TOWN OF GREATER NAPANEE
REGULAR SESSION OF COUNCIL

A G E N D A

JUNE 9, 2026 at 7:00 PM
South Fredericksburgh Hall, 2478 County Road 8, Napanee

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1. CALL TO ORDER

Residents may attend Council meetings in-person or watch the virtual livestream. Those attending are asked to consider the following:

- If you have any symptoms of illness, please stay home and watch the meeting via YouTube
- Limited seating for approximately 25 is available in Council Chamber. Seating will be reserved for registered delegations, with remaining seats available on a first-come, first-served basis.
- To learn more about how to register to speak as a delegation at Council meetings visit the Town website.

To access the Electronic Meeting on the Town's YouTube Channel, please copy the link below into your browser:
https://www.youtube.com/channel/UCmNkxvT9f0mEpxBZrZiqS4A?view_as=subscriber.

2. OPENING PROCEEDINGS

2.1 National Anthem - O Canada

3. CLOSED SESSION

Council may consider items permitted to be discussed in a meeting closed to the public. Following the closed session, Council shall report on the items taken in closed session, in general terms, and pass any motions as required.

3.1 Closed Session meeting pursuant to Section 239 of the Municipal Act scheduled for 6:00 p.m. to 6:30 p.m. in order to discuss:

- Confidential SR-1354-2026 - Land Sale - Former Suddard Lands (239(2)(c)).

Recommendation: That Council resolve itself into closed session in order to discuss:

- a report regarding the prospective disposition of land (239(2)(c)).

3.2 Rise and Report from Closed Session

Recommendation: That Council rise and report from closed session; and further, that all recommendations made within closed session be hereby adopted.

3.3 Confidential SR-1354-2026 - Land Sale - Former Suddard Lands

Recommendation: That Council receive for information the Confidential

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SR-1354-2026 - Land Sale - Former Suddard Lands report;
And further, that Council authorize and direct staff to proceed with the staff recommendation as outlined in the report.

4. ADOPTION OF AGENDA

4.1 Adopt Agenda

Recommendation: That the Agenda of the Regular Session of Council dated June 9, 2026, be adopted as presented.

5. DISCLOSURE OF PECUNIARY INTEREST & THE GENERAL NATURE THEREOF

6. DEPUTATIONS

6.1. Scheduled Deputations - New Items

Those wishing to present to Council on a new topic may do so by registering in advance with the Clerks department no later than seven calendar days before the meeting. All deputations under this heading will be limited to a maximum of 10 minutes. Consideration of a substantive motion following a deputation must be supported by a minimum 2/3 majority of members in order to proceed. If such motion is not supported, it will automatically be placed as an item for discussion on the next Regular Agenda.

6.2. Deputations - Items on the Agenda

Those wishing to provide written or verbal comments regarding an item on the agenda may do so by contacting the Clerk's office by 12:00 noon on the day of the Council meeting. Deputations under this heading are limited to a maximum of 5 minutes.

6.3. Correspondence - Items on the Agenda

7. UNFINISHED BUSINESS

The Clerk shall list any items which have not been disposed of by Council prior to the adjournment of the previous meeting.

8. ADMINISTRATIVE CONSENT AGENDA

All items will be dealt with through one Motion. However, any Member, before the motion is voted on, may identify any items contained on the Consent Agenda which they wish to speak to, and the matter shall be extracted from the Consent Agenda to be dealt with separately under the heading of Items for Consideration. Members may also ask clarifying questions (but not debate) any item without requiring it to be removed from the Consent Agenda.

7 - 8 8.1 Administrative Consent Agenda - June 9, 2026

9 - 15 8.2 Council Minutes: Regular Session of Council - May 26, 2026

Recommendation: That the minutes of the Regular Session of Council dated May 26, 2026, be adopted as presented.

16 - 24 8.3 Committee Minutes: Municipal Heritage Committee, Arts Advisory Committee, Market Square Advisory Committee

Recommendation: That the Municipal Heritage Committee, Arts Advisory Committee, and Market Square Advisory Committee Minutes of May 14 - June 2, 2026, be received for information.

25 - 26 8.4 Correspondence for Information items dated June 9, 2026

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Recommendation: That the Correspondence for Information items dated June 9, 2026, be received.

27 - 29 8.5 Boards and Advisory Committees Monthly Report for June 2026

Recommendation:
That Council receive for information the Boards and Advisory Committees Monthly Report for June 2026.

30 - 31 8.6 Growth & Infrastructure – Product Care Association of Canada - Lighting Recycling Promotion and Education Community Collaboration Pilot Agreement

Recommendation: That Council receive for information the Growth & Infrastructure Report – Product Care Association of Canada – Lighting Recycling Promotion and Education Community Collaboration Pilot Agreement;
And further, that Council endorses the Product Care Association of Canada – Lighting Recycling Promotion and Education Community Collaboration Pilot Agreement and authorizes the Mayor and Clerk to execute the agreement on behalf of the Town

32 - 36 8.7 Financial & IT Services - 2025 Annual Development Charge (DC) Report

Recommendation: That Council receive for information Financial & IT Services 2025 Annual DC report.

37 - 40 8.8 Financial & It Services Report - Use of Municipal Accommodation Tax Reserve Funds Policy

Recommendation: That Council receive for information Financial & IT Services - Use of Municipal Accommodation Tax Reserve Funds Policy report;
And further, that Council adopt the Use of Municipal Accommodation Tax Reserve Funds Policy as presented.

41 - 42 8.9 Financial & IT Services - Heritage Race Donation

Recommendation: That Council receive for information Financial & IT Services Heritage Race Donation report;
And further, that Council accept the donation of $35,532.64 from the Napanee Heritage Race to support the in-town rail Trail Revitalization.

43 - 44 8.10 Executive Services - Update on Mandate Item - Closed Session Meeting Transparency

Recommendation: That Council receive for information the Executive Services - Update on Mandate Item - Closed Session Meeting Transparency;
And further, that Council consider this mandate item completed for the current term of Council.

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45 - 47 8.11 Executive Services - Update on Mandate Item - Reporting Systems

Recommendation: That Council receive for information the Executive Services - Update on Mandate Item - Reporting Systems;
And further, that Council consider this task completed for the 2022-2026 term, and that any future reporting requirements be established by the next term of Council.

48 8.12 Executive Services - Land Sale Amendment By-law

Recommendation:
That Council receive for information the Executive Services - Land Sale Amendment By-law report.

