force. On July 14, 2022 the Task Force membership, there having been only three applicants, was named by Resolution of Council. Subsequently one person withdrew as of early August, 2022 from participation in the Task Force. The Task Force has been composed of two persons, David Thwaites and Emma Holmes.

The Task Force composed its Terms of Reference which were received by Council on August 11, 2022. A copy of the Terms of Reference is attached as Schedule A to this Report.

It is noted at the outset that the Task Force was formed and authorized without any financial resources or budget. This Report has no glossy pictures or shiny presentation. Neither of the Task Force members purport to be experts nor, certainly, 'politicians' but we both have roots and connections into and throughout the community and are both aware of the passion and history that can and may drive decision-making as Council considers the recommendations contained herein.

2. BACKGROUND TO THE TASK FORCE FORMATION

By way of background to the suggested need for the Task Force it is understood that there has previously been no comprehensive review of Recreation and Sport in Melancthon. The approach historically has been piecemeal with the focus on the Centre Dufferin Recreation Complex (Shelburne), the North Dufferin Community Centre (Honeywood), the Southgate's Recreation Complex (Dundalk) and the Horning's Mills Park. Melancthon has no Recreation and Sport Strategic Plan or any planning document that addresses the issue comprehensively, unlike municipalities such as Southgate and Shelburne.

The Strategic Plan adopted by Melancthon Council in 2017, after retaining a Consultant and obtaining public input, was essentially silent on Recreation and Sport save for the identification of the need and desire to plan for recreational trails in Melancthon. In fact, since the Plan was adopted nothing has been done to facilitate steps or directions to fulfil this plan. The Strategic Plan was noticeably silent on every other aspect of Recreation and Sport, even on the local parks in Horning's Mills and Corbetton.

Through the governance and recommendations of the Horning's Mills Park Board there had been some steps taken to improve the Horning's Mills Park, example – lighting for the ball diamond. It is understood that the Park Board had been developing a relationship with the Mansfield Baseball

MAR 2 2023

GB #17.4.1

FEB 02 2023

GB #17.3.1

FEB 16 2023

GB 16.3.1

JAN 12 2023

GB #17.3.1

DEC 15 2022

GB 16.2.1

Association for use of the ball diamond. In addition, the Park Board has reported to Council with other considerations that might improve the park facilities and usage.

The Corbetton Park/playground, through the efforts of the Corbetton Park Board and Council, has been equipped with some playground equipment in 2021 thus providing a resource for the children of Corbetton.

In more recent years, namely 2019-2022, there have been several developments, apart from the impact of COVID, that have underlined the need for a better understanding of the needs and wants of Melancthon residents in the area of recreation and sports and to better plan and commit for resources, particularly financial. Those “pressure points” include, but are not limited to:

- (a) North Dufferin Community Centre(Honeywood)- this facility has served the people of Melancthon and Mulmur for many years after being built by the community (1966?). The Centre has operated under a governance board composed of both Mulmur and Melancthon residents and has been funded jointly and equally by the two municipalities, notwithstanding it is located in Mulmur. The facility is very close to being on its last legs (2025?). The Board together with the Townships undertook in 2019-20 a review of the options facing the Board and Townships. A Consultant was retained and reports provided. There were several options presented by the Consultant, all of which were shockingly expensive. The cost of each option had materially increased even by early 2022 and the Grant application for provincial federal funding rejected such that Melancthon might well have been faced with an obligation in excess of \$5 Million Dollars plus materially higher annual cost obligations. Melancthon Municipal Council, it is understood, was not prepared to make this commitment. In addition, there were/are, it is understood some matters of politics and ownership issues.
- (b) Centre Dufferin Recreation Complex- this facility, located in Shelburne, has served the people of Shelburne and the surrounding municipalities of Melancthon, Amaranth and Mono for many years. The governance and funding formula is contained in an Agreement dated in 1994. In 2018 an amended draft Agreement was proposed but never completed. The challenge in recent years has been that with the significant growth in the population of Shelburne, without any similar growth in Melancthon and Amaranth particularly, there have been increasing tensions.

In late, 2021 and 2022 Shelburne Council took steps to initiate a change in the model, i.e., to takeover control and governance, of the CDRC removing the other local municipalities from involvement. By late spring, 2022 Shelburne had backed off, due apparently to the prospect that it would have to refund contributions by the other municipalities to the capital reserves. Further Shelburne is now in the midst of its own review of its Recreation/Sports Master Plan with corresponding demands and expectations from its residents many of whom have no understanding of the history and governance model in place for CDRC. The recent municipal election campaign seemed to underline the discourse. As such the CDRC model of governance and funding is very much unsettled and unstable.

In addition, the funding model for the CDRC has left the area municipalities absorbing, given the substantial increase in Shelburne's population, a disproportionate share of the funding model with a formula that fails to reflect the obligations in a timely manner. From Melancthon's perspective there is the very real challenge that any funding should really reflect that Melancthon has a multi complex financial obligation (unlike Shelburne) and that many residents of Melancthon do not use the CDRC.

Underscoring the challenge is that the CDRC is operating without any vision or strategic plan for the future. There has been no effort to engage and plan at any municipal level to address this fundamental problem as each municipality has dealt (or failed to address) with the future of the CDRC. This has, is and will be create an increasing weak link, unless the fundamental problem is addressed immediately.

- (c) Southgate (Dundalk)- the recreation complex in Dundalk has served the people of Southgate and north Melancthon for many years. Melancthon has, pursuant to an Agreement with Southgate contributed financially to the operation of the facility and has a representative on the Recreation Advisory Committee. The challenge in recent years is that Southgate/Dundalk has grown at a pace that is/will put strains on its resources and needs and the model for financial contribution is based on outdated statistics. In addition, the demographics for Melancthon have changed as there is a sizeable component of north Melancthon residents, namely the Mennonite community, who do not use the recreation facilities (or for that matter any of the Recreation complexes funded by Melancthon). In addition, even as the Task Force has been in place Southgate has initiated a process to annex lands from Melancthon, a process that might well raise signals for the future both for the north end and south ends of Melancthon.

The aforementioned "pressure points" are but three of the points that highlight the need to refocus on what and how Recreation and Sport are defined in Melancthon. The challenge is to recognize that financial resources cannot and should not always drive the decisions of government. Recreation and Sport provide a critical part of how we define ourselves as a community and further is a key piece of Participaction for our physical/mental/emotional health.

It is noted that the funding models for the three recreation complex is premised, at least in part, on a population model. This, at the very least, should give the Melancthon Council serious concern for the viability of continuing any Recreation Complex model funding.

The Agreements for each of North Dufferin, Centre Dufferin and Southgate are attached as Schedules 'B', 'C' and 'D'. It is noted, but not a legal opinion, that both the old and proposed Agreements create a challenge for Melancthon (and the other municipalities) as the "withdrawal" obligations are not well-defined.

At the same time as Melancthon Council undertook this Task Force the County of Dufferin had and was undertaking its own review and draft of its Recreation Plan for County owned resources. The Plan was circulated for public input during the summer of 2022. As there are two large forest tracts within

Melancthon and the rail corridor that bisects the Township there should be consideration of the viability of working with the County in the use and development of these assets in the context of its own Recreation/Sports "plan".

3. THE ROLE OF SPORT AND RECREATION

At the outset and before outlining the steps taken and the information gathered by the Task Force it is perhaps of value to consider the role that Recreation and Sport have in any community, be it urban or rural, be it small or large. It would be trite to say if Recreation and Sport have no purpose other than to fulfill the personal desire of an individual then the greater community, including the governance of the community, should have no role and should expend therefore no time or resources. In fact, however it is and should be patently obvious that Recreation and Sport form a key part to the essence of community.

The obvious can be noted from the focus of a community, be it municipal or national, on the Olympics, the national championships of professional and amateur athletes/teams and, even the diehard fans of the Maple Leafs. The community joins in the celebrations of a community member who has achieved success on the podium or in a field of endeavour (example- Aaron Downey). The community celebrates the achievements of community teams, be they school or community based (example-this past winter a team of young (ages 9 and 10) hockey players playing out of Honeywood, including some Melancthon youth, went undefeated and won the Georgina Triangle Local League championship). A community lives and dies with every tick of the clock in a sport activity that somehow contributes to defining who and what we are.

Sport helps shape the character of individuals, our children and grandchildren. It has provided opportunity to show respect, compassion, teamwork, to share success and to share the pain of loss, even in the injuries or death (example - Humboldt Broncos).

Sport and Recreation provides opportunity for not only addressing our physical health but our mental and emotional health. Who can deny the benefit of a walk along the Bruce Trail or the release of workday stress through participating in a sporting activity? One might consider what the cost would be to our health care system without the benefit of sport and recreation?

4. SUMMARY OF EFFORTS OF TASK FORCE

The Task Force, in fulfilling its terms of reference undertook the following:

- (a) The Task Force gathered data and information using Statistics Canada resources and the information available from the Township website related to financial obligations and to obtaining the current agreements governing the various facilities.
- (b) The Task Force extended invitations through email outreach and personal contact for input and feedback from various stakeholders in the greater Melancthon community including the County of Dufferin referencing its draft Recreation Plan.

(c) The Task Force compiled a Survey that was circulated on social media from late September, 2022 onward soliciting the input of Melancthon residents. A copy of the Survey is attached as Schedule 'E'.

(d) The Task Force conducted a public Zoom meeting for Melancthon residents on October 19, 2022.

David attended one of the public meetings in Shelburne in September referencing the Shelburne Recreation Master Plan. He also engaged in some communication with some elected officials from other communities to gain some insight and perspective on Recreation and Sport. It is also noted that David was a member of the CDRC Board from 2019-2020 and Council from 2018-2020 so he gained some further insights and perspective.

Emma brought her perspective as a lifelong resident of Melancthon but also her experience having graduated with a University Degree in Recreation and her more recent work experience in municipal recreation. Emma further served as the Melancthon community representative on the NDCC Board for a brief tenure.

The Report will set forth in the following pages the essence of the data collected as referred to in paragraphs (a) to (d) above.

5. Data and Information (Population and Financial)

For purposes of giving some data context to Melancthon the following **population** information was obtained from Statistics Canada, 2021 Census.

Melancthon's population in 2021 was 3,132, up slightly from the 2016 census data. There were 1032 "permanent" households. The average/median age was 39. The age demographics were:

- (i) Age 0-14 - 19.6%
- (ii) Age 15-64 - 65.5%
- (iii) Age 65 + - 14.4%.

The population density was 10.1 persons/square kilometer. There was no source data that marked the size of hamlets or otherwise identified components of the population of Melancthon (i.e.. Mennonite community).

Shelburne's population in 2021 was 8,994, up 10.7% from 2016. The average age was 37.8. The age demographics were

- (i) Age 0-14 - 22%
- (ii) Age 15-64 - 63.7%
- (iii) Age 65+ - 14.5%

The population density was 1,370.8 persons/square kilometer.

Southgate's population in 2021 was 8,716, up 18.5% from 2016. The age demographics were:

- (i) Age 0-14 - 22.9%
- (ii) Age 15-64 - 62.2%
- (iii) Age 65+ - 14.9%

The population density was 13.6 persons/square kilometer.

Mulmur's population in 2021 was 3,571 up 2.7% from 2016. The age demographics were:

- (i) Age 0-14 - 12.7%
- (ii) Age 15-64 - 66.7%
- (iii) Age 65+ - 20.7%

The population density was 12.5 persons per square kilometer.

The recently released growth projections for the next thirty years project material growth for both Shelburne and Southgate, as in fact the population of each has grown since the May, 2021 Census. Melancthon and Mulmur have, on the other hand, very modest projections for growth. Melancthon planning control documents underline the challenge as there are tight controls on where any growth might occur within the Township. It can only be assumed that the growth projections for Shelburne will entail Shelburne seeking to annex lands from either/both Amaranth and Melancthon as Shelburne is largely landlocked at present. Southgate is growing rapidly and has already initiated annexation outlines with Melancthon.

The following **financial** information was gleaned from the Township of Melancthon financial statements as it relates to Recreation and Sport. The numbers represent the monies expended/budgeted for Libraries, the Horning's Mills and Corbetton parks, the Horning's Mills Hall and the three Recreation Complexes.

2014	2015	2016	2017	2018	2019	2020	2021	2022 (budget)
\$ 137,256	\$170,397	\$143,131	\$180,816	\$274,888	\$288,645	\$260,469	\$320,160	\$243,908

Some breakdown and/or explanation may assist the foregoing numbers. COVID definitely impacted the 2020 figures.

In 2021 Melancthon expended \$21,200 on the Corbetton Park whereas the 2022 budget is \$2,500.

The Horning's Mill Park expended a much higher figure in 2021 than the projected \$12,000 for 2022.

The 2022 Budget includes money for the Heritage Committee (\$5,000) that should not be seen as part of Recreation and Sport.

As this Report has not addressed the Libraries as a component of Recreation/Sport it can be noted that the Libraries (Shelburne and Dundalk) in 2021 cost \$66,150 and the 2022 budget was \$67,100.

The Recreation/Sport Complexes cost breakdown for 2021 and 2022 (budget) is as follows:

	2021	2022 (budget)
CDRC	\$50,522	\$63,550
NDCC	\$53,348	\$76,758
Southgate	\$14,098	\$14,000

- For reference purposes if one refers to other municipalities to compare Dollar's care must be taken to ensure, if possible, an "apples and apples" comparison as municipalities differ in how they allocate.
- The formulas for financial contribution to the Complexes all differ. The authors question the correctness of any of the models for use by Melancthon based upon Melancthon supporting three complexes as well as using historical data that differs from reality.