9. ITEMS FOR CONSIDERATION

Items removed from the Administrative Consent Agenda will be added to the beginning of this section.

49 - 52 9.1 Parks, Recreation, & Culture - Community Event Application for Napanee Heritage Race

Recommendation:
That Council receive for information Parks, Recreation, & Culture - Community Event Application for Napanee Heritage Race report;
And further, that Council approves the Napanee Heritage Race in accordance with the Community Events Policy.

53 - 693 9.2 Growth & Infrastructure Services - 2025 Annual Monitoring Reports for the South Fredericksburgh , the Roblin Waste Disposal Sites, and the former Water St. Landfill.

Recommendation:
That Council receive for information Growth & Infrastructure Services - 2025 Annual Monitoring Reports for the South Fredericksburgh, the Roblin Waste Disposal, and the former Water St. Landfill reports.

694 - 696 9.3 Growth & Infrastructure - Provincial Development Charges Reduction Program

Recommendation:
That Council receive for information the Growth & Infrastructure - Provincial Development Charges Reduction Program report;
And further, that Council direct staff to report back to Council at the June 17th Special Session with draft application materials.

697 - 698 9.4 Executive Services - Recommendation to Pause Parking By-law Review

Recommendation:
That Council receive for information the Executive Services - Recommendation to Pause Parking By-law Review report;
And further that Council direct staff to pause work on the Parking By-law update until it can done with the support of a comprehensive parking needs assessment.

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699 - 703 9.5 Executive Services - Resale of Interment Rights

Recommendation:
That Council receive for information the Executive Services - Resale of Interment Rights report;

And further that Council endorse Option #2C as described in this report, permitting the resale of interment rights on the open market, as currently provided in the Town's Cemetery By-law, and establishing that as a general practice, the Town will not buy back interment rights;

And further that Council delegate authority to the Cemetery Administrator to review, approve, or deny requests for the Town to buy back interment rights, in circumstances where the applicant wishes to exchange one type of interment right for another in the Town's cemeteries, and that such transactions be made in accordance with the Cemetery By-law and the Bereavement Authority of Ontario requirements;

And further that Council direct staff to prepare the necessary amendments to the Cemetery By-law to clarify resale procedures, Care and Maintenance verification requirements, administrative processes, and the Town's discretionary authority to buy back interment rights to be included in an overall review of the Cemetery By-law;

And further that Council direct staff to initiate the required 30-day public notice, following necessary amendments, under the Funeral, Burial, Cremation Services Act, 2002, and report back with a final By-law for Council approval following completion of the Bereavement Authority of Ontario's review and public notice period.

704 - 719 9.6 Executive Services - Resolution and Mandate Tracker Update

Recommendation:
That Council receive the bi-monthly Council Resolution Tracker report; And further, that Council direct that the recommended list of resolution and mandate revisions be forwarded to the June 23, 2026, Council agenda for decision.

10. BY-LAWS

Unless otherwise requested by a Member, all by-laws proposed for adoption shall be given all three readings and passed in one single motion.

720 - 722 10.1 By-Law No. 2026-0052 - to Amend Reserve Funds By-Law No. 2023-0067

723 - 724 10.2 By-law No. 2026-0053 - to Amend Sale of Land By-law No. 2025-0048

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11. INFORMATION REPORTS FROM MEMBERS

Members may provide verbal or written information updates from the external boards and committees they have been appointed to.

12. INQUIRIES

Members may make inquiries to staff on matters of general municipal concern. Responses may be provided verbally where the information is readily known, or provided in writing as an information item on the next agenda.

13. NOTICE OF MOTIONS

Members of Council may introduce recommendations through Notice of Motion. Motions provided in writing prior to agenda publication will be considered at the time of presentation, and Motions introduced verbally under this heading will be considered at the next Regular Meeting.

14. NEW BUSINESS

Urgent and time sensitive matters added to the agenda at the time of the agenda's adoption, with the support of a 2/3 majority of Council.

15. ANNOUNCEMENTS

Members may provide Council and the public with announcements of good news stories, reminders of upcoming events or past events attended on behalf of the Town, congratulations and condolences, and other matters that are considered to be of general interest to the community.

16. CAO'S REMARKS

The CAO may provide Council and the public with announcements of any good news, milestones or achievements of the municipal organization.

17. FORWARD CALENDAR

This calendar is a living document and is provided for information purposes only. The content of this calendar is subject to change without notice, and inclusion or non-inclusion of any item is not a guarantee of the timing of its discussion before Council. The actual published agenda remains the guiding document for future Council meetings.

725 - 726 17.1 2026 Q2 & Q3 - Forward Calendar

18. CONFIRM PROCEEDINGS

727 18.1 A By-law to Confirm the Proceedings of the Council of the Corporation of the Town of Greater Napanee

Recommendation: That By-law No. 2026-0054, being a by-law to confirm the proceedings of Council at its Regular Session held June 9, 2026. be read a first and second time and finally passed and that the Mayor and the Clerk sign the same and affix thereto the seal of the Corporation.

19. ADJOURNMENT

19.1 Adjourn Meeting

Administrative Consent Agenda – June 9, 2026

To Mayor Richardson and Members of Council:

Municipal Staff report and recommend as follows:

All items listed on the Consent Agenda shall be the subject of one motion. Any member may ask for any item(s) included in the Consent Agenda to be separated from that motion, whereupon the Consent Agenda without the separated item(s) shall be put and the separated item(s) shall be considered thereafter.

That Council consent to the approval of the following routine items:

1. **Council Minutes: Regular Session of Council – May 26, 2026**
   That the minutes of the Regular Session of Council dated May 26, 2026 be adopted as presented.

2. **Committee Minutes: Municipal Heritage Committee, Arts Advisory Committee, Market Square Advisory Committee**
   That the Municipal Heritage Committee, Arts Advisory Committee, and Market Square Advisory Committee Minutes of May 14 - June 2, 2026, be received for information.

3. **Correspondence for Information Items dated June 9, 2026**
   That the Correspondence for Information items dated June 9, 2026 be received.

4. **Boards and Advisory Committees Monthly Report for June 2026**
   That Council receive for information the Boards and Advisory Committees Monthly Report for June 2026.

5. **Growth & Infrastructure – Product Care Association of Canada - Lighting Recycling Promotion and Education Community Collaboration Pilot Agreement**
   That Council receive for information the Growth & Infrastructure Report – Product Care Association of Canada – Lighting Recycling Promotion and Education Community Collaboration Pilot Agreement;
   And further, that Council endorses the Product Care Association of Canada – Lighting Recycling Promotion and Education Community Collaboration Pilot Agreement and authorizes the Mayor and Clerk to execute the agreement on behalf of the Town

6. **Financial & IT Services - 2025 Annual Development Charge (DC) Report**
   That Council receive for information Financial & IT Services 2025 Annual DC report.

7. **Financial & It Services Report - Use of Municipal Accommodation Tax Reserve Funds Policy**
   That Council receive for information Financial & IT Services - Use of Municipal Accommodation Tax Reserve Funds Policy report;
   And further, that Council adopt the Use of Municipal Accommodation Tax Reserve Funds Policy as presented.

8. **Financial & IT Services - Heritage Race Donation**
   That Council receive for information Financial & IT Services Heritage Race Donation report;
   And further, that Council accept the donation of $35,532.64 from the Napanee Heritage Race to support the in-town rail Trail Revitalization.

9. **Executive Services - Update on Mandate Item - Closed Session Meeting Transparency**
   That Council receive for information the Executive Services - Update on Mandate Item - Closed Session Meeting Transparency;
   And further, that Council consider this mandate item completed for the current term of Council.

10. **Executive Services - Update on Mandate Item - Reporting Systems**
    That Council receive for information the Executive Services - Update on Mandate Item - Reporting Systems;
    And further, that Council consider this task completed for the 2022-2026 term, and that any future reporting requirements be established by the next term of Council.

11. **Executive Services - Land Sale Amendment By-law**
    That Council receive for information the Executive Services - Land Sale Amendment By-law report.

TOWN OF GREATER NAPANEE
REGULAR SESSION OF COUNCIL

Minutes of Meeting Held Tuesday, May 26, 2026 at 7:00 PM
Council Chambers, Town Hall, 124 John Street, Napanee

PRESENT: Mayor Terry Richardson
Deputy Mayor Brian Calver
Ward 1 Councillor Michael Schenk
Ward 2 Councillor Angela Hicks
Ward 3 Councillor Shawn Davey
Ward 4 Councillor Bob Norrie
Ward 5 Councillor Bill Martin

ABSENT: None

STAFF PRESENT: Matthew Grant, CAO
Jessica Walters, Clerk
Ellen Hamel, Treasurer
Michael Nobes, General Manager - Growth & Infrastructure
Chris Brown, Director of Parks, Recreation & Culture
Christina Reeve, Deputy Clerk
David Nanton, Director of Development Services
Erin Tyers, Compliance Coordinator/CEMC
Hollie Knapp-Fisher, Manager of Human Resources
Richard Philips, Manager of Corporate Capital Assets

CALL TO ORDER

Mayor Richardson called the meeting to order at 7:13 p.m.

OPENING PROCEEDINGS

National Anthem - O Canada

CLOSED SESSION

Closed Session meeting pursuant to Section 239 of the Municipal Act scheduled for 4:00 p.m. to 6:30 p.m. in order to discuss:

- Confidential SR-1344-2026 - Human Resources Report (239(2)(d) and (f));
- Confidential SR-1339-2026 - Enforcement Update (239(2)(k));
- Confidential SR-1325-2026 - Community Initiatives Fund Advisory Committee Vacancy (239(2)(b));
- Confidential SR-1333-2026 - Commercial Lease Negotiation (239(2)(k))

RESOLUTION #243/26 Davey, Hicks

That Council resolve itself into closed session in order to discuss:

- a personal matter about an identifiable individual (239(2)(b));
- a labour relations matter (239(2)(d));
- a matter of solicitor-client privilege (239(2)(f)); and
- two (2) matters related to negotiations to be carried on by the municipality (239(2)(k)).

CARRIED.

Council opened closed session at 4:00 p.m.
The following persons were present: Mayor Richardson, Deputy Mayor Calver, Councillors Schenk, Hicks, Davey, Norrie and Martin; Matthew Grant, CAO; Jessica Walters, Clerk; Christina Reeve, Deputy Clerk; Ellen Hamel, Treasurer; Shawn Armstrong, Fire Chief; Hollie Knapp-Fisher, Manager of Human Resources; James Feeny, Deputy Fire Chief; and Nathan Murphy, Deputy Treasurer. Andrea Risk and Tony Virgin of Cunningham Swan were also present.
Council adjourned closed session at 6:22 p.m.

Rise and Report from Closed Session

RESOLUTION #244/26 Calver, Martin

That Council rise and report from closed session; and further that all recommendations made within closed session be hereby adopted.

CARRIED.

Confidential SR-1344-2026 - Human Resources Report

RESOLUTION #245/26 Calver, Martin

That Council receive for information the Confidential SR-1344-2026 - Human Resources Report;
And further, that Council direct and authorize staff to proceed as directed in closed session.

CARRIED.

ADOPTION OF AGENDA

RESOLUTION #246/26 Davey, Schenk

That the Agenda of the Regular Session of Council dated May 26, 2026, be adopted as presented.

CARRIED.

DISCLOSURE OF PECUNIARY INTEREST & THE GENERAL NATURE THEREOF

There were no disclosures of pecuniary interest.

PUBLIC MEETING UNDER THE PLANNING ACT

Resolution to Convene Public Meeting

RESOLUTION #247/26 Norrie, Calver

That the Public Meeting under the *Planning Act* is hereby convened.

CARRIED.

Applicant: William Green
Address: 3402 County Road 11
Purpose: To permit a home industry use (small engine repair) within a 384 square meter building and establish site specific zone provisions for on site parking.
Mr. Nanton provided a summary of the application.

In response to questions from Council, Mr. Nanton advised that the staff review has been preliminary to date and has not yet been determined whether the use can be accommodated through relief in the rural residential zone or whether a commercial rezoning would be required.

The applicant, William Green, was present to speak for the application. Mr. Green noted that the reason for the proposed building size is to contain the business operations inside the building, as it is exceeding the current 1800 ft2 building.

There were no persons present to speak against the application.

Resolution to Adjourn Public Meeting

RESOLUTION #248/26 Hicks, Davey

That the Public Meeting under the *Planning Act* is hereby adjourned.

CARRIED.

PRESENTATIONS

Bay of Quinte Regional Marketing Board

Dug Stevenson provided an overview of the work conducted by Bay of Quinte Regional Marketing Board in the 2025-2026 fiscal year and planned work for the current fiscal year. In response to questions from Council, Mr. Stevenson confirmed that the additional accommodation tax revenue will result in additional marketing efforts for the Town.