Developmental Charges Reserve Fund- Recreation

The Task Force solicited information from the Township Treasurer on the nature of the Reserves, if any, for Recreation/Sport. The following information was provided, namely that the 2021 Reserves identify \$2,818.45 for Outdoor Recreation and the sum of \$278,438.01 for Indoor Recreation. As Council would be aware the issue of Development Charges and accessing the funds has been and is a chronic challenge that is tied to identifying the application as tied to the growth of Melancthon. This paragraph is inserted largely to remind Council that there are some very modest funds available but it is dependent on how the Plan is worded. The Task Force offers no specific recommendations in this regard.

6. STAKEHOLDER OUTREACH

A. The Task Force as part of its solicitation for data input and feedback reached out by email to numerous stakeholders' groups, associations, private operators, the Dundalk Recreation Department and the Centre Dufferin Recreation Centre. The response was underwhelming and disappointing. The Task Force does indeed recognize that many of the recreation/sport organizations/groups are volunteer based/run and resources can be stretched sometimes to the point of hardly being able to function, apart from responding to a survey/data information request. This very recognition is critical to the hopes and expectations of any resident who seeks to have programming and activities provided.

The Task Force had sought data from the various stakeholders that might facilitate an understanding of how many Melancthon residents were using the various resources within the greater Melancthon community for recreation and sport. The Task Force had further sought feedback on how Melancthon might partner with the various groups/organizations to promote recreation and sport in and by the people of Melancthon.

The Task Force would like to thank the Shelburne Figure Skating Club, the Shelburne Curling Club and the Shelburne Vets Minor Lacrosse for the information provided on the participation by Melancthon residents. The essence of the information provided was to confirm that there are a modest number of participants from Melancthon and that the organizations would welcome any form of promotion that Melancthon as a whole might provide to promote the activities.

The Task Force further acknowledges the telephone communication with a representative of the Shelburne Cricket Club. The information was not on the numbers of Melancthon residents but to provide a hoped for cricket patch. Subsequently it is understood that the Town of Shelburne is investigating this prospect.

The Task Force did receive some data from the Dundalk Recreation Department that there was no current data available and the last information that had been used, in part, to compile the agreement for Melancthon's contribution to Southgate recreation was very much dated.

The Task Force recommendations that will follow herein are indeed consistent with recognizing that recreation and sport should be encouraged and promoted and that Melancthon as a municipality has a role in so doing but not necessarily undertaking the recreational programming.

B. County of Dufferin Recreation Plan

In late July, 2022 the County of Dufferin released its draft Recreation Plan seeking the comments and input of the residents of Dufferin County. The draft Plan was addressing the various County properties being tracts of forest owned by the County together with the Rail corridor and had as its purpose identifying how the assets were and could be developed and used for recreational purposes. As it pertains to the Township of Melancthon the draft Plan identified the two tracts of forest and the Rail corridor. The two forest tracts are located at/near 8th Line SW at 270 SR and the other being at/near County Road 21 and 5th Line OS. The deadline for input was late August, 2022.

David Thwaites initiated contact with the Dufferin County Forester, Caroline Mach, to inquire about the direction of the Plan to the extent it may or may not impact the work of the Task Force. Following emails and a telephone discussion a site visit was conducted at the Forest Tract on County 21.

The Plan of the County relating to the County 21 tract involves developing and promoting the outdoor recreation use of the lands. The possible and identifiable uses include a hiking trail/nature trail and cross-country ski trails. Other uses are identified within the draft Plan. Ms. Mach identified that there was a rough timeline of having a nature trail in place by early summer, 2023.

Through discussions it was noted that there had been/was little to no use, or even knowledge, by the people of Melancthon of the County tract, that the Recreation Plan sought to provide for promotion of outdoor recreation and that there was a role for Melancthon. The role for Melancthon was seen as a promoter (i.e., website identification of the trail, municipal newsletter) and perhaps a sharing of some of the routine maintenance (summer student shared with County to trim trail etc). The anticipated role

would not require the expenditure of any infrastructure commitment or for that matter any substantial monies.

The County draft Plan was being presented to County Council on October 15, 2022. If adopted, Ms Mach anticipated the County moving forward with the County 21 tract. The development/use of the 8th Line tract was seen as being deferred as the County sees the 8th Line Tract as connecting to another tract on Highway 89.

There were discussions about the Rail Corridor usage and promotion. The discussions recognized the potential for some conflicting usage that would require further discussions and development with possible user groups.

The connection with the County was positive and as outlined in the Recommendations herein should be furthered, especially when factored with the input received through the resident survey conducted by the Task Force.

7. RESIDENT'S SURVEY

In late September, 2022 the Task Force posted a Survey seeking the input of Melancthon residents. The Survey was posted on Facebook and circulated via the Township website, mail chimp and posted on the Horning's Mills Hall Facebook page. The Task Force acknowledges the limitations in the manner of circulation.

The Survey, as circulated, sought both quantitative and qualitative input from residents touching on all matter of questions/issues related to the mandate of the Task Force.

There were fifty-six Survey responses received by the Task Force. It is noted that there were twenty-nine responses from residents who identified living in/near Horning's Mills while the remaining twenty-seven replies were from residents distributed throughout the Township. The age demographic of the Respondents was identified as twelve in the age group of 18-39, thirty-five in the age group 39-64 and nine in the age group of age 65 plus. The total adults residing in the Respondent's residences were one hundred twenty.

To summarize the data feedback:

- (a) There was an endorsement for more/better outdoor trails for a variety of activities including a general widespread lack of awareness of the County forest tracts for such purposes;
- (b) There was a wish for improvements to the Parks in Corbetton and Horning's Mills;
- (c) There was a desire for recreation/sports to be recognized in Melancthon to the area west of Third Line OS (i.e., a parkette in Riverview and other resources/programming);
- (d) There was a desire for more programming at the Horning's Mills Hall for children and seniors;

- (e) The Rail Corridor received widespread affirmation but there was a concern about conflicting usage possibilities (e.g., dirt biking v hiking, cross country skiing versus snowmobiling);
- (f) NDCC – the responses were diverse and generated the most division in direction. There were thirty-six respondents that were against expending monies on the NDCC while there were some real qualifiers within the remaining replies who might otherwise endorse/wish for an investment in the NDCC by Melancthon;
- (g) CDRC – there was general recognition of the value in the ice rink and outdoor pool but the Survey provided less of a defined reply on the future and Melancthon’s future with the CDRC, perhaps in part due to the need for more information about the options and cost;
- (h) Dundalk – generally less defined reply, largely due to the lack of use by Melancthon residents, perhaps an indicator of the lack of respondents and other demographics;
- (i) The Parks, while there was a wish for improvements there was limited use by many of those responding to the survey;
- (j) Municipal tax dollars for Recreation and Sport – generally the respondents favoured spending approximately the same dollars as currently but there were real qualifiers and conditions expressed and certainly there was no consensus that the current allocation should be sustained.
- (k) User fees – the Respondents expressed differing views although few, if any, saw any possible fee as a block to participation. Many expressed the view that User fees should be left to the individual as opposed to Melancthon absorbing the fee;
- (l) Promotion of Recreation and Sport - there were a variety of suggestions which included use of the Township social media platforms for linking/listing and the use of the Township newsletter.

8. PUBLIC ZOOM MEETING

On October 19, 2022 the Task Force conducted a public zoom meeting for residents to provide input to the Task Force. Unfortunately, the number of participants was very low but the input was encouraging. The input encouraged the Task Force to press forward, to encourage the development of a strategic plan by Melancthon for recreation/sport and to keep soliciting for community input not just by the Task Force but on an ongoing basis. There was the suggestion that perhaps if Melancthon were to adopt a focus for its Recreation Sports, for example develop for persons with access needs and/or developmental challenges that it might become a model for other communities to adopt.

9. RECOMMENDATIONS

The Task Force recommends for the consideration of Council of the Township of Melancthon:

- A. Parks –
 - (i) Corbetton Park – furthering the playground development, example basketball court;

- (ii) Horning's Mills Park – improvements such as betterment of playground area and a walking trail on circumference of park, encouragement of a recreational community baseball/softball league for adults and youth (need volunteers to step up and lead);
- (iii) Riverview – planning for a parkette, perhaps as part of any development there might be a dedication of a parcel of land;

B. Trails-

- (i) County Forest tracts – to immediately connect, work with the County as it develops and implements County plans for the Tract on County 21 and continue to promote the County endeavour. The connection and “partnership” should be continued as the Tract at 8thLine SW is developed/promoted;
- (ii) County Rail Corridor – be part of the promotion and use of the Rail Corridor as it is developed and encouraged;
- (iii) As part of any development of Melancthon properties, example Strada pit development/expansion, seek to provide opportunities for outdoor trails for hiking, biking, cross-country skiing;
- (iv) Melancthon should be cognizant of opportunities to work with groups such as Dufferin Driftbusters (snowmobiling) and the Bruce Trail Conservancy to promote the use of trails.

C. Recreation Committee-

That a Recreation Committee composed of Council and community members be formed with the mandate that would develop and implement a Strategic Plan for Recreation and Sport in and for Melancthon residents. It would be anticipated that the Committee would provide a continuing forum for the residents to provide input and recommendations. The Committee might well have a limited mandate, i.e., only the Strategic Plan.

D. Council representation on Boards/Committees referencing Recreation and Sport-

The mandate of any appointee must clearly define and include the commitment to communicate, be transparent and to facilitate the overall plan and direction focused on the best interest of Melancthon and be consistent with an overall direction of Recreation and Sport for the people of Melancthon.

E. That Council immediately engage with the local municipalities of Mulmur, Shelburne and perhaps Amaranth to determine if there is a commitment for a shared vision and plan for Recreation and Sport in the communities of north Dufferin.

F. CDRC-

That if Melancthon is to have a continuing role in the governance/funding of the CDRC that the CDRC (and participating municipalities) prioritize and commit to the development and articulation of a shared Vision and Strategic Plan. Absent this immediate commitment and development then Melancthon should forthwith “withdraw” from the current governance/funding model. This recommendation should be considered a priority and not one to take any time and/or be played politics. Timeline-complete by April, 2023 and before any further capital contributions to the CDRC.

Further, if Melancthon is to continue as part of the CDRC then any governing Agreement must be current in its drafting and understanding, including the recognition that the funding model is current and that capital contribution to reserves are protected. If the other municipalities are not prepared to immediately undertake and address this recommendation then Melancthon should withdraw.

G. NDCC-

The Task Force recognizes that for many the NDCC has been and is part of their life and it forms part of community. The underlining challenge is that the projected financial commitment to the capital and ongoing annual cost is not viable for Melancthon as reflected in the majority of respondents to the Survey.

The recommendation is that Melancthon withdraw from the NDCC and not be part of any ongoing joint operation with Mulmur. Melancthon, with the adoption of this recommendation, might consider adopting, at least for the immediate future, a User Fee reimbursement, if Mulmur were to impose the same, for Melancthon residents with a maximum annual cap on the User fee (hockey/figure skating).

IF there is to be any go-forward jointly by Melancthon and Mulmur (and perhaps any third-party private person/group) then it must be premised on a model that does not create any financial obligation that exceeds the current level, both in terms of debt and annual cost AND the ownership/governance structure must be Fair to Melancthon.

The timeline for this recommendation should also be considered immediate and before any further capital funds are contributed.

H. Southgate-

In the short/immediate term continue the existing Agreement/funding as the Dollar sum is very modest. It would be anticipated that given the developments in Southgate and the impact on Melancthon this Agreement should be terminated in the immediate future (2024?).

I. Recreation programming – while not a recommendation the Task Force acknowledges the numerous suggestions made by Melancthon residents for recreation and sport programming, be it indoor or outdoor. The Task Force can only recommend that those with the suggestions be part of a Volunteer group/persons who would provide the requisite leadership to provide the same, whether in the Parks or at the Horning's Mills Hall.

J. Promotion-

That Council direct staff, perhaps with the assistance of the Recreation Committee, to develop a policy and implement the same for the use of the municipal social media platforms (website, Facebook, newsletter) that would link, encourage and promote Recreation and Sports groups/associations serving greater Melancthon. Timeline- it would be hoped that this Recommendation could be in place in the near future, perhaps the late spring, 2023.

CONCLUSION

The Melancthon Recreation and Task Force thank the people of Melancthon who have provided their input and the Council of the Township for creating the opportunity to consider and make recommendations that might better serve the people of Melancthon.

Sport and Recreation are a critical part of who we are as a community and as a people.

With this Report the mandate of the Task Force is complete.

Submitted by:

David Thwaites and Emma Holmes

December 6, 2022

MELANCTHON RECREATION TASK FORCE

PURPOSE

The Melancthon Recreation Task Force is to investigate, research and make recommendations to the Township of Melancthon referencing Recreation planning, opportunities, funding and the future direction for Recreation in the Township of Melancthon

MANDATE

The Melancthon Recreation Task Force will:

- 1.** review the history and data of Melancthon's "Recreation" commitment and contribution, including an understanding of the composition/makeup of the community;
- 2.** identify the current member groups, organizations and associations, governmental and non-governmental stakeholders;
- 3.** obtain information on the current composition of the Township and identify, if possible, trends that may impact the future;
- 4.** invite and provide a forum for the input of Melancthon residents on the short term and long term vision, plan, development and encouragement of Recreation in and for Melancthon, through public meetings and surveys;
- 5.** invite the input of Recreation stakeholders on data related to Melancthon users and to obtain information relating to the short term and long term plans for the Stakeholder, including suggestions as to how Melancthon might support and encourage users for Stakeholders;
- 6.** connect with other local municipalities, including the County of Dufferin, to solicit information on the development of Recreation "Plans" and strategic planning for the future for purposes of gaining insight and to the prospects for partnering;
- 7.** make recommendations to the Municipal Council for the Township of Melancthon in accordance with the Purpose of the Task Force

TIMELINE

The Melancthon Recreation Task Force understands that its creation, purpose and mandate has been by the current Municipal Council of the Township with a view to making its recommendations to the new Council of the Township in December, 2022, unless its purpose and mandate have been amended or extended by the new Council.