RESOLUTION #249/26 Hicks, Davey

That Council note and receive the Bay of Quinte Regional Marketing Board annual presentation.

CARRIED.

DEPUTATIONS

SCHEDULED DEPUTATIONS - NEW ITEMS

Deputation - Valerie Smith

Valerie Smith and Chuck Hill presented on behalf of the St Mary Magdalene Anglican Church about the Blue Communities pledge which has recently been affirmed by the Anglican Diocese of Ontario. They are asking Council to confirm that Greater Napanee's water and wastewater infrastructure will be kept in public hands, given the new provincial legislation of Bill 60 and Bill 98.

RESOLUTION#250/26 Norrie, Martin

That Council note and receive for information the deputation from Valerie Smith regarding Blue Communities.
And further, that Council direct staff to bring back a report regarding the request.

CARRIED.

DEPUTATIONS - ITEMS ON THE AGENDA

CORRESPONDENCE - ITEMS ON THE AGENDA

UNFINISHED BUSINESS

ADMINISTRATIVE CONSENT AGENDA

Administrative Consent Agenda - May 26, 2026

RESOLUTION #251/26 Hicks, Davey

That Council consent to the approval of the following routine items:

1. That the minutes of the Regular Session of Council dated May 12, 2026, be adopted as presented;
2. That the Correspondence for Information items dated May 26, 2026, be received;
3. That Council endorse the proclamation request for Seniors Month;
4. That the Council Inquiries Follow Up: South Fredericksburgh Landfill dated May 26, 2026, be received; and
5. That the Activity Reports for Growth and Infrastructure, Executive Services, Fire Department, and Financial & IT Services, Parks, Recreation & Culture for the month of May 2026 and the Access E11 Report for April 2026 (Items 10.6 through 10.11), be received for information.

CARRIED.

ITEMS FOR CONSIDERATION

Financial & IT Services - Hudson Energy Sales Agreement

RESOLUTION #252/26 Schenk, Calver

That Council receive for information Financial & IT Services - Hudson Energy Sales report;
And further that Council direct the Mayor and Clerk to enter into a 1-year agreement with Hudson Energy Sales.

CARRIED.

Executive Services - Warming/Cooling Centre Activation Policy

RESOLUTION #253/26 Calver, Norrie

That Council receive for information Executive Services - Warming/Cooling Centre Activation Policy report;
And further that Council approve the proposed policy for immediate implementation.

CARRIED.

Executive Services - Encampment Protocol Update

RESOLUTION #254/26 Davey, Norrie

That Council receive for information the Executive Services - Encampment Protocol Update report.

CARRIED.

Growth & Infrastructure - PLZACO 2026 022 (1440 Benns Point Road)

Deputy Mayor Calver requested a recorded vote.

RESOLUTION #255/26 Martin, Hicks

That Council receive for information Growth & Infrastructure - PLZACO 2026 022 (1440 Benns Point Road) report;

And further, that as the application is consistent with the Provincial Planning Statement, conforms with the Lennox and Addington County Official Plan, and the Town of Greater Napanee Official Plan, implements appropriate temporary land use permissions and controls through the implementing Zoning By-Law Amendment, and constitutes good land use planning, that Council approve the temporary Zoning By-Law Amendment for a period of three (3) years.

For: Hicks, Norrie, and Martin

Opposed: Richardson, Calver, Schenk, and Davey

DEFEATED.

RESOLUTION #256/26 Schenk, Davey

That Council receive for information Growth & Infrastructure - PLZACO 2026 022 (1440 Benns Point Road) report;

And further, that the application be denied for the following reasons:

- that the use initiated when it was not a permitted use on the site;
- that the use is not compatible with the neighborhood;
- that the application was initiated based on reported neighborhood concerns; and
- that there are ongoing concerns about fire risks due to the heating source remaining within the yurts.

CARRIED.

RETURN TO CLOSED SESSION

Return to Closed Session to Complete Unfinished Business

RESOLUTION #257/26 Hicks, Davey

That Council resolve itself back into closed session pursuant to Section 239(2) of the *Municipal Act* to discuss unfinished agenda items.

CARRIED.

Council returned to closed session at 8:48 p.m.
The meeting was recessed for a wellness break from 8:48 p.m. to 8:58 p.m. The following persons were present: Mayor Richardson, Deputy Mayor Calver, Councillors Schenk, Hicks, Davey, Norrie and Martin; Matthew Grant, CAO; Jessica Walters, Clerk; Christina Reeve, Deputy Clerk; Ellen Hamel, Treasurer; Michael Nobes, General Manager of Growth & Infrastructure; and Chris Brown, Director of Parks, Recreation & Culture.
Council adjourned closed session at 9:37 p.m.

RESOLUTION #258/26 Calver, Norrie

That Council rise and report from Closed Session;
And further that all recommendations made within closed session be hereby adopted.

CARRIED.

Confidential SR-1339-2026 - Enforcement Update

RESOLUTION #259/26 Hicks, Davey

That Council receive for information the Confidential SR-1339-2026 - Enforcement Update.

CARRIED.

Confidential SR-1325-2026 - Community Initiatives Fund Advisory Committee Vacancy

RESOLUTION #260/26 Hicks, Schenk

That Council receive for information the Confidential SR-1325-2026 - Community Initiatives Fund Advisory Committee Vacancy;
And that Council appoint Jonathan Kraft to the Community Initiatives Fund Advisory Committee for the remainder of the 2025-2026 term.

CARRIED.

Confidential SR-1333-2026 - Commercial Lease Negotiation

RESOLUTION #261/26 Davey, Schenk

That Council receive for information the Confidential SR-1333-2026 - Commercial Lease Negotiation;
And further, that Council direct and authorize staff to proceed with Option 1, as outlined in the report.

CARRIED.

BY-LAWS

By-law No. 2026-0049 - Cemetery Land Acquisition

RESOLUTION #262/26 Norrie, Calver

That By-law No. 2026-0049, being a by-law to provide for the Acquisition of Part of Lot 18, Concession 3, being Parts 1 and 6 on Registered Plan 29R-5216, known as Jaynes/Kimmett Cemetery, be read a first and second time and finally passed this 26th day of May, 2026.

CARRIED.

By-law No. 2026-0050 - Zoning Amendment

INFORMATION REPORTS FROM MEMBERS

INQUIRIES

NOTICE OF MOTIONS

NEW BUSINESS

ANNOUNCEMENTS

CAO'S REMARKS

FORWARD CALENDAR

2026 Q2 - Forward Calendar

CONFIRM PROCEEDINGS

RESOLUTION #263/26 Hicks, Davey

That By-law No. 2026-0051, being a by-law to confirm the proceedings of Council at its Regular Session held May 26, 2026, be read a first and second time and finally passed and that the Mayor and the Clerk sign the same and affix thereto the seal of the Corporation.

CARRIED.

ADJOURNMENT

RESOLUTION #264/26 Martin, Norrie

That the meeting does hereby adjourn at 9:42 p.m.

CARRIED.

Terry Richardson, Mayor

Jessica Walters, Clerk

TOWN OF GREATER NAPANEE
Market Square Advisory Committee

MINUTES

14 MAY 2026 at 08:00:00 AM
124 John St (Town Hall Main Floor)

PRESENT: Les Humphries; Angela Hicks; Jeff Chestnut; Trevor Oke, Jim Barber

ABSENT: Catherine Musselman

STAFF PRESENT: Chris Brown, Director of Parks, Recreation & Culture

CALL TO ORDER
8:00am

ADOPTION OF AGENDA
MSC#7/26

Hicks, Barber.

That the agenda of the Market Square Advisory Committee meeting dated May 14, 2026 be hereby adopted.

DISCLOSURE OF PECUNIARY INTEREST & THE GENERAL NATURE THEREOF
Seeing None.

ADOPTION OF MINUTES
MSC#8/26

Chestnut, Oke.

That the committee did not meet quorum on April 23, 2026, and therefore, the meeting was cancelled.

ITEMS FOR DISCUSSION

Resignation of Shalagh Elliott
MSC#9/26

Barber, Chestnut.

That the Market Square Advisory Committee regretfully accept the resignation of Shalagh Elliott;

And futher that the Committee thanks Shalagh for her contributions, time, and efforts.

Update on Design

Representatives from Bel-Con attended Town Hall since our last meeting for the purposes of taking detailed measurements of the space. The MSAC has shared feedback with the design team on their initial assessment of the project scope. The design team from Bel-Con has been working on some preliminary drawings that can be used for discussion at an upcoming meeting.

Concept Drawing of Covered Structure from Heritage Committee
MSC#10/26

Oke, Barber.

That the MSAC accept and receive for information the concept drawing of a covered structure from the Heritage Committee.

Creation of an Operating Policy & Procedures for Old Town Hall.
Chris Brown, staff representative will work on creating a first draft. The draft will be used by the committee for discussion and advancement of the policy and procedures.

Next Steps.
MSAC will meet with the Design team from Bel-Con to create preliminary drawings for review. Once the MSAC has some visual material to review, a sub-committee meeting will be called to bring in members from Heritage and Arts Committee's for information sharing and collaboration.

OTHER BUSINESS

Sub-Committee Clarification
MSC#11/26

Hicks, Oke.

That the Sub-committee made up of two (2) members from each of the Heritage, Arts, and MSAC committees establishes a formal agenda for meetings;

And further that the Sub-committee clarifies the roles of each Committee as it relates to the Market Square project;

And further that the MSAC defines the purpose of creating a sub-committee;

And further that the MSAC nominates Jim Barber to replace Shalagh Elliott on the sub-committee and Co-Chair alongside Jeff Chestnut.

NEXT MEETING
Tuesday, June 2nd. 8am at Town Hall.

ADJOURNMENT
MSC#12/26

Chestnut, Oke.

That the Market Square Advisory Committee meeting does hereby adjourn at 8:56am.

Les Humphries, Chair	Chris Brown, Recording Secretary

TOWN OF GREATER NAPANEE
Municipal Heritage Committee

MINUTES

21 MAY 2026 at 06:30:00 PM
Town Hall, 124 John St, Napanee, ON

PRESENT: Vice-Chair: Heidi Lind; Councillor Bill Martin; Rick Freeman; Robin Lee; Tricia Small
ABSENT: Sylvia Cowhey; Amy Mack
STAFF PRESENT: Jessica Walters, Clerk

CALL TO ORDER

Heidi Lind called the meeting to order at 6:30 p.m.

ADOPTION OF AGENDA

HC#19/26 Lee, Freeman

That the agenda of the Municipal Heritage Committee dated May 21, 2026 be hereby adopted.

DISCLOSURE OF PECUNIARY INTEREST & THE GENERAL NATURE THEREOF

There were no disclosures of pecuniary interest.

ADOPTION OF MINUTES

HC#20/26 Martin, Lee

That the minutes of the Municipal Heritage Committee dated April 23, 2026 are hereby approved.

ITEMS FOR DISCUSSION

Culture Days Planning
There are no updates since the last meeting.

Heritage Plaque Program
The Committee discussed designated properties without a granite plaque to identify how to allocate the 2026 budget. The Committee agreed to approach the owners of 138 Robinson Street to see if they are interested. The owners of 22 Mill Street advised they are not interested at this time.

UNFINISHED BUSINESS

Historic Walking Tour
Jessica advised that the walking tour map data is gone from the Town's website and needs to be rebuilt from scratch. Draft documents were circulated to the Committee to confirm whether they are accurate and then IT staff will rebuild.

Action: Sylvia will advise Jessica if any changes are needed.

OTHER BUSINESS

General Information Sharing

- It was noted that the last minutes misstated September 26 as the last farmers' market day - the market is running into October.
- The next steps for the Town Hall renovation are for the contractor to review the Executive Summary of the community survey and create a draft design. Once there is a first draft of a design the three committees will have an opportunity to review and provide feedback.

NEXT MEETING

The next meeting was scheduled for Thursday, June 18, 2026 at 6:30 p.m.

ADJOURNMENT

HC#21/26 Small, Lind

That the Municipal Heritage Committee meeting does hereby adjourn at 7:00 p.m.

Sylvia Cowhey, Chair

Jessica Walters, Recording Secretary

TOWN OF GREATER NAPANEE
ARTS ADVISORY COMMITTEE

MINUTES

01 JUN 2026 at 5:30 PM
99 Advance Avenue, Napanee - 1st Floor Committee Room

PRESENT: Ellie Callery; Michelle Dorey Forestell; Dennis Mills; Tricia Small

ABSENT: Councillor Bob Norrie, Laura Gibbons

STAFF PRESENT: Bethany Chadwick, Community Events Administrator

CALL TO ORDER

Michelle called the meeting to order at 5:39pm.