Received by the Council of the Township of Melancthon on August 11, 2022.

THE CORPORATION OF THE TOWNSHIP OF MELANCTHON

BY-LAW NO. 66 - 2021

**BEING A BY-LAW TO AUTHORIZE THE MAYOR AND CLERK TO EXECUTE
A JOINT RECREATION AGREEMENT BETWEEN THE TOWNSHIP OF
MELANCTHON & TOWNSHIP OF MULMUR**

WHEREAS pursuant to s.202 of the Municipal Act, 2001, two or more municipalities may enter into an agreement to provide for matters which are necessary or desirable to facilitate the establishment and operation of a joint municipal service board;

AND WHEREAS the municipal councils of the Township of Melancthon and the Corporation of the Township of Mulmur desire to establish joint recreation services for the mutual benefit of their residences and ratepayers at the North Dufferin Community Centre;

NOW THEREFORE THE COUNCIL OF THE CORPORATION OF THE TOWNSHIP OF MELANCTHON HEREBY ENACTS AS FOLLOWS:

1. That the Mayor and Clerk are hereby authorized to execute a Joint Recreation Agreement, which is attached as "Schedule A" hereto and forms part of this By-law.
2. This By-law shall come into force and take effect immediately upon the final passing of same.
3. That By-law 45-2017 is hereby repealed upon the execution of "Schedule A" by both the Township of Melancthon and Corporation of the Township of Mulmur.

READ A FIRST, SECOND AND THIRD TIME AND FINALLY PASSED on this 4th day of November, 2021.


.....
DARREN WHITE, MAYOR


.....
DENISE HOLMES, CLERK

AGREEMENT AS OF November 4, 2021

BETWEEN:

THE CORPORATION OF THE TOWNSHIP OF MULMUR,
hereinafter referred to as "Mulmur"

-and-

THE CORPORATION OF THE TOWNSHIP OF MELANCTHON,
hereinafter referred to as "Melancthon"

This Agreement witnesseth that, in consideration of the mutual covenants and conditions herein contained, Mulmur and Melancthon agree to the following:

1. Mulmur is the owner of the lands identified as Con 3 W E PT Lot 25, RP 7R-4424 Part 3, on which the facility known as the North Dufferin Community Centre ("NDCC") is located. The NDCC includes all land, buildings, improvements, equipment and chattels pertaining to its operations.
2. Mulmur Township shall continue to be the sole owner of the NDCC.
3. The NDCC shall be operated in compliance with the provisions of the *Municipal Act, 2001*, SO 2001, c 25, and any applicable regulations, as amended from time to time.
4. The NDCC shall be managed by a joint municipal service board of the Townships of Mulmur and Melancthon, constituted by this agreement pursuant to s. 202 of the *Municipal Act, 2001*. The said joint municipal service board shall be known as the NDCC Board of Management ("Board"), which shall have all the powers given by the *Municipal Act, 2001*, and those given by this Agreement.
5. The Board shall have eight (8) members, all of whom have voting rights. The Board shall be comprised of one (1) member of Council from each of Mulmur and Melancthon, two (2) community members from each of Mulmur and Melancthon, and two (2) other community members-at-large. The Board shall recommend nominated candidates, drawn from community applicants to the parties. The Board members shall be appointed by both parties by resolution. In the event of a disagreement, each party shall appoint 3 community members of its choice to the Board. Nominated candidates shall serve for a term of which they are appointed. The parties shall also have the power to designate the appointed Council representatives to the Board, and may set their term on the Board, not to exceed the term of the Council on which they sit. The quorum of the Board shall be five (5).
6. No person shall be appointed as a Board member unless that person has been appointed by the parties in accordance with the previous paragraph and has received a Criminal Records Check to the satisfaction of both parties' Councils.
7. The Board shall elect a Chairperson (Chair) and Vice-Chairperson from among its members at the first meeting of the Board each calendar year. The Chair shall preside at all meetings of the Board and be charged with the general administration of the business and affairs of the Board. The minutes of that meeting shall identify the persons elected to each of the identified positions.
8. The Board shall hold an Annual General Meeting at the call of the Chair, with due prior notice to both parties
9. The Board shall operate under the Township of Mulmur's policies and procedures.
10. Insurance shall be provided through Mulmur's insurance provider, and the cost will be billed to the Board.
11. A staff member from Melancthon shall act as the Secretary of the Board at no cost.

12. The Treasurer of Mulmur shall act as the Treasurer of the Board at no cost for his or her time. The Treasurer shall keep full and accurate books and records of all transactions of the Board. The Treasurer shall render to the Board at the meetings thereof, or whenever required, an account of all transactions and of the financial position of the Board. The Treasurer shall pay only such items as are approved by the Board.
13. It shall be the policy of the Board that the current year's operating surplus or deficit be allocated to the following year's budget over and above a \$40,000 operating reserve maintained for cash flow purposes.
14. Each Township shall contribute \$20,000 on January 1, 2018, to create an operating reserve for the Board to utilize for cash flow purposes.
15. Commencing 2018, levies shall be paid on February 1st, May 1st, August 1st and October 1st of each year.
16. The Board will maintain a recreational capital reserve account to hold any unused capital contributions each year. This reserve will be used to absorb the impact of large purchases and/or unforeseen emergency capital requirements as approved by the Board. A report on the balance of the reserves shall be provided on an annual basis or as requested by the parties.
17. The Township of Mulmur shall have responsibility and authority, over the human resources and staffing.
18. Subject to statutory restrictions and those set out in this agreement, the Board shall be responsible for the development of standard operating procedures and policies for the facility operations and programs as required to be approved by each Township.
19. The Board may recommend annual user fee charges to be approved by each Township.
20. The Board shall prepare the estimate of the Board's net financial requirements for the year ("Budget"). There shall be no deficit budgeting. The Board shall work co-operatively and equitably with the parties to the Agreement to fund all operational and developmental expenses.
21. The Budget shall be submitted annually to each Township for approval no later than October 31st. The parties shall have the right to amend the Budget by mutual agreement prior to approval.
22. Upon approval of the Budget by both parties, each party shall appropriate such monies as may be requisitioned by the Board from time to time not to exceed the monies identified in the approved Budget.
23. The Board shall not make or incur liability for any expenditure that is not approved as part of its Budget, and the parties shall not be liable for any expenditure that is not approved.
24. Regardless of the source and extent of funding, the Board must recommend to each Township, for approval, any capital improvements not already approved in the budget.
25. The Township of Mulmur may spend monies on the NDCC facility in addition to the NDCC budget at 100% contribution at its sole discretion as required.
26. The parties shall be responsible for the approved operating and capital levies expenditures and any deficit of the Board as follows:


Mulmur 50%
Melancthon 50%
27. The Board shall keep books and records, approve expenditures and issue cheques in accordance with the approved Budget.

- a. The Board shall maintain its own separate bank account.
 - b. All accounts to be paid shall be approved by the Board (this may occur after payment has happened in order to avoid late payment fees).
 - c. The Board's accounts shall be audited annually by the Municipal auditor or more frequently as may be required.
 - d. The draft minutes of the Board shall be promptly circulated to the respective municipal Councils.
28. In the event that either Mulmur or Melancthon wishes to cease participating in the Board, they may do so by providing one (1) year written notice of termination to the other party and the Board. Any written notice given as aforesaid shall terminate this Agreement as of the 31st of December of the next calendar year.
29. The parties shall renegotiate this agreement in the event that an additional municipality or other permitted party wishes to join in this agreement and is approved by all parties to this agreement.
30. This Agreement is personal to the parties and may not be assigned.
31. The parties covenant that they are entering into this Agreement in good faith and that they shall carry out its provisions in good faith.
32. All previous agreements signed are hereby null and void.

In WITNESS WHEREOF each of the parties hereto has affixed its corporate seal attested to by the proper officers duly authorized in that behalf;


SIGNED, SEALED AND DELIVERED
in the presence of:

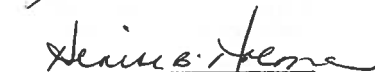
THE CORPORATION OF THE
TOWNSHIP OF MULMUR


MAYOR


CLERK

THE CORPORATION OF THE
TOWNSHIP OF MELANCTHON


MAYOR


CLERK

AGREEMENT AS OF JANUARY 1, 1994

AMONG:

THE CORPORATION OF THE TOWN OF SHELBURNE
("Shelburne")

-and-

THE CORPORATION OF THE TOWNSHIP OF AMARANTH
("Amaranth")

-and-

THE CORPORATION OF THE TOWNSHIP OF MELANCTHON
("Melancthon")

-and-

THE CORPORATION OF THE TOWNSHIP OF MONO
("Mono")

MANAGEMENT AGREEMENT

IN CONSIDERATION of the mutual covenants the parties agree to the following. The background facts are that:

(A) Shelburne is the owner of lands, the legal description of which is Part 2, Plan 7R-1308, and part 1, Plan 7R-1148, being Part of Lot 2, Concession 2, Old Survey, Township of Melancthon, County of Dufferin, known as Centre Dufferin Recreation Complex ("Complex"). The Complex includes all buildings, improvements and chattels pertaining to its operations.

(B) Pursuant to the provisions of Community Recreation Centres Act the parties have entered into an agreement to manage the Complex, dated February 24, 1978, which agreement was further amended by an agreement in 1992, to expire January 1, 1994.

(C) The Parties are desirous of amending their previous agreements.

1. This Agreement shall run for five years. Unless at least one of the parties shall give a written notice of termination to the other parties at least 60 days before the expiry of this agreement, the term of this agreement shall be deemed to be renewed for a period of one year and so on from year to year.
2. The Complex shall be operated in compliance with the provisions of the Community Recreation Centres Act, R.S.O. 1990, c. C.22, and Regulations, as amended from time to time.
3. The Town shall continue to be the sole owner of the Complex.
4. For the duration of this Agreement the parties shall keep the Complex for recreational use.
5. The Complex shall be managed by a Committee of Management ("Board" or "Board of Management"), which shall have all the powers given by the Community Recreation Centres Act, and those given by this agreement. The Board of Management shall be a local board within the meaning of the appropriate legislation.
6. The Board of Management shall have nine members. The Board members shall be appointed by the parties, who shall also have the power to replace or remove their appointed Board members. The number of Board members to be appointed is as follows:

Shelburne	4 (two of whom shall be council members)
Amaranth	2
Melancthon	2
Mono	1

No person shall be appointed a Board member, unless that person is qualified to be elected as a member of the council of the appointing party.

7. The Board of Management shall have a Chairman, Vice-Chairman, Secretary, and Treasurer, to be elected by the Board members. The Board of Management shall develop other organization structure and procedural rules as may be thought desirable. The quorum of the Board of Management shall be five.

8. Subject to statutory restrictions and those set out in this agreement, the Board of Management shall develop policies, rules, and fee schedules.

9. The Board of Management shall prepare the estimate of the Board's net financial requirements for the year ("Budget"). There shall be no deficit budgeting. Funds required for development, improvement, maintenance and repairs may be raised through rentals, grants, donations or other means. The Board of Management shall work co-operatively and equitably with the parties to the Agreement to fund all operational and developmental expenses.

10. The Budget, with a statement as to the proportion of the Budget to be charged to each party shall be submitted to each party for approval. As provided in the Community Recreation Centres Act, the parties shall have the right to amend the Budget prior to approval. The parties agree that the statutory right of amendment is given in proportion to the financial responsibilities of the parties, that is to say, the amendments must be approved by parties responsible for more than 50% of the annual operating costs of the Complex.

11. As provided in the Community Recreation Centres Act, each party shall approve the Budget and shall appropriate such moneys as may be requisitioned by the Board from time to time, but not exceeding in any year the party's share of the amount of the approved Budget.

12. As provided in the Community Recreation Centres Act, the Board shall not make or incur liability for any expenditure that is not approved as part of its Budget, and the parties shall not be liable for any expenditure that is not approved.

13. Regardless of the source and extent of funding, all development and all improvement must be approved by the Board of Management.

14. The parties shall be responsible for the approved expenditures of the Board in the following proportions:

Shelburne	62%
Amaranth	15%
Melancthon	15%
Mono	8%
Total	100%

15. The Board of Management shall keep accounts under the direction of the Municipal Auditor, approve expenditures and issue cheques in accordance with the Budget.

- a. The Board of Management shall maintain its own separate bank account/s.
- b. All accounts shall be approved by the Board of Management.
- c. All cheques shall be signed by one of the designated Board members and the Treasurer.
- d. The Board of Management accounts shall be audited by the Municipal auditor annually, or more frequently as may be required by the Board of Management.
- e. The minutes of the Board of Management (together with the statements of revenues, expenses, accounts) shall be promptly circulated to the respective municipal Councils.

16. The parties shall renegotiate this agreement, including terms of admission, proportion of representation and proportion of financial responsibility, in the event that an additional municipality or other permitted party wishes to join in this agreement, and is approved by all the parties to this agreement.

17. This Agreement is personal to the parties and may not be assigned.

18. The parties covenant that they are entering into this Agreement in good faith and that they shall carry out its provisions in good faith.

This Agreement is executed by the parties under the hands of their duly authorized officers, all of whom have the authority to bind their respective organizations.

The Corporation of the Town of Shelburne
per:


.....


Mayor


.....