ADOPTION OF AGENDA

AC#24/26 Mills, Small

That the agenda of the Arts Advisory Committee meeting dated June 1, 2026 be hereby adopted.

DISCLOSURE OF PECUNIARY INTEREST & THE GENERAL NATURE THEREOF

None at this time.

ADOPTION OF MINUTES

AC#25/26 Callery, Small

That the minutes of the Arts Advisory Committee meeting dated April 13, 2026 are hereby approved.

ITEMS FOR DISCUSSION

Music by the River

Committee members chose to accept performers for the three MBTR dates.

Dennis will MC on June 14th

Ellie will MC July 12th

Michelle will MC August 16th

AC#26/26 Callery, Mills

The committee chose the following four acts to perform at the 2 Adult Music by the River dates:

R&R, The Blues Dudes, Frontenac Community Concert Band and Vinyl Addiction.

AC#27/26 Mills, Callery

Committee members accepted three acts to perform on June 14th Youth Music by the River. Members would like to allow any last minute youth applicants to perform.

AC#28/26 Small, Mills

Members voted to spend no more than $400 on Youth Performers.

AC#29/26 Small, Callery

The committee requests that Communications advertise once in the Beaver, full color 1/4 page ad showcasing all 3 dates with performers and their genres.

Culture Day Planning

A member suggested that the group recommend performers to the Guitars & Cars Committee.

AC#30/26 Small, Callery

Due to lack of committee members, dedicated space, budget and timing, the committee has decided not to host a Culture Day event in 2026.

Summer Meeting Dates

The committee will not have any formal meetings July & August unless something pertinent comes up. Communication will happen through email and start monthly meetings back up on September 14th.

AC#31/26 Dorey Forestell, Callery

No meetings in July or August, will reconvene in September.

SUBCOMMITTEE UPDATES

OTHER BUSINESS

NEXT MEETING

September 14th

ADJOURNMENT

AC#32/26 Mills, Small

That the Arts Advisory Committee meeting does hereby adjourn at 6:55pm.

Michelle Dorey Forestell, Chair

Bethany Chadwick, Recording Secretary

TOWN OF GREATER NAPANEE
Market Square Advisory Committee

MINUTES

02 JUN 2026 at 08:00:00 AM
124 John St (Town Hall Main Floor)

PRESENT: Les Humphries; Jeff Chestnut; Angela Hicks; Catherine Musselman; Trevor Oke, Jim Barber

ABSENT:

STAFF PRESENT: Chris Brown, Director of Parks, Recreation & Culture

CALL TO ORDER
7:58am

ADOPTION OF AGENDA
MSC#13/26

Chestnut, Musselman.

That the agenda of the Market Square Advisory Committee meeting dated June 2, 2026 be hereby adopted.

DISCLOSURE OF PECUNIARY INTEREST & THE GENERAL NATURE THEREOF
Seeing none.

ADOPTION OF MINUTES
MSC#14/26

Hicks, Chestnut.

That the minutes of the Market Square Advisory Committee meeting dated May 14, 2026 are hereby approved.

ITEMS FOR DISCUSSION

Design Update with Bel-Con team
Beth Globe from Bel-Con joined the meeting to introduce herself and the work that she has completed to date. Beth shared some preliminary concept drawings of a proposed ground floor plan for the purposes of group discussion.

Review and Discussion Regarding Design Options and Concepts
The committee members reviewed the proposed ground floor plan and received general input from Beth on the concepts behind the first draft. The focus was on generally about layout of the floor plan and discussion on items like washrooms, accessibility, entrance corridor, storage, coffee bar, and main event space. The Market

Square Advisory Committee has asked Bel-Con to consider feedback and include different types of event setups in the concept drawings.

Develop Initial Design Concepts for Presentation to Sub-Committee
Did not have time to get to this item on the agenda. Moved to next meeting.

Review Operating Policy & Procedures
Did not have time for this review. Moved to next meeting.

OTHER BUSINESS
Seeing none.

NEXT MEETING
Tuesday, June 23rd at Town Hall at 8am.

ADJOURNMENT
MSC#15/26

Barber, Chestnut.
That the Market Square Advisory Committee meeting does hereby adjourn at 9:05am.

Les Humphries, Chair

Chris Brown, Recording Secretary

Summary of
Correspondence for Information Items
June 9, 2026

Weekly Correspondence Mailings for May 28, 2026, and June 4, 2026.

This summary contains correspondence received by the municipality from outside organizations, which was broadcast to all municipalities or addressed generally to the Town. This includes requests for support for resolutions.

All correspondence addressed to an individual member of Council or the whole council from a resident is placed in the appropriate council mailbox.

Members of Council may request that any items from this listing be added to an upcoming agenda for consideration by contacting the Clerk's office.

1. **County of L&A** – Lear Study – Draft 2 Mapping
2. **United Counties of Leeds & Grenville** – Support to Harmonization of Municipal Road Construction Standards
3. **Town of Plympton-Wyoming** – Sustainable Provincial Grant Funding for Fire Services
4. **Township of Puslinch** – Finlay's Law on Emergency Room Reform
5. **City of Kingston** – Support for National Marine Conservation Area for Lake Ontario
6. **Ontario Provincial Conservation Authority** – Update on Regional Consolidation of Ontario's Conservation Authorities
7. **Township of Baldwin** – Review of OPP Municipal Policing Billing Model
8. **Township of Arnprior** I Hwy 11 & Hwy 17 Rest Stops and Traveller Infrastructure
9. **AMO** – Policy Update, May 20, 2026
10. **Municipality of Calvin** – Request for Provincial Review of CVA
11. **L&A County Joint Accessibility Advisory Committee** – Minutes, April 14, 2026
12. **Town of Orangeville** - Request to Extend Deadline for Notices of Intention of Designate Listed Heritage Properties

13. **County of Prince Edward** - Better Regional Governance Act
14. **County of Prince Edward** - Sustainable Funding for Public Health Units
15. **Ministry of Municipal Affairs and Housing** - Bill 119
16. **AMO** - Policy Update, June 1, 2026
17. **Township of Clearview** - Vacant Commercial Storefront Tax
18. **Town of South Bruce Peninsula** - Affirming Outdoor Education as Essential
19. **Village of Merrickville Wolford** - Traffic Calming & Speeding Mitigation Techniques
20. **Municipality of North Grenville** - Traffic Calming & Speeding Mitigation Techniques
21. **EORN Monthly Update** - Lennox and Addington County May 2026
22. **Town of North Eastern Manitoulin & the Islands** - Provincial Health Care Spending
23. **Township of Brudenell, Lyndoch and Raglan** - Canada Post Rate Reduction for Libraries

Staff Report

To:	Mayor Richardson and Members of Council
Meeting Date:	June 9, 2026
Date Council Decision Required:	
Prepared By:	Jessica Walters, Clerk, Executive Services
Presented By:	Jessica Walters, Clerk, Executive Services
Subject:	Boards and Advisory Committees Monthly Report for June 2026
Report Number:	SR-1347-2026

Staff Recommendation:

That Council receive for information the Boards and Advisory Committees Monthly Report for June 2026.