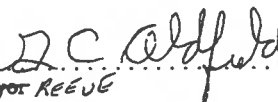
Clerk

The Corporation of the Township of Amaranth
per:


.....
Mayor REEVE

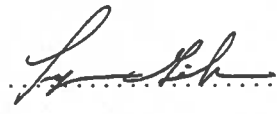

.....
Clerk

The Corporation of the Township of Melancthon
per:


.....
Mayor REEVE


.....
Clerk

The Corporation of the Township of Mono
per:


.....
Mayor


.....
Clerk

**The Corporation of the Township of
Southgate By-law Number 2019-184**

**being a by-law to authorize an agreement
between The Corporation of the Township of Melancthon
and The Corporation of the Township of Southgate**

Whereas the Municipal Act, 2001, Chapter 25, as amended, Section 5 (3), states that municipal power, including a municipality's capacity, rights, powers and privileges, shall be exercised by by-law unless the municipality is specifically authorized to do otherwise; and

Whereas Section 8 of the Municipal Act, 2001, Chapter 25, as amended, provides that a municipality has the authority to govern its affairs as it considers appropriate and enables the municipality to respond to municipal issues; and

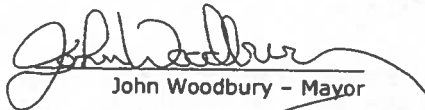
Whereas Section 9 of the Municipal Act, 2001, Chapter 25, as amended, provides that a municipality has the capacity, rights, powers and privileges of a natural person for the purpose of exercising its authority under this or any other Act; and

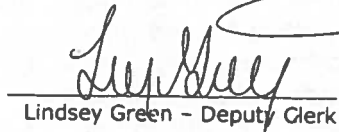
Whereas it is deemed necessary and desirable that the Council of the Corporation of the Township of Southgate enact a by-law authorizing the Corporation to enter into an agreement with the Corporation of the Township of Melancthon,

Now therefore be it resolved that the Council of the Corporation of the Township of Southgate enacts as follows:

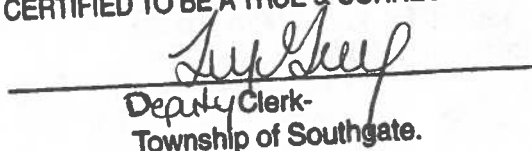
1. **That** the agreement between The Corporation of the Township of Melancthon and The Corporation of the Township of Southgate, attached hereto at Schedule A is hereby ratified and confirmed; and
2. **That** the Mayor and Deputy Clerk are authorized to sign the agreement on behalf of the Township of Southgate; and
3. **That** where the provisions of any other by-law, resolution or action of Council are inconsistent with the provisions of this by-law, the provisions of this by-law shall prevail.

**Read a first, second and third time and finally passed this 4th day of
December, 2019.**


John Woodbury - Mayor


Lindsey Green - Deputy Clerk

CERTIFIED TO BE A TRUE & CORRECT COPY


Deputy Clerk -
Township of Southgate.

THIS AGREEMENT made in duplicate this 4th day of December, 2019

BETWEEN:

**THE CORPORATION OF THE
TOWNSHIP OF SOUTHGATE**

hereinafter called "Southgate" of the First Part;

And

**THE CORPORATION OF THE
TOWNSHIP OF MELANCTHON**

hereinafter called "Melancthon" of the Second Part;

WHEREAS each of the Parties hereto wishes to clarify its obligations to the other Party with respect to the Southgate Recreation Services in Dundalk providing access to the residents of Melancthon in the Dundalk services area. These services include access to the Dundalk Arena & Community Centre facilities, Dundalk Swimming Pool, Baseball diamonds, soccer fields, parks, playgrounds and other recreation infrastructure in the Village of Dundalk;

NOW THEREFORE THIS AGREEMENT WITNESSETH that in consideration of the mutual covenants of each Party, the one with the other, the Parties hereto covenant and agree as follows:

1. The Dundalk Recreation services and facilities shall be used jointly by the parties hereto with all parties to have equal rights, and shall be under the management and control of the Recreation Department of the Township of Southgate and will report to the Southgate Recreation Advisory Board (Board) or its future committee structure and the Township of Southgate Council.
2. It is agreed that the Board or committee shall be appointed every four years by resolution, by the Council of Southgate, and shall be composed of membership of the Township of Southgate and qualify to be elected as members of the Council of Southgate, and one (1) of whom shall be from Melancthon Council.
3. The Council members that act as committee members at recreation committee level take part in the budget discussions. Discussions and proposals will be communicated through meeting minutes and council representatives to both municipal councils. Concerns from Melancthon Council on recreation budget concerns should be sent in writing to Southgate Council prior to the 15th day of April in every year.
4. It is agreed that subject to the provisions of Section 5 of the Act, the Board shall formulate policies, rules and regulations for and relating to the administration and the use of the Dundalk Community Recreation facilities with Southgate Council approval.

5. It is agreed that the operating and capital cost deficits for the operating of the facilities shall be split by the municipalities as follows:

Southgate	90%
Melancthon	10%

Further Melancthon's deficit contributions are capped and will not exceed \$8,000.00 for operating and \$6,000.00 for capital, per year.

6. It is agreed that this agreement will be indexed annually starting in the 2021 calendar year to the Cost of Living Allowance (COLA) established for Ontario based on the October of the previous year published COLA rate.
7. It is in Southgate councils best interest seeing as 90% of all recreation deficits in Dundalk is the burden of Southgate tax payers to manage these costs, which ultimately Melancthon council benefits from as well. However large capital requirements are necessary from time to time. In light of this capital costs will be managed as low as possible. However the replacement of high cost infrastructure and unforeseen failures periodically cause larger than normal capital costs. Some are budgeted and predictable and some are not. Southgate maintains reserve accounts for higher than normal and these unforeseen expenses.

Southgate will maintain a Melancthon Recreation reserve account to hold any unused capital contributions each year. This reserve will be to absorb the impact of large purchases and or unforeseen emergency capital requirements in future years where capital costs or failures of a single purchase exceeds \$50,000.00. Melancthon will not be indebted to Southgate for more than the annual capital plus the balance of the Melancthon reserve account at that point in time will be provided on an annual basis by the Southgate Treasurer.

8. It is further agreed that Capital costs shall be shared by the participating municipalities in the same proportions as set out in Clause 5 providing that a five year capital plan be presented to the Councils for approval and that they are kept current.
9. It is agreed that this agreement shall be for a period of 4 years starting January 1, 2020 and expire December 31, 2023. At that time the agreement will be reviewed and may be extended by agreement of both parties.
10. The parties hereto shall execute such further assurance as may be reasonably required to carry out the terms hereof.
11. It is further agreed that these presents and everything herein shall respectively ensure to the benefit of and be binding upon the parties hereto and their respective successors and assigns.

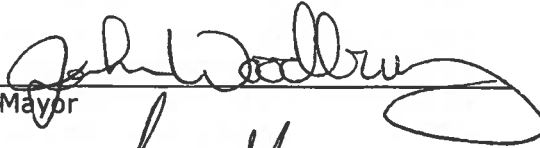
12. The parties agree that this agreement may be amended at any time by the mutual consent of the parties, after the party desiring the amendment(s) gives the other party a minimum of thirty (30) days written notice of the proposed amendment(s).

13. The previous agreement dated December 17, 2014 shall be in effect until December 31, 2019.

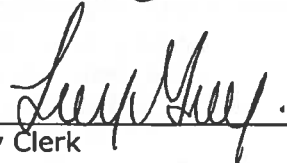
In WITNESS WHEREOF each of the parties hereto has affixed its corporate seal attested to by the proper officers duly authorized in that behalf;

SIGNED, SEALED AND DELIVERED
in the presence of:

THE CORPORATION OF THE
TOWNSHIP OF SOUTHGATE



Mayor

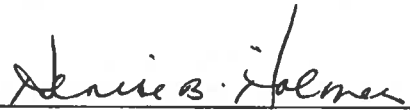


Deputy Clerk

THE CORPORATION OF THE
TOWNSHIP OF MELANCTHON



Mayor



Clerk



The Corporation of

THE TOWNSHIP OF MELANCTHON

157101 Highway 10, Melancthon, Ontario, L9V 2E6

melrectaskforce@outlook.com

SURVEY- MELANCTHON RECREATION TASK FORCE

The Melancthon Recreation Task Force was created by the Township Council in July, 2022 in response to a suggestion of a Melancthon resident that Melancthon governance have a better understanding of the needs and wants of the residents in the area of Recreation/Sports and the need for a Recreation Plan rather than an ad hoc approach to simply financially supporting different facilities.

The Terms of Reference for the Task Force were endorsed by Council on August 11, 2022 and are available for viewing on the Township website.

This Survey forms part of the outreach by the Task Force to solicit the input of Melancthon residents. Please return the completed Survey to the Task Force email referenced or by mail to the Township municipal office. There will be a public zoom meeting conducted in the near future as well. Input can also be provided direct to the Task Force by email: melrectaskforce@outlook.com

The Survey does not require that you identify yourself or provide any personal information beyond the few demographic questions. Identification would however allow Task Force members to follow-up with you if you wished or if there were questions arising from any comments/suggestions. The Task Force undertakes not to share/release any personal data/information without your consent.

The Task Force recognizes, as with any survey, that there is no perfect question or format. We do want your input and therefore invite such beyond the strict format of the Survey if you so wish. The Task Force members are not survey experts, we simply will use to the data/information for purpose of making recommendations to the Council of the Township by, hopefully, late 2022.

Thank you for taking the time to provide your input.

Task Force Members: Emma Holmes and David Thwaites

PS- It is noted that there are no municipal personnel or financial resources being used by the Task Force as there existed no budget line for this venture.

QUESTIONS

DEMOGRAPHICS

1. In what area of Melancthon do you reside?
2. In what age demographic are you? (please circle)
Under 18 18-39 39-64 65 over
3. How many persons occupy your family residence?
Adults- Children (under age 18)

PERSONAL RECREATION/SPORTS

4. In what recreational/sport activities, if any, do you and your family participate?

5. What sport/recreation facilities/resources would you like to see encouraged and promoted for yourself and the residents of Melancthon?

FACILITIES

6. Melancthon Township provided in 2021 approximately \$118,000 to support the Centre Dufferin (CRDC), the North Dufferin Centre (Honeywood Arena) and the Dundalk/Southgate Recreation complex. In 2022 the budget for the three facilities totals \$155,000. In addition the Township contributed some funds to the Corbetton Park and Hornings Mills Park.

Do you support the use of municipal tax dollars for these facilities?

Do you believe Melancthon should be spending more/less in the promotion of recreation and sports?

7. Do you/your family use the facilities at CRDC? Honeywood Arena? Dundalk Arena? Parks at Corbetton or Hornings Mills?

If so, for what purpose and with what frequency?

8. Melancthon Township has over the years had a "partnership" with Mulmur Township for the operations at the Honeywood Arena. There is, apparently, a very limited life expectancy for the current complex. The Townships recently undertook to consider the redevelopment of a multi-use complex with a price tag of multiple millions of dollars. (grant application to co-fund project was rejected). In your opinion should Melancthon undertake the requisite funding, regardless of cost, or what other option should Melancthon pursue?

9. Melancthon Township has over the years been part of a multi-local government governance operated CDRC in Shelburne, contributing approximately 15% of the operating and capital needs (the sharing % is determined based on population as adjusted periodically). The governance model has recently been the subject of review as Shelburne has sought to take over the ownership/governance. Other local governments, including Melancthon, are considering the options. Do you support the existing model or a different model? At what cost?

10. Melancthon has, pursuant to an agreement with Dundalk/Southgate, been contributing approximately \$10,000 annually to the Dundalk recreation complex. Melancthon has a seat at the Recreation Advisory Board. Do you support this continued model and at what cost? Options?

PARKS

11. Melancthon currently has two community parks, Hornings Mills Park and Corbetton Park. Do you/your family use either park and if so with what frequency and for what purpose?

12. What are your suggestions for either park that would provide a more user friendly park and promote use? At what cost?

13. The County of Dufferin has most recently presented a draft Recreation Plan for the development and use of the two tracts of forest lands (one off 8thLine SW, the other at County 21 and 5th Line). Have you used these resources? Would you use these resources for the purposes outlined in the draft Recreation Plan? Should Melancthon “partner” with the County to promote the use of the properties?

14. The County of Dufferin owns/controls the use of the rail corridor between Shelburne and Dundalk. The County Recreation Plan contemplates various recreational uses. Do you use the corridor? If so for what recreational activities? Suggestions?

GOLF COURSES

15. There are two privately owned golf courses in Melancthon, Shelburne Golf and Dundel Golf. Have you and do you use these facilities?

RECREATION AND SPORTS

16. There are numerous recreation and sporting activities available throughout the greater Melancthon area. What are your suggestions for how, if at all, Melancthon as a Township should promote, encourage, partner with organizations involved with recreational and sports activities?
17. Some municipalities require that “non-resident user fees” be paid by individuals involved in certain activities (eg, Shelburne Minor Soccer, baseball, Orangeville recreational programs). What is your opinion on the use of this “fee”? Should this be a fee paid by Melancthon as a whole or by the individual? Would the imposition of such a fee impact your participation in the activity?
18. What other comments and suggestions would you like to share with the Task Force for its consideration?



**The Corporation of the
TOWNSHIP OF MELANCTHON
157101 Highway 10, Melancthon, Ontario, L9V 2E6**

STAFF REPORT

TO: Council
FROM: Sarah Culshaw, Treasurer/Deputy Clerk
DATE: March 2, 2023
SUBJECT: Budget Draft

Purpose

The purpose of this report is to present the 2023 Draft Budget to Council for review and discussion.

Discussion

Attached with the Draft Budget is:

- 2023 Draft Budget as of March 2, 2023
- Revised Reserve Chart
- 2023 Capital Expenditures
- Updated 5 year Capital plan report for Capital needs for road projects.

The budget attached shows a 6.16% increase representing a 4.37% increase once growth is considered. Below is a graph indicating the tax increase for a property with a \$500,000 assessment.

		Assessment	RT Tax Rate	Tax Amount
2022	Assessment	\$ 500,000.00	0.495430%	\$ 2,477.15
2023	Assessment	\$ 500,000.00	0.511715%	\$ 2,558.58
			Difference	\$ 81.42
			Monthly Amt	\$ 6.79

Respectfully submitted.

Sarah Culshaw



**The Corporation of the
TOWNSHIP OF MELANCTHON
157101 Highway 10, Melancthon, Ontario, L9V 2E6**

STAFF REPORT

TO: Mayor White and Members of Council

FROM: Sarah Culshaw, Treasurer/Deputy Clerk

DATE: March 2, 2023

SUBJECT: 5-year Capital Plan (updated)

Purpose

The purpose of this report is to present the estimated capital expenditures over the next 5 years, and methods of funding considerations.

Discussion

The 2023 Draft budget is proposing to spend \$1,483,000.00 on capital expenditures. This includes road projects, bridge projects and equipment. Of these capital expenses, \$1,157,000.00 are from reserves and \$326,000.00 are through the tax base and OCIF formula funding (\$100,000.00). The previous distributed report presented the Capital information for bridges, equipment and road projects. The changes made in the budget at the last meeting only impacted the roads. Therefore, below please find an updated chart for the road projects.

5 YEAR CAPTIAL PLAN - ROADS

Road	Road Section	Approximate Distance	Approximate Costing	Annual Total
2024				
15 Sideroad	Main Street E to Gravel	1km	\$250,000	\$795,000
4th Line OS	County Rd 17 S to Lot 9 & 10	750m	\$125,000	
Hunter Parkway	5 Sideroad to County Rd 124	300m	\$70,000	
Goegre, Addeson & Lloyd Street	Loop off of Main Street	500m	\$100,000	
Mill Lane	Main Street to Deadend	650m	\$250,000	
2025				
3rd Line OS	5 Sideroad to County Rd 17	2km	\$350,000	\$1,075,000
5 Sideroad	3rd Line OS to County Rd 124	1.3km	\$325,000	
3rd Line OS	County Rd 17 to 15 Sideroad	2km	\$400,000	
2026				
2nd Line SW	300 Sideroad to County Rd 17	2km	\$350,000	\$1,050,000
2nd Line SW	County Rd 17 to 270 Sideroad	4km	\$700,000	
2027				
2nd Line SW	270 Sideroad to 250 Sideroad	4km	\$700,000	\$850,000
5 Sideroad	3rd Line OS to County Rd 124	1.3km (2nd Lift of Asphalt)	\$150,000	
2028				
260 Sideroad	2nd Line SW - Outskirts of Riverview	3.65km	\$600,000	\$600,000
			5 Year Total	\$4,370,000

Respectfully submitted,

Sarah Culshaw



TOWNSHIP OF MELANCTHON 2023 DRAFT BUDGET

BUDGET PAGE	DEPARTMENT EXPENDITURES	2022 BUDGET	2022 ACTUAL AS AT MAR 2, 2023	2023 BUDGET
GENERAL GOVERNMENT SERVICES				
4	COUNCIL	\$ 112,350.00	\$ 102,998.33	\$ 117,540.00
5	ADMINISTRATION	\$ 650,504.00	\$ 613,370.31	\$ 696,192.00
5	TAXATION WRITE OFFS	\$ 75,000.00	\$ 21,669.54	\$ 35,000.00
		\$ 837,854.00	\$ 738,038.18	\$ 848,732.00
PROTECTION TO PERSONAL & PROPERTY				
6	FIRE SERVICES	\$ 281,679.99	\$ 284,745.50	\$ 364,169.00
6	POLICING	\$ 432,024.00	\$ 426,036.85	\$ 447,718.00
6	BYLAW ENFORCEMENT	\$ 12,000.00	\$ 8,628.15	\$ 12,000.00
6	CONSERVATION AUTHORITY	\$ 33,615.80	\$ 33,609.80	\$ 34,800.00
6	ANIMAL CONTROL	\$ 3,500.00	\$ 8,836.82	\$ 11,200.00
6	STREET LIGHTS	\$ 6,500.00	\$ 5,178.88	\$ 6,000.00
		\$ 769,319.79	\$ 767,036.00	\$ 875,887.00
TRANSPORTATION SERVICES				
7	SALARIES & ADMINISTRATION	\$ 551,100.00	\$ 509,685.23	\$ 566,820.00
7	ROAD DEPARTMENT BUILDING & MISC.	\$ 145,500.00	\$ 159,919.82	\$ 189,300.00
8	ROAD EQUIPMENT	\$ 266,780.00	\$ 306,124.37	\$ 320,000.00
8	NEW EQUIPMENT	\$ 803,349.13	\$ 144,793.00	\$ 822,000.00
9	BRIDGES, CULVERTS, DRAINS	\$ 458,408.00	\$ 367,010.52	\$ 173,907.00
9	ROADSIDE	\$ 65,000.00	\$ 14,635.98	\$ 45,175.00
9	HARDTOP	\$ 51,700.00	\$ 21,884.48	\$ 48,500.00
9	LOOSETOP	\$ 527,000.00	\$ 500,521.44	\$ 602,000.00
10	WINTER CONTROL	\$ 41,225.00	\$ 49,788.80	\$ 55,000.00
10	ROAD IMPROVEMENTS	\$ 350,000.00	\$ 503,304.74	\$ 650,000.00
10	RESERVES	\$ 160,000.00	\$ 150,000.00	\$ 250,000.00
10	BUILDING IMPROVEMENTS	\$ 119,568.00	\$ 129,690.70	\$ -
		\$ 3,539,630.13	\$ 2,857,359.08	\$ 3,722,702.00

BUDGET PAGE	DEPARTMENT EXPENDITURES	2022 BUDGET	2022 ACTUAL AS AT MAR 2, 2023	2023 BUDGET
11	ENVIRONMENTAL SERVICES	\$ 38,600.00	\$ 25,833.86	\$ 33,918.00
		\$ 38,600.00	\$ 25,833.86	\$ 33,918.00
11	RECREATION	\$ 176,808.00	\$ 173,403.68	\$ 158,273.00
		\$ 176,808.00	\$ 173,403.68	\$ 158,273.00
11	HEALTH & SOCIAL SERVICES (CEMETERY)	\$ 5,000.00	\$ 5,000.00	\$ 5,000.00
		\$ 5,000.00	\$ 5,000.00	\$ 5,000.00
11	LIBRARY	\$ 67,100.00	\$ 67,443.00	\$ 70,915.00
		\$ 67,100.00	\$ 67,443.00	\$ 70,915.00
12	PLANNING	\$ 80,000.00	\$ 70,802.78	\$ 150,000.00
		\$ 80,000.00	\$ 70,802.78	\$ 150,000.00
12	DRAINAGE	\$ 55,380.00	\$ 26,603.38	\$ 55,000.00
		\$ 55,380.00	\$ 26,603.38	\$ 55,000.00
12	RESERVES	\$ 33,000.00	\$ 33,000.00	\$ -
		\$ 33,000.00	\$ 33,000.00	\$ -
12	SUBTOTAL EXPENSES	\$ 5,602,691.92	\$ 4,764,519.96	\$ 5,920,427.00

BUDGET PAGE	DEPARTMENT REVENUE SUMMARY	2022 BUDGET	2022 ACTUAL AS AT MAR 2, 2023	2023 BUDGET
13	TAXATION			
	SUPPLEMENTALS	\$ 85,000.00	\$ 83,072.57	\$ 80,000.00
	GRANT IN LIEU	\$ 1,900.00	\$ 1,946.42	\$ 1,950.00
		\$ 86,900.00	\$ 85,018.99	\$ 81,950.00
13	GRANTS	\$ 515,029.00	\$ 518,713.98	\$ 427,082.00
		\$ 515,029.00	\$ 518,713.98	\$ 427,082.00
13	ADMINISTRATION	\$ 23,650.00	\$ 27,569.00	\$ 25,870.00
		\$ 23,650.00	\$ 27,569.00	\$ 25,870.00
14	PROTECTIONS TO PERSONS & PROPERTY	\$ 4,100.00	\$ 5,119.00	\$ 5,000.00
		\$ 4,100.00	\$ 5,119.00	\$ 5,000.00
14	ROADS	\$ 1,092,930.00	\$ 809,640.00	\$ 1,351,442.00
		\$ 1,092,930.00	\$ 809,640.00	\$ 1,351,442.00
14	PLANNING	\$ 19,700.00	\$ 24,750.00	\$ 53,500.00
		\$ 19,700.00	\$ 24,750.00	\$ 53,500.00
15	OTHER	\$ 945,550.00	\$ 989,050.20	\$ 876,150.00
		\$ 945,550.00	\$ 989,050.20	\$ 876,150.00
15	SUBTOTAL REVENUE	\$ 2,687,859.00	\$ 2,459,861.17	\$ 2,820,994.00

GL ACCT # 5001	COUNCIL EXPENDITURES EXPENDITURES	2022 BUDGET	2022 ACTUAL AS AT MAR 2, 2023	2023 BUDGET
1010	SALARIES, MEETINGS	\$ 92,000.00	\$ 92,162.27	\$ 96,140.00
1025	RECEIVER GENERAL	\$ 3,800.00	\$ 4,272.41	\$ 4,450.00
1030	EHT	\$ 1,600.00	\$ 1,797.24	\$ 1,850.00
1070	MILEAGE	\$ 1,000.00	\$ 50.50	\$ 1,000.00
1080	CONFERENCES/CONVENTIONS/SEMINARS/TRAINI	\$ 7,750.00	\$ 1,866.34	\$ 7,500.00
1090	MEALS	\$ 200.00	\$ -	\$ 600.00
2190	MISCELLANEOUS/HYBRID COUNCIL	\$ 6,000.00	\$ 2,849.57	\$ 6,000.00
	TOTAL COUNCIL EXPENDITURES	\$ 112,350.00	\$ 102,998.33	\$ 117,540.00

GL ACCT # 5002	ADMINISTRATION EXPENDITURES EXPENDITURES	2022 BUDGET	2022 ACTUAL AS AT MAR 2, 2023	2023 BUDGET
1010	WAGES, VACATION PAY, UNUSED SICK PAY	\$ 309,000.00	\$ 306,111.35	\$ 320,360.00
1020	BENEFITS	\$ 32,000.00	\$ 26,746.21	\$ 32,000.00
1022	TRAINING	\$ 3,000.00	\$ 1,134.63	\$ 1,500.00
1025	RECEIVER GENERAL	\$ 18,000.00	\$ 15,940.97	\$ 18,720.00
1026	MEETINGS	\$ 1,000.00	\$ 441.80	\$ 1,000.00
1030	EHT	\$ 6,000.00	\$ 6,001.31	\$ 6,240.00
1040	WSIB	\$ 8,500.00	\$ 7,938.78	\$ 8,840.00
1064	OMERS TOWNSHIP	\$ 33,000.00	\$ 31,209.82	\$ 34,300.00
1070	MILEAGE	\$ 1,500.00	\$ 388.50	\$ 1,500.00
1080	CONFERENCES	\$ -	\$ -	\$ 4,000.00
2025	OFFICE FURNITURE	\$ 1,000.00	\$ 183.16	\$ 1,200.00
2010	OFFICE SUPPLIES	\$ 6,800.00	\$ 5,592.23	\$ 6,800.00
2020	POSTAGE	\$ 7,000.00	\$ 6,538.02	\$ 7,000.00
2030	OFFICE EQUIPMENT	\$ 3,500.00	\$ 4,483.72	\$ 4,500.00
2035	COMPUTER PROGRAM UPDATES & IT SERVICES	\$ 16,000.00	\$ 15,447.44	\$ 23,500.00
2036	COMPUTERS & SERVER	\$ 500.00	\$ -	\$ 500.00
2037	ESRI LICENSE AGREEMENT	\$ 3,100.00	\$ 3,052.80	\$ 3,100.00
2040	ADVERTISING	\$ 1,500.00	\$ 1,545.73	\$ 1,500.00
2050	AUDIT	\$ 21,000.00	\$ 23,733.44	\$ 24,000.00
2060	MEMBERSHIPS	\$ 4,100.00	\$ 4,656.24	\$ 4,000.00
2070	HEATING	\$ 3,400.00	\$ 2,984.83	\$ 3,400.00
2080	HYDRO	\$ 4,800.00	\$ 5,012.01	\$ 5,300.00
2090	TELEPHONE	\$ 2,800.00	\$ 2,253.85	\$ 2,500.00
2094	INTERNET	\$ 1,800.00	\$ 1,692.80	\$ 1,800.00
2095	WEBSITE MAINTENANCE	\$ -	\$ 929.57	\$ 500.00

GL ACCT # 5002	ADMINISTRATION EXPENDITURES EXPENDITURES (CONTINUED)	2022 BUDGET	2022 ACTUAL AS AT MAR 2, 2023	2023 BUDGET
	STRATEGIC PLAN	\$ -		\$ 30,000.00
2100	PROFESSIONAL FEES - LEGAL	\$ 25,000.00	\$ 19,302.95	\$ 25,000.00
2102	INTEGRITY COMMISSIONER SERVICES	\$ 5,000.00	\$ 6,754.51	\$ 3,000.00
2103	HEALTH AND SAFETY SERVICES	\$ 5,000.00	\$ 4,674.98	\$ 4,700.00
2109	EMPLOYEE TOWNSHIP COMPENSATION PLAN	\$ -		\$ 15,000.00
2110	INSURANCE	\$ 55,000.00	\$ 47,424.13	\$ 52,000.00
2120	ELECTION	\$ 15,000.00	\$ 16,678.10	\$ -
2162	BLDG MAINTENANCE	\$ 4,000.00	\$ 1,694.79	\$ 8,000.00
2163	OFFICE CLEANING	\$ 2,400.00	\$ 1,628.16	\$ 2,400.00
2164	LANDSCAPING & GRASS CUTTING	\$ 300.00	\$ -	\$ 300.00
2165	WATER SAMPLING	\$ 125.00	\$ 100.84	\$ 125.00
2170	COVID-19 EXPENSES	\$ 5,000.00	\$ 1,619.22	\$ -
2190	OTHER/MISCELLANEOUS	\$ 5,000.00	\$ 1,708.79	\$ 4,000.00
2200	PETTY CASH	\$ 500.00	\$ 20.00	\$ 500.00
4030	BANK CHARGES	\$ 1,300.00	\$ 937.97	\$ 1,300.00
6135	GRANT TO OTHERS	\$ 2,500.00	\$ 3,750.00	\$ 3,750.00
6133	DONATION TO MARKDALE HOSPITAL (5YRS)	\$ 15,000.00	\$ 15,000.00	\$ 10,000.00
6136	ERSKINE CLINIC	\$ 5,000.00	\$ 5,000.00	\$ 5,000.00
7011	LOAN FOR MUNICIPAL EXPANSION	\$ 13,057.00	\$ 13,056.66	\$ 13,057.00
	TOTAL	\$ 650,504.00	\$ 613,370.31	\$ 696,192.00
4010	TOTAL TAX WRITE OFF EXPENDITURES	\$ 75,000.00	\$ 21,669.54	\$ 35,000.00
	TOTAL ADMINISTRATION EXPENDITURES	\$ 837,854.00	\$ 738,038.18	\$ 848,732.00