Background Information and Discussion:

Board Highlights

East Lennox & Addington OPP Detachment Board

- Last Meeting: May 28, 2026 (Agenda)
- Next Meeting: July 30, 2026
- 2026 Budget Allocation (approved by OPP Board): $5,775
- 2026 Budget Used: $2,888.00

Committee Highlights

Arts & Culture Advisory Committee

- Last Meeting: June 1, 2026 (minutes to June 9)
- Next Meeting: September 14, 2026
- 2026 Budget Allocation: $5,000
- 2026 Budget Used: $1,526.04 (Arts Awards)
- Staff Liaison: Bethany Chadwick

Heritage Advisory Committee

- Last Meeting: May 21, 2026 (minutes to June 9)
- Next Meeting: June 18, 2026
- 2026 Budget Allocation: $4,000
- 2026 Budget Used: $326.65 (Heritage Plaques and Photos)
- Staff Liaison: Jessica Walters

Market Square Advisory Committee

- Last Meeting: June 2, 2026 (minutes to June 9)

- Meeting Since Last Report: May 14, 2026 (minutes to June 9)
- Next Meeting: June 23, 2026
- 2026 Budget Allocation: no Committee budget, capital funds committed for Town Hall renovation
- Staff Liaison: Chris Brown

Recreation Advisory Committee

- Last Meeting: Mar 31, 2026 (minutes)
- Next Meeting: June 4, 2026
- 2026 Budget Allocation: $0
- Staff Liaison: Matthew Grant

Waste Diversion Advisory Committee

- Last Meeting: Apr 15, 2026 (minutes) (May 20 meeting cancelled due to lack of quorum)
- Next Meeting: June 24, 2026
- 2026 Budget Allocation: $3,000
- 2026 Budget Used: $0
- Staff Liaison: Andrew Girouard

Community Initiatives Fund Advisory Committee

- Last Meeting: Jan 13, 2026 (minutes)
- Next Meeting: June 15, 2026
- 2026 Grants Allocation Amount: $30,000
- 2026 Grants Awarded: $0
- Staff Liaison: Kylie Huffman

Trail Development Advisory Committee

- Next Meeting: TBD
- 2026 Budget Allocation: $0
- Staff Liaison: Matthew Grant

Committee Recommendations Requiring Council Consideration

- None for this meeting

Other Committee Matters

- Recommendations from the Community Initiatives Fund Advisory Committee for grant allocations are planned to be presented to Council for ratification at the June 23 meeting.
- The Arts Committee has determined that they do not have the capacity to organize Culture Days with only committee resources and will not be moving forward with planning for a 2026 event.
- Music by the River dates are June 14, July 12, and August 16.
- The Market Square Committee is working with BelCon to create a draft design for the Town Hall renovation based on the executive summary that was produced from the community consultation. The draft design will then be reviewed by the joint sub-committee to obtain feedback from the Arts and Heritage Committees.

Jessica Walters, Clerk — Approved - 04 Jun 2026
Shawn Armstrong, Fire Chief — Approved - 04 Jun 2026

Matthew Grant, CAO	Approved - 04 Jun 2026
Christina Reeve, Deputy Clerk	Approved - 04 Jun 2026

Staff Report

To:	Mayor Richardson and Members of Council
Meeting Date:	June 9, 2026
Date Council Decision Required:	June 9, 2026
Prepared By:	Andrew Girouard, Deputy Director of Environmental Services, Growth & Infrastructure Services
Presented By:	Andrew Girouard, Deputy Director of Environmental Services, Growth & Infrastructure Services
Subject:	Growth & Infrastructure – Product Care Association of Canada - Lighting Recycling Promotion and Education Community Collaboration Pilot Agreement
Report Number:	SR-1343-2026

Staff Recommendation:

That Council receive for information the Growth & Infrastructure Report – Product Care Association of Canada – Lighting Recycling Promotion and Education Community Collaboration Pilot Agreement

And further that Council endorses the Product Care Association of Canada – Lighting Recycling Promotion and Education Community Collaboration Pilot Agreement and authorizes the Mayor and Clerk to execute the agreement on behalf of the Town

Background Information and Discussion:

Product Care Association of Canada operates in Ontario as a Producer Responsibility Organization (PRO) within the Resource Productivity and Recovery Authority (RPRA).

The Town claims paints, certain hazardous wastes and lighting that are collected during the household hazardous waste collection event to Product Care for partial reimbursement.

In 2023 the Ontario Lighting Program was established as a province-wide collection system.

Lights accepted include fluorescent tubes, compact fluorescent lights, high intensity discharge lights, halogens, LEDs, and miniature bulbs.

Product Care reached out to municipalities earlier this year to apply for a promotion and education grant fund to help promote household hazardous waste events and highlight the lighting recycling program.

Staff applied and were successful in receiving the grant funding. Product Care will be reimbursing the Town for all expenses related to promotion of the event and educational materials produced for

residents. To secure the funding the Product Care Lighting Recycling Promotion and Education Community Collaboration Pilot Agreement must be executed.

Financial Implications:

The Town will be reimbursed for all expenditures related to the promotion of the household hazardous waste day by Product Care.

Public Engagement/Communication Implications:

Environmental Services staff have worked woth Communications to develop a communciations plan.