GL ACCT #	PROTECTION TO PERSONS/PROPERTY EXPENDITURES	2022 BUDGET	2022 ACTUAL AS AT MAR 2, 2023	2023 BUDGET
	FIRE SERVICES			
3 6010	MULMUR MELANCTHON FD	\$ 103,689.86	\$ 106,755.37	\$ 127,070.00
3 6020	SHELBURNE AND DISTRICT FD	\$ 112,990.13	\$ 112,990.13	\$ 167,099.00
3 6030	TOWNSHIP OF SOUTHGATE FD - OPER/CAP	\$ 65,000.00	\$ 65,000.00	\$ 70,000.00
	SUB TOTAL	\$ 281,679.99	\$ 284,745.50	\$ 364,169.00
	POLICING			
4 3050	POLICING	\$ 419,774.00	\$ 419,266.19	\$ 435,468.00
4 3055	POLICING - ESO	\$ 350.00	\$ 246.66	\$ 350.00
4 3052	POLICING - RIDE	\$ 6,600.00	\$ 6,524.00	\$ 6,600.00
4 3053	POLICE SERVICES BOARD	\$ 300.00	\$ -	\$ 300.00
4 2310	TASK FORCE	\$ 5,000.00	\$ 5,036.10	\$ 5,000.00
	SUB TOTAL	\$ 432,024.00	\$ 426,036.85	\$ 447,718.00
	BY LAW ENFORCEMENT			
4 6155	BY LAW ENFORCEMENT	\$ 12,000.00	\$ 8,628.15	\$ 12,000.00
	CONSERVATION AREA			
4 6040	NOTTAWASAGA VALLEY CA	\$ 13,228.80	\$ 13,222.80	\$ 13,745.00
4 6050	GRAND RIVER CA	\$ 20,387.00	\$ 20,387.00	\$ 21,055.00
	SUB TOTAL	\$ 33,615.80	\$ 33,609.80	\$ 34,800.00
	ANIMAL CONTROL			
13 6140	LIVESTOCK CLAIMS	\$ 1,000.00	\$ 3,935.75	\$ 4,000.00
4 6150	ANIMAL CONTROL	\$ 2,500.00	\$ 4,901.07	\$ 7,200.00
	SUB TOTAL	\$ 3,500.00	\$ 8,836.82	\$ 11,200.00
	STREET LIGHTS			
6 3025	STREET LIGHTS LED	\$ 5,500.00	\$ 5,178.88	\$ 5,000.00
6 3026	STREET LIGHT REPAIR	\$ 1,000.00	\$ -	\$ 1,000.00
	SUB TOTAL	\$ 6,500.00	\$ 5,178.88	\$ 6,000.00
	TOTAL PROTECTION TO PERSONS/PROPERT	\$ 769,319.79	\$ 767,036.00	\$ 875,887.00

GL ACCT # 5005	ROADWAYS EXPENDITURES	2022 BUDGET	2022 ACTUAL AS AT MAR 2, 2023	2023 BUDGET
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SALARIES & ADMINISTRATION				
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1010	SALARIES AND WAGES	\$ 405,000.00	\$ 382,530.18	\$ 421,200.00
1025	RECEIVER GENERAL, EHT & WSIB	\$ 44,000.00	\$ 43,236.95	\$ 45,760.00
1020	BENEFITS	\$ 31,000.00	\$ 24,256.40	\$ 28,000.00
1065	OMERS TOWNSHIP CONTRIBUTION	\$ 36,500.00	\$ 33,450.18	\$ 37,960.00
1070	MILEAGE	\$ 100.00	\$ 12.00	\$ 100.00
1022	STAFF TRAINING AND SEMINARS	\$ 3,000.00	\$ 213.70	\$ 4,000.00
2010	OFFICE SUPPLIES/COMPUTOR	\$ 2,000.00	\$ 1,711.85	\$ 2,000.00
2036	GPS MONTHLY TRACKING EXPENSE	\$ 5,500.00	\$ 4,308.66	\$ 5,500.00
2112	ASSET MANAGEMENT PLAN SUPPORT	\$ 6,000.00	\$ 7,245.31	\$ 6,000.00
2112	ASSET MANAGEMENT PLAN UPDATE	\$ 18,000.00	\$ 12,720.00	\$ -
3105	BRIDGE STUDY/INSPECTIONS	\$ -		\$ 16,300.00
TOTAL		\$ 551,100.00	\$ 509,685.23	\$ 566,820.00

ROAD DEPARTMENT BUILDING MISC.				
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2070	UTILITIES - HEAT	\$ 12,000.00	\$ 15,166.91	\$ 16,000.00
2080	UTILITIES - HYDRO	\$ 7,000.00	\$ 5,261.15	\$ 7,000.00
2090	TELEPHONE	\$ 1,000.00	\$ 1,102.48	\$ 1,200.00
2091	MOBILE PHONE	\$ 1,200.00	\$ 661.39	\$ 1,500.00
2040	ADVERTISING	\$ 750.00	\$ 529.15	\$ 750.00
2041	SIGNS	\$ 5,000.00	\$ 4,565.66	\$ 6,000.00
2110	INSURANCE	\$ 57,400.00	\$ 68,575.37	\$ 70,000.00
2100	LEGAL FEES	\$ 5,000.00	\$ 18,132.31	\$ 20,000.00
2050	AUDIT	\$ 10,000.00	\$ 10,000.00	\$ 10,000.00
2060	MEMBERSHIPS	\$ 150.00	\$ 131.00	\$ 150.00
2165	MATERIALS AND SUPPLIES/STOCK	\$ 7,000.00	\$ 6,761.09	\$ 7,000.00
2166	COVERALLS	\$ 6,000.00	\$ 4,860.70	\$ 6,000.00
3000	SERVICES AND RENTS/MISC	\$ 7,500.00	\$ -	\$ 7,500.00
2103	HEALTH & SAFETY SERVICES	\$ 5,000.00	\$ 4,802.18	\$ 5,000.00
2104	HEALTH & SAFETY SERVICES/SUPPLIES	\$ 500.00	\$ 127.20	\$ 1,000.00
2162	BUILDING MAINTENANCE	\$ 10,000.00	\$ 14,420.04	\$ 20,000.00
2163	SAND DOME REPAIRS		\$ -	
2170	COVID EXPENSES	\$ -	\$ 121.49	\$ -
2185	OIL SEPARATER	\$ 2,000.00	\$ 2,031.34	\$ 2,200.00
2192	SHOP TOOLS	\$ 5,000.00	\$ 933.13	\$ 5,000.00
2190	MISCELLANEOUS	\$ 2,000.00	\$ 1,737.23	\$ 2,000.00
3800	CONTRACT WORK	\$ 1,000.00	\$ -	\$ 1,000.00
TOTAL		\$ 145,500.00	\$ 159,919.82	\$ 189,300.00

GL ACCT # 5005	ROADWAYS EXPENDITURES	2022 BUDGET	2022 ACTUAL AS AT MAR 2, 2023	2023 BUDGET
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ROAD EQUIPMENT

2150	FUEL - CLEAR	\$ 55,000.00	\$ 64,678.72	\$ 70,000.00
2155	FUEL - DYED	\$ 40,000.00	\$ 61,264.34	\$ 65,000.00
3060	WATER TANK	\$ -		
3070/3072	FUEL - PATROL TRUCKS	\$ 18,000.00	\$ 15,300.81	\$ 18,000.00
2180	OIL - TRUCKS AND GRADER	\$ 4,000.00	\$ 4,498.07	\$ 5,000.00
3071	TR # 1 - REPAIRS	\$ 5,000.00	\$ 5,158.03	\$ 5,000.00
3073	TR # 2 - REPAIRS	\$ 15,000.00	\$ 13,706.75	\$ 15,000.00
3074	TR # 3 - REPAIRS	\$ 10,000.00	\$ 8,791.38	\$ 15,000.00
3075	TR # 4 - REPAIRS	\$ 15,000.00	\$ 12,501.44	\$ 15,000.00
3076	TR # 5 - REPAIRS	\$ 15,000.00	\$ 18,740.57	\$ 15,000.00
3077	TR # 6 - REPAIRS	\$ 15,000.00	\$ 19,835.58	\$ 15,000.00
3069	TR # 7 - REPAIRS	\$ 5,000.00	\$ 128.59	\$ 5,000.00
3079	GR#1 - CAT - REPAIRS	\$ 10,000.00	\$ 23,807.20	\$ 15,000.00
3080	GR#2 - REPAIRS	\$ 15,000.00	\$ 5,238.51	\$ 15,000.00
3081	BACKHOE REPAIRS	\$ 3,000.00	\$ 1,842.92	\$ 3,000.00
3082	LOADER	\$ 2,500.00	\$ 402.03	\$ 2,500.00
3083	JOHN DEERE MOWER	\$ 1,000.00	\$ 438.25	\$ 1,000.00
3084	POWER WASHER	\$ 3,000.00	\$ -	\$ 3,000.00
3085	CHAIN SAW	\$ 1,000.00	\$ 324.54	\$ 1,000.00
3086	ROADSIDE MOWER	\$ 1,000.00	\$ 1,205.51	\$ 2,000.00
3500	WINTER CONTROL-PLOW & WING PARTS	\$ 18,000.00	\$ 34,885.00	\$ 20,000.00
7015	JOHN DEERE GRADER LOAN	\$ 2,780.00	\$ 2,796.04	\$ -
2191	RADIO AND TRUCK LICENSES	\$ 10,000.00	\$ 10,580.09	\$ 12,000.00
2195	RADIO MAINTENANCE & REPAIR	\$ 2,500.00	\$ -	\$ 2,500.00
TOTAL		\$ 266,780.00	\$ 306,124.37	\$ 320,000.00

NEW EQUIPMENT (CAPITAL)

7010	VEHICLES - TRUCK	\$ 128,349.13	\$ 144,793.00	\$ -
7005	EQUIPMENT (ACCUMULATOR)	\$ 15,000.00		
	GRADER	\$ 500,000.00		\$ 610,000.00
	TRUCK - 2 TONNE DUALY PICK-UP	\$ 100,000.00		\$ 100,000.00
	PICK-UP EQUIPMENT	\$ 60,000.00		\$ 60,000.00
	TRACTOR WITH BLOWER BRUSHER (loan)			\$ 52,000.00
TOTAL		\$ 803,349.13	\$ 144,793.00	\$ 822,000.00

GL ACCT # 5005	ROADWAYS EXPENDITURES	2022 BUDGET	2022 ACTUAL AS AT MAR 2, 2023	2023 BUDGET
BRIDGES, CULVERTS, DRAINS				
3100	BRIDGE & CULVERT MTCE	\$ 20,000.00	\$ 236.39	\$ 15,000.00
	BRIDGE # 7			\$ 25,000.00
3111	BRIDGE # 11	\$ 304,500.00	\$ 322,495.16	\$ -
3115	BRIDGE # 13	\$ -	\$ 3,371.45	\$ -
3116	BRIDGE #004 - CLOSURE	\$ -	\$ -	\$ -
3100	BRIDGE # 6 - CONTRUCTION - WATERPROOF/PAV	\$ 20,000.00	\$ -	\$ 20,000.00
3112	BRIDGE # 2023 ENGINEERING DESIGN	\$ 18,000.00	\$ -	\$ 18,000.00
3850	DRAIN ASSESSMENTS NEW REPORTS	\$ -	\$ -	\$ -
3851	ROAD CROSSINGS DUE TO DRAIN MTCE	\$ 55,000.00	\$ -	\$ 55,000.00
7021	CULVERT 2027 LOAN PAYMENT	\$ 40,908.00	\$ 40,907.52	\$ 40,907.00
3178	30 SIDEROAD CULVERT - EMERG. REPAIR	\$ -		\$ -
3156	CULVERT 2013	\$ -		\$ -
3165	CULVERT 2021	\$ -		\$ -
	TOTAL	\$ 458,408.00	\$ 367,010.52	\$ 173,907.00
ROADSIDE				
3215	GRASS MOWING & WEED SPRAYING	\$ 5,500.00	\$ 3,208.33	\$ 2,675.00
3205	BRUSHING - TREE TRIM AND REMOVAL	\$ 20,000.00	\$ 4,261.20	\$ -
3206	DITCHING	\$ 30,000.00	\$ -	\$ 30,000.00
3322	CATCH BASINS	\$ 2,500.00	\$ 1,315.25	\$ 2,500.00
3610	GUIDE POSTS & HARDWARE	\$ 2,000.00	\$ 5,851.20	\$ 5,000.00
3315	SHOULDER MAINTENANCE	\$ 5,000.00	\$ -	\$ 5,000.00
	TOTAL	\$ 65,000.00	\$ 14,635.98	\$ 45,175.00
HARDTOP				
3304	PREVENTATIVE MAINTENANCE	\$ 18,000.00	\$ 12,146.64	\$ 20,000.00
3310	COLD MIX, PATCHING, ROUTINE MTCE	\$ 25,200.00	\$ 1,750.70	\$ 6,000.00
3320	SWEEPING, FLUSHING, CLEANING	\$ 5,500.00	\$ 4,959.78	\$ 5,500.00
3321	LINE PAINTING	\$ 3,000.00	\$ 3,027.36	\$ 17,000.00
	TOTAL	\$ 51,700.00	\$ 21,884.48	\$ 48,500.00
LOOSETOP				
3700	CLEARVIEW TOWNLINE	\$ -		
3750	TOWNLINES	\$ 1,000.00	\$ 223.88	\$ 1,000.00
3200	ROADSIDE MAINTENANCE	\$ 1,000.00	\$ -	\$ 1,000.00
3210	GRAVEL RESURFACING	\$ 335,000.00	\$ 341,224.01	\$ 400,000.00
3211	GRAVEL MAINTENANCE	\$ 25,000.00	\$ 12,109.04	\$ 30,000.00
3410	DUST LAYER (CALCIUM CHLORIDE)	\$ 165,000.00	\$ 146,964.51	\$ 170,000.00
	TOTAL	\$ 527,000.00	\$ 500,521.44	\$ 602,000.00