Michael Nobes, General Manager - Growth & Infrastructure	Approved - 25 May 2026
Ellen Hamel, Treasurer	Approved - 01 Jun 2026
Matthew Grant, CAO	Approved - 02 Jun 2026
Christina Reeve, Deputy Clerk	Approved - 02 Jun 2026

Staff Report

To:	Mayor Richardson and Members of Council
Meeting Date:	June 9, 2026
Date Council Decision Required:	
Prepared By:	Ellen Hamel, Treasurer, Financial & IT Services
Presented By:	Ellen Hamel, Treasurer, Financial & IT Services
Subject:	Financial & IT Services - 2025 Annual Development Charge (DC) Report
Report Number:	SR-1348-2026

Staff Recommendation:

That Council receive for information Financial & IT Services 2025 Annual DC report.

Background Information and Discussion:

Development Charges are collected by municipalities in accordance with the Development Charges Act, 1997 (the Act) to recover a portion of growth-related costs associated with the infrastructure required to service new development. These charges are established by by-law based on the completion of a DC Background Study and are collected at the building permit stage. The Background Study is prepared pursuant to the requirements of the Act and is the basis for the Development Charge rates that are adopted.

The most recent background study for Greater Napanee was approved in 2022 through By-law No. 2022-0059 – To Establish Development Charges for the Corporation of the Town of Greater Napanee. Please note, that when the DC background study was completed in 2022, DC reserve funds for water and wastewater replaced the former 'Impost Fees.' You will notice in the statement attached that Water and Wastewater funds have no opening balances, as they are held in the Impost Reserve account.

Section 43(1) of the Development Charges Act stipulates the Treasurer of the municipality is required to provide Council with a financial statement related to DC reserve funds. Section 12 of Ontario Re. 82/98 prescribes the information that must be included in the Treasurer Statement established under Section 43 of the Act. The values in the Treasurer Statement are unaudited.

Municipalities are also required to spend or allocate at least 60% of the monies in a reserve fund at the beginning of the year for water, wastewater, and services related to a highway. In 2025 Council approved the Financing Strategy for the WPCP which included the use of Wastewater Development Charges to partially fund the repayment of the debenture issued for this project. Further, long range capital plans include the reconstruction of Bridge Street West, as these current traffic volumes are currently justifying an upgraded road surface, which will include DC eligible expenditures for services

related to a highway, water, and wastewater. It is anticipated that these planned projects will meet the annual allocation requirements.

Financial Implications:

Figure 1
Town of Greater Napanee
2025 Summary of Development Charge Reserve Funds

Description	Total
Opening Balance, January 1, 2025	**7,981,392**
Plus:	
Development Charge Collections	**907,767**
Accrued Interest	**246,909**
Sub-Total	**1,154,676**
Less:	
Amount Transferred to Capital Funds[2]	**273,648**
Amount Transferred to Operating Funds[2]	
Sub-Total	**273,648**
Closing Balance, December 31, 2024	**8,862,420**
	unaudited

Public Engagement/Communication Implications:

As stated in the Act, a copy of this statement shall be provided to the Minister of Municipal Affairs and Housing (MMAH) on request and the Treasurer's Annual Statement is available to the public and staff. To satisfy these requirements, a copy of the Annual Treasurer's Statement will be posted on the Town's website.

Attachments:

2025 Annual Treasurers Statement
2025 Annual Treasurers Statement Attachment 1
2025 Annual Treasurers Statement Attachment 2

Ellen Hamel, Treasurer	Approved - 01 Jun 2026
Michael Nobes, General Manager - Growth & Infrastructure	Approved - 01 Jun 2026
Matthew Grant, CAO	Approved - 02 Jun 2026
Christina Reeve, Deputy Clerk	Approved - 02 Jun 2026

Figure 1
Town of Greater Napanee
2025 Annual Treasurer's Statement of Development Charge Reserve Funds

Description	Services to which the Development Charge Relates								Total
	Services Related to a Highway 05-2-3000-3000	Public Works (Facilities and Fleet) 05-2-3000-3014	Water Services 05-2-3000-4310	Wastewater Services 05-2-3000-4100	Fire Protection Services 05-2-3000-2100	Parks and Recreation Services 05-2-3000-7000	Growth Studies 05-2-3000-8000	Provincial Offences Act including By-Law Enforcement 05-2-3000-2000	
Opening Balance, January 1, 2025	**4,583,610**	**251,954**	**478,045**	**727,333**	**609,203**	**1,093,139**	**99,404**	**138,705**	**7,981,392**
Plus:									
Development Charge Collections	212,814	126,053	167,173	254,518	65,569	32,338	44,686	4,616	**907,767**
Accrued Interest	133,227	10,500	17,922	27,272	18,743	31,262	4,002	3,981	**246,909**
Transfer from Capital									
Repayment of Monies Borrowed from Fund and Associated Interest[1]									-
Sub-Total	**346,041**	**136,553**	**185,095**	**281,791**	**84,312**	**63,599**	**48,689**	**8,597**	**1,154,676**
Less:									
Amount Transferred to Capital Funds[2]		211,362				22,922	39,364		**273,648**
Amount Transferred to Operating Funds[2]									
Amounts Refunded									-
Amounts Loaned to Other D.C. Service Category for Interim Financing									-
Credits[3]									-
Sub-Total	**-**	**211,362**	**-**	**-**	**-**	**22,922**	**39,364**	**-**	**273,648**
Closing Balance, December 31, 2024	**4,929,651**	**177,144**	**663,140**	**1,009,124**	**693,515**	**1,133,817**	**108,729**	**147,302**	**8,862,420**
Less Committements Outstanding Against the D.C. Reserve Fund									
Adjusted Closing Balance, December 31, 2024	**- 4,929,651**	**- 177,144**	**- 663,140**	**- 1,009,124**	**- 693,515**	**- 1,133,817**	**- 108,729**	**- 147,302**	**- 8,862,420**

[1] Source of funds used to repay the D.C. reserve fund

[2] See Attachment 1 for details

[3] See Attachment 2 for details

The Municipality is compliant with s.s. 59.1 (1) of the *Development Charges Act* , whereby charges are not directly or indirectly imposed on development nor has a requirement to construct a service related to development been imposed, except as permitted by the *Development Charges Act* or another Act.

Unaudited

Attachment 1
Town of Greater Napanee
2025 Amount Transferred to Capital (or Other) Funds - Capital Fund Transactions

Capital Fund Transactions	Gross Capital Cost	D.C. Recoverable Cost Share					Non-D.C. Recoverable Cost Share				
		D.C. Forecast Period			Post D.C. Forecast Period						
		D.C. Reserve Fund Draw	D.C. Debt Financing	Grants, Subsidies Other