GL ACCT # 5005	ROADWAYS EXPENDITURES	2022 BUDGET	2022 ACTUAL AS AT MAR 2, 2023	2023 BUDGET
WINTER CONTROL				
3510	SAND & SALT	\$ 40,000.00	\$ 46,251.18	\$ 55,000.00
3505	SNOW REMOVAL/BLOWING	\$ 1,225.00	\$ 3,537.62	\$ -
TOTAL		\$ 41,225.00	\$ 49,788.80	\$ 55,000.00
ROAD IMPROVEMENT				
3130	2ND LINE SW - REHABILITATION	\$ 350,000.00	\$ 478,508.25	\$ -
3137	7TH LINE SW - REHABILITATION	\$ -		\$ 150,000.00
3134	RIVERVIEW PAVING	\$ -		\$ 250,000.00
3123	15 SR 3RD LINE TO CTY RD 124 3RD LINE FROM 20 SR 1.2 KM SOUTH 15 SR MAIN ST 1 KM EAST	\$ -		\$ 250,000.00
3122	CHURCH STREET - CURB		\$ 24,796.49	\$ -
TOTAL		\$ 350,000.00	\$ 503,304.74	\$ 650,000.00
RESERVE				
5030	REPLACEMENT EQUIPMENT RESERVE	\$ 150,000.00	\$ 150,000.00	\$ 150,000.00
	ROAD CAPITAL RESERVES	\$ 10,000.00		\$ 100,000.00
TOTAL		\$ 160,000.00	\$ 150,000.00	\$ 250,000.00
BUILDING IMPROVEMENTS				
7041	WORKS BUILDING ROOF REPLACEMENT	\$ 119,568.00	\$ 129,690.70	\$ -
TOTAL		\$ 119,568.00	\$ 129,690.70	\$ -
TOTAL ROAD EXPENDITURES		\$ 3,539,630.13	\$ 2,857,359.08	\$ 3,722,702.00

GL ACCT # 5007	ENVIRONMENTAL SERVICES EXPENDITURES	2022 BUDGET	2022 ACTUAL AS AT MAR 2, 2023	2023 BUDGET
2171	LEVELLING	\$ 7,500.00	\$ -	\$ 7,500.00
2105	LANDFILL STUDY/MONITORING	\$ 16,000.00	\$ 15,833.86	\$ 16,318.00
2190	MISCELLANEOUS	\$ 100.00		\$ 100.00
7001	REHABILITATION RESERVE	\$ 10,000.00	\$ 10,000.00	\$ 10,000.00
7010	ENVIRONMENTAL/SUSTAINABILITY	\$ 5,000.00	\$ 167.90	\$ -
	TOTAL	\$ 38,600.00	\$ 25,833.86	\$ 33,918.00

GL ACCT # 5010	RECREATION SERVICES EXPENDITURES	2022 BUDGET	2022 ACTUAL AS AT MAR 2, 2023	2023 BUDGET
5055	CORBETTON PARK	\$ 2,500.00	\$ 2,500.00	\$ 2,500.00
6060	HORNING'S MILLS PARK	\$ 2,500.00	\$ 5,471.90	\$ 5,500.00
6065	HORNING'S MILLS COMMUNITY HALL	\$ 12,000.00	\$ 8,915.94	\$ 12,000.00
6064	HORNING'S MILLS HALL BLDNG NEEDS ASSESS	\$ -		
6066	HORNING'S MILLS HERITAGE PROJECT	\$ 500.00	\$ 313.47	\$ 500.00
6070	CENTRE DUFFERIN RECREATION COMPLEX	\$ 63,550.00	\$ 67,038.00	\$ 54,000.00
6080	DUNDALK COMMUNITY CENTRE	\$ 14,000.00	\$ 14,521.00	\$ 15,500.00
6100	NORTH DUFFERIN COMMUNITY CENTRE	\$ 76,758.00	\$ 74,643.37	\$ 62,773.00
	HORNING'S MILLS HALL BOARD			\$ 2,000.00
	HERITAGE COMMITTEE	\$ 5,000.00	\$ -	\$ 3,500.00
	TOTAL	\$ 176,808.00	\$ 173,403.68	\$ 158,273.00

GL ACCT # 5016	CEMETARY EXPENDITURES	2022 BUDGET	2022 ACTUAL AS AT MAR 2, 2023	2023 BUDGET
8902	HORNING'S MILLS CEMETERY	\$ 5,000.00	\$ 5,000.00	\$ 5,000.00
8904	ST. PAUL'S CEMETERY			
	TOTAL	\$ 5,000.00	\$ 5,000.00	\$ 5,000.00

GL ACCT # 5011	LIBRARY EXPENDITURES	2022 BUDGET	2022 ACTUAL AS AT MAR 2, 2023	2023 BUDGET
6110	SHELBURNE LIBRARY	\$ 58,500.00	\$ 58,711.00	\$ 61,915.00
6120	DUNDALK LIBRARY	\$ 8,600.00	\$ 8,732.00	\$ 9,000.00
	TOTAL	\$ 67,100.00	\$ 67,443.00	\$ 70,915.00

GL ACCT # 5012	PLANNING SERVICES EXPENDITURES	2022 BUDGET	2022 ACTUAL AS AT MAR 2, 2023	2023 BUDGET
2100	PROFESSIONAL/LEGAL FEES	\$ 50,000.00	\$ 55,802.78	\$ 60,000.00
2018	OFFICIAL PLAN			\$ 30,000.00
2109	NEW ZONING BY-LAW	\$ -		\$ 45,000.00
2101	LPAT/OLT APPEALS	\$ 15,000.00	\$ -	\$ -
2102	LPAT/OLT APPEALS RESERVES	\$ 15,000.00	\$ 15,000.00	\$ 15,000.00
2304	STRADA OPA/ZBA	\$ -		
	TOTAL	\$ 80,000.00	\$ 70,802.78	\$ 150,000.00

GL ACCT # 5009	DRAINAGE EXPENDITURES	2022 BUDGET	2022 ACTUAL AS AT MAR 2, 2023	2023 BUDGET
3060	DRAINAGE SUPERINTENDENT	\$ 50,880.00	\$ 22,177.20	\$ 50,000.00
3070	NUISANCE BEAVER & BEAVER DAM REMOVAL	\$ 4,500.00	\$ 4,426.18	\$ 5,000.00
	TOTAL	\$ 55,380.00	\$ 26,603.38	\$ 55,000.00

GL ACCT # 5002	RESERVES EXPENDITURES	2022 BUDGET	2022 ACTUAL AS AT MAR 2, 2023	2023 BUDGET
	COVID - SAFE RESTART	\$ 28,000.00	\$ 28,000.00	\$ -
5042	SPECIAL RESERVE FUND EMERGENCY RELIEF	\$ 5,000.00	\$ 5,000.00	\$ -
	TOTAL	\$ 33,000.00	\$ 33,000.00	\$ -

TOTAL EXPENTURER	\$ 5,602,691.92	\$ 4,764,519.96	\$ 5,920,427.00
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GL ACCT #	TAXATION REVENUE	2022 BUDGET	2022 ACTUAL AS AT MAR 2, 2023	2023 BUDGET
4001 0700	SUPPLEMENTAL TAXES	\$ 85,000.00	\$ 83,072.57	\$ 85,000.00
4003 0100	PAYMENT IN LIEU	\$ 1,900.00	\$ 1,946.42	\$ 1,950.00
	TOTAL TAXATION REVENUE	\$ 86,900.00	\$ 85,018.99	\$ 86,950.00

GL ACCT # 4004	GRANT REVENUE	2022 BUDGET	2022 ACTUAL AS AT MAR 2, 2023	2023 BUDGET
150	OMPF	\$ 176,500.00	\$ 176,500.00	\$ 175,300.00
300	RIDE GRANT	\$ 6,600.00	\$ 6,524.00	\$ 6,600.00
172	COURT SECURITY & PRISONER TRANSPORT	\$ 1,500.00	\$ 730.00	\$ 730.00
500	LIBRARY GRANT	\$ 4,452.00	\$ 4,452.00	\$ 4,452.00
156	OCIF FUNDING (FORMULA COMPONENT)	\$ 108,537.00	\$ 108,537.00	\$ 100,000.00
159	SAFE RESTART AGREEMENT (COVID)	\$ -		
700	ONTARIO AGGREGATE LIC. FEE	\$ 100,000.00	\$ 118,882.38	\$ 115,000.00
100	DRAINAGE SUPERINTENDENT	\$ 25,440.00	\$ 11,088.60	\$ 25,000.00
164	ICIP GRANT (ROADS BLDG ROOF)	\$ 92,000.00	\$ 92,000.00	\$ -
	TOTAL COUNCIL REVENUE	\$ 515,029.00	\$ 518,713.98	\$ 427,082.00

GL ACCT # 4010	ADMINISTRATION REVENUE	2022 BUDGET	2022 ACTUAL AS AT MAR 2, 2023	2023 BUDGET
100	TAX CERTIFICATES	\$ 3,000.00	\$ 2,640.00	\$ 2,500.00
110	TAX STATEMENT/DUPLICATE TAX BILLS	\$ 500.00	\$ 535.00	\$ 500.00
115	REMINDER/OVERDUE NOTICE FEE	\$ 3,000.00	\$ 3,034.00	\$ 3,000.00
200	BUILDING PERMIT APPROVAL	\$ 4,800.00	\$ 6,600.00	\$ 5,500.00
250	SITE ALTERATION PERMIT APPROVAL	\$ -		\$ -
300	NSF CHEQUE CHARGE	\$ 50.00	\$ -	\$ 100.00
400	PHOTOCOPIES	\$ -		\$ -
4015 0100	DOG LICENCES	\$ 12,000.00	\$ 10,825.00	\$ 10,000.00
4066 0000	LOTTERY LICENSES	\$ 20.00	\$ -	\$ 20.00
4040 0100	LIVESTOCK CLAIM GRANTS	\$ 30.00	\$ 3,935.00	\$ 4,000.00
4064 0000	BUSINESS LICENSES	\$ 250.00	\$ -	\$ 250.00
	TOTAL ADMINISTRATION REVENUE	\$ 23,650.00	\$ 27,569.00	\$ 25,870.00

GL ACCT # 4012	FIRE REVENUE	2022 BUDGET	2022 ACTUAL AS AT MAR 2, 2023	2023 BUDGET
100	FIRE REVENUE	\$ 500.00	\$ 1,534.00	\$ 1,500.00
300	FIRE PERMIT	\$ 3,600.00	\$ 3,585.00	\$ 3,500.00
	TOTAL FIRE REVENUE	\$ 4,100.00	\$ 5,119.00	\$ 5,000.00

GL ACCT # 4020	ROAD REVENUE	2022 BUDGET	2022 ACTUAL AS AT MAR 2, 2023	2023 BUDGET
110	ROADS MISC REVENUE	\$ 1,000.00	\$ 11,620.00	\$ 9,000.00
125	ENTRANCE PERMITS	\$ 1,200.00	\$ 5,200.00	\$ 4,000.00
130	WIDE LOAD PERMITS	\$ 1,320.00	\$ 1,200.00	\$ 2,000.00
200	CULVERTS	\$ -		
140	BRETTON ESTATES SNOW PLOWING	\$ 900.00	\$ -	
500	SHELBURNE ROAD AGREEMENT	\$ 5,660.00	\$ 6,026.00	\$ 6,442.00
	TRANSFER FROM RESERVES			
703	TRFR FROM GAS TAX	\$ 204,500.00	\$ 204,500.00	\$ 135,000.00
704	TRFR FROM ROAD CAPITAL RESERVE			\$ 200,000.00
702	TRFR FROM EQUIPMENT RESERVE - TRUCK	\$ 628,350.00	\$ 144,793.00	\$ 595,000.00
0	TRFR FROM WORKING CAPITAL RESERVE	\$ 250,000.00	\$ 274,797.00	\$ 99,000.00
	TRFR FROM PAVING RESERVE			\$ 74,000.00
	TRFR DEV CHG (GRADER)			\$ 175,000.00
	TRFR DEV CHG (PAVING)			\$ 52,000.00
	TAX STABILIZATION		\$ 161,504.00	
	TOTAL ROADS REVENUE	\$ 1,092,930.00	\$ 809,640.00	\$ 1,351,442.00

GL ACCT # 4035	PLANNING REVENUE	2022 BUDGET	2022 ACTUAL AS AT MAR 2, 2023	2023 BUDGET
100	OFFICIAL PLAN APPLICATION	\$ -		\$ -
310	SITE PLAN APPLICATION FEES	\$ -		\$ -
350	ZONING BY-LAW AMENDMENT	\$ 10,000.00	\$ 3,500.00	\$ 6,000.00
300	CONSENT APPLICATIONS	\$ 7,000.00	\$ 7,000.00	\$ 6,000.00
325	MINOR VARIANCE	\$ 1,000.00	\$ 5,000.00	\$ 5,000.00
200	ZONING REQUESTS	\$ 1,700.00	\$ 750.00	\$ 1,000.00
360	CHANGE OF USE CERTIFICATE APPLICATION	\$ -	\$ 1,500.00	\$ 2,500.00
370	TELECOMMUNICATION FACILITES APPLICATION	\$ -		\$ -
375	PRE-APPLICATION CONSULTATION	\$ -	\$ 7,000.00	\$ 12,000.00
500	PROFESSIONAL SERVICES REIMBURSEMENT	\$ -		\$ -
	TRFR FROM DEV CHG (OFFICIAL PLAN)			\$ 21,000.00
	TOTAL PLANNING REVENUE	\$ 19,700.00	\$ 24,750.00	\$ 53,500.00

GL ACCT # 4050	OTHER REVENUE	2022 BUDGET	2022 ACTUAL AS AT MAR 2, 2023	2023 BUDGET
100	MISCELLANEOUS REVENUE	\$ 500.00	\$ 927.00	\$ 600.00
125	CHD COMMUNITY CONTRIBUTION	\$ 309,000.00	\$ 309,000.00	\$ 309,000.00
130	PLATEAU COMMUNITY CONTRIBUTION	\$ 33,000.00	\$ 34,673.00	\$ 35,000.00
135	DWP COMMUNITY CONTRIBUTION	\$ 265,000.00	\$ 264,000.00	\$ 264,000.00
200	PENALTIES AND INTEREST ON TAXES	\$ 95,000.00	\$ 105,954.00	\$ 105,000.00
300	INTEREST ON DEPOSITS	\$ 11,000.00	\$ 36,155.00	\$ 45,000.00
400	POA	\$ 6,000.00	\$ 40,788.20	\$ 45,000.00
4077 0000	LAND RENTAL	\$ 2,550.00	\$ 2,550.00	\$ 2,550.00
4050 0460	TRFR FROM MMAH-2019 FOR COUNCIL HYBRID	\$ 5,500.00	\$ 5,500.00	\$ 5,000.00
4050 0460	TRFR FROM COVID FUNDING	\$ 28,000.00	\$ 28,000.00	\$ -
	TRFR FROM EMERGENCY RELIEF FUND			\$ 25,000.00
4050 0460	TRFR FROM TAX STABALIZATION (LEGALS OVERA	\$ 15,000.00	\$ 161,503.00	\$ 40,000.00
	TRFR DEV CHG (GRADER)	\$ 175,000.00	\$ -	
	TOTAL OTHER REVENUE	\$ 945,550.00	\$ 989,050.20	\$ 876,150.00
	TOTAL REVENUE	\$ 2,687,859.00	\$ 2,459,861.17	\$ 2,825,994.00
	TOTAL EXPENDITURER	\$ 5,602,691.92	\$ 4,764,519.96	\$ 5,920,427.00
		\$ 2,914,832.92	\$ 2,304,658.79	\$ 3,094,433.00
			INCREASE	6.16%
			Including Growth	4.37%

2023 Capital Expenditures

		Actual			
Equipment	\$ 610,000.00		Grader	Equip Reserve/DC's (175,000)	\$ 175,000.00
	\$ 100,000.00		2 tonne pick up	Equip Reserve	
	\$ 60,000.00		Pick-up equipment	Equip Reserve	\$ 595,000.00
Total Equipment	\$ 770,000.00				
Total Road Projects	\$ 150,000.00		7th Line Rehab	\$52,000 DC's	
	\$ 250,000.00		Riverview Sub.	\$135,000 Gas Tax	
	\$ 250,000.00		15 SR to Cty 124	\$200,000 Roads Capital	\$ 387,000.00
			3rd Line		
Total	\$ 650,000.00			Total from Reserves \$	\$ 1,157,000.00
Bridge	\$ 15,000.00			Equip & Road Proj- tax base	\$ 248,000.00
	\$ 25,000.00		Bridge 7	All bridge projects coming from Tax base	
	\$ 20,000.00		Bridge 6	From Tax base	\$ 78,000.00
	\$ 18,000.00		Bridge 2023		
Total Bridge	\$ 63,000.00			Total from Reserves	\$ 1,157,000.00
				Total from Tax Base	\$ 326,000.00
Total Capital	\$ 1,483,000.00				\$1,483,000.00

Obigatory Reserve Funds

Unaudited

	2021 Closing	Transfer to Reserve Funds	Transfers from Reserve Funds	Interest Income	2022 Closing	Transfer to Reserve Funds	Transfers from Reserve Funds	Interest Income	2022 Closing
Subdivider Cont - Park Levies	\$ 21,000.00				\$ 21,000.00				\$ 21,000.00
Parkland Reserve Fund	\$ 27,234.41			482.14	\$ 27,716.55				\$ 27,716.55
Development Charges Reserve Fund	\$ 875,967.96	118,844.25		16,702.37	\$ 1,011,514.58		248,000.00		\$ 763,514.58
Cdn Community Building Reserve Fund (CCBF)	\$ 141,654.97	98,000.00	204,500.00	2,782.49	\$ 37,937.46	99,546.97	135,000.00		\$ 2,484.43
Total	\$ 1,065,857.34	216,844.25	204,500.00		\$ 1,098,168.59	99,546.97	383,000.00		\$ 814,715.56

Discretionary Reserves/ Reserve Funds

Unaudited

	2021 Closing 2022 Opening	Transfer to Reserve Funds	Transfers from Reserve Funds	Interest Income	2022 Closing 2023 Opening	Transfer to Reserve Funds	Transfers from Reserve Funds	Interest Income	2023 Closing
Building Maintenance	\$ 20,059.48	\$ 10,000.00		\$ 355.12	\$ 30,414.60	\$ 10,000.00			\$ 40,414.60
Bridge Reserve Fund	\$ -				\$ -				\$ -
Insurance Reserve Fund	\$ 21,725.79			\$ 384.62	\$ 22,110.41				\$ 22,110.41
Equipment Replacement Reserve Fund	\$ 493,176.88	\$ 150,000.00	\$ 144,793.00	\$ 11,810.00	\$ 510,193.88	\$ 150,000.00	\$ 595,000.00		\$ 65,193.88
Roads Capital Reserve Fund	\$ 201,467.67			\$ 3,566.63	\$ 205,034.30		\$ 200,000.00		\$ 5,034.30
Tax Rate Stabilization Reserve Fund	\$ 327,099.02		\$ 161,503.41	\$ 5,790.75	\$ 171,386.36		\$ 40,000.00		\$ 131,386.36
Landfill Rehabilitation Reserve Fund	\$ 138,673.62			\$ 2,454.98	\$ 141,128.60				\$ 141,128.60
Recreation Capital Reserve Fund	\$ 10,629.50			\$ 188.17	\$ 10,817.67				\$ 10,817.67
Quarry Reserve Fund	\$ 116,658.44			\$ 2,065.24	\$ 118,723.68				\$ 118,723.68
Special Reserve Fund Emergency Relief	\$ 25,502.84	\$ -		\$ 451.49	\$ 25,954.33		\$ 25,000.00		\$ 954.33
Paving Capital Reserve	\$ 74,155.09	\$ 5,000.00		n/a	\$ 79,155.09		\$ 74,000.00	n/a	\$ 5,155.09
Road Construction Capital	\$ 1,942.36	\$ 10,000.00		n/a	\$ 11,942.36	\$ 105,000.00		n/a	\$ 116,942.36
Corbetton Park Reserve	\$ 13,537.40			n/a	\$ 13,537.40			n/a	\$ 13,537.40
Working Capital Reserve	\$ 1,210,099.14		\$ 274,796.49	n/a	\$ 935,302.65		\$ 114,000.00	n/a	\$ 821,302.65
PSAB	\$ 1,537.40			n/a	\$ 1,537.40			n/a	\$ 1,537.40
LPAT (new 2022)		\$ 15,000.00		n/a	\$ 15,000.00	\$ 15,000.00		m/a	\$ 30,000.00
Total	\$ 2,656,264.63	\$ 190,000.00	\$ 581,092.90		\$ 2,292,238.73	\$ 280,000.00	\$ 1,048,000.00		\$ 1,524,238.73



Development Charges By-law Implementation Practices

Township of Melancthon

March 2, 2023

MAR 2 2023

DEL 18.1



Agenda

- Purpose of Development Charges (D.C.s)
- D.C. Reserve Funds as per the D.C.A.
- Funding Growth-Related Capital

Purpose of Development Charges

Development Charges Defined



Purpose:

- To recover the capital costs associated with residential and non-residential growth within the municipality
- The capital costs are in addition to the costs of what would normally be constructed as part of a subdivision (i.e., internal roads, sewers, watermains, roads, sidewalks, streetlights, etc.)

D.C. Reserve Funds as per the D.C.A.

Development Charges Act



- Sections 33 through 36 of the Act provide the following regarding D.C. reserve fund establishment and use:
 - A municipality shall establish a separate reserve fund for each service to which the D.C. relates;
 - The municipality shall pay each D.C. it collects into the reserve fund or funds to which the charge relates;
 - **The money in a reserve fund shall be spent only for the “capital costs” determined under the Act.**

Funding Growth-Related Capital



D.C. Project – Study Budget vs. Actual

- At the time a Development Charge Study is undertaken, the growth-related capital needs are identified based on the best information available.
- Each capital project identifies an estimated cost, valued in the year of the study.
- The Township’s Approved 2019 D.C. Study included the following recommendation:

It is recommended that Council:

“Approve the capital project listing set out in Chapter 5 of the D.C.s Background Study dated June 14, 2019, subject to further annual review during the capital budget process;”

D.C. Project – Study Budget vs. Actual



- At the time a Development Charge Study is undertaken, the growth-related capital needs are identified based on the best information available.
- Each capital project identifies an estimated cost, valued in the year of the study.
- Actual costs may be higher or lower than the budget identified in the study.
 - All eligible costs, should be funded based on the growth-related share identified in the D.C. study (unless there is a scope change to the project that would change the growth vs. non-growth share, and that change is approved by Council).

Funding Growth-Related Capital



- The annual capital budget and forecast process is an important planning tool that should be used to assist in ensuring that growth-related capital projects are delivered at the appropriate time to service growth.
 - If amount of development anticipated quickens/slows, the capital program should be reviewed, and timing of projects adjusted to ensure that expenditures are being incurred at the right time relative to D.C. collections.
- Best practice involves applying the D.C. recoverable percentage rather than funding only the absolute \$ amount.
- This serves to address inflation as well as changes in cost and/or scope of the project.



Funding Capital Projects

- Different approaches may be required to deal with changes to funding requirements including:
 - Services are limited by an average historic service level cap that has been calculated in the D.C. study, based on an amount/capita multiplied by the anticipated growth in population.
 - Cost increases as a result of changes in project scope (i.e. additional features, unforeseen construction issues, etc.) will simply consume more of this finite service level cap and don't serve to expand it.
 - This may require the need to defer or delete other projects identified in the D.C. background study to ensure the full growth-related portion of the project can be paid for within the service standard cap.

Funding Capital Projects



- Different approaches may be required to deal with changes to funding requirements including:
 - Council and/or community needs change and there is a need to swap capital projects. This often takes place as priorities and/or needs often change.
 - The D.C.A. allows for these changes provided that the proper approvals are in place and the costs do not exceed service level caps (e.g. at the time of the D.C. study, an additional arena was thought to be required however, due to community needs changing, an indoor soccer facility may be required).

Substituting and Funding of Growth-Related Projects Not in the D.C. Background Study



- When projects are identified after the D.C. Background Study is approved:
 - Council's intent to fund all or a portion of the project is required, this can be gained through a budget approval process or a special report to Council
 - The Growth-Related portion of the project must be identified, if the additional amount is:
 - Within the D.C. service level cap, the project can proceed;
 - In excess of the cap, another project should be deferred, deleted or the project should not be funded from D.C.s

Amending/Updating the D.C. Background Study and By-law



- When projects are identified after the D.C. Background Study is approved and the amount is significant:
 - Depending on the cost of the project, staff should determine if it would be beneficial to update the background study and D.C. by-law to include the project in the D.C. calculations; or
 - If the cost is not significant, fund the project from the D.C. reserve fund as the reserve fund balances are rationalized with each new study update (i.e. surplus balances are deducted from future collection needs and deficits are added to the calculations to ensure the benefiting growth continues to contribute to the project)



Questions?

March 2, 2023
6:00 pm



TOWNSHIP OF MELANCTHON
DELEGATION REQUEST FORM

Request for Delegation, any written submissions and background information for consideration by Council must be submitted to the Clerk's Office by 12:00 noon on the Thursday, prior to the requested meeting.

REQUEST DATE: March 2, 2023

NAME: Althea Alli PHONE: [REDACTED]

ADDRESS: [REDACTED]

EMAIL ADDRESS: dcmulticulturalfoundation@gmail.com

SIGNATURE: [REDACTED]

Purpose of Delegation Request (state position taken on issue, if applicable).

I would like to request a delegation to Council to introduce the Dufferin County Multicultural Foundation to new members of Council and to ask for support.

REMINDER - DELEGATIONS ARE ALLOWED 10 MINUTES TO SPEAK

Personal information contained on this form is collected under the authority of *The Municipal Freedom of Information and Protection of Privacy Act*. This sheet and any additional information provided will be placed on the Council Agenda. The Agenda is a public document and forms part of the permanent public record. Questions about this collection should be directed to the Clerk at 519-925-5525.

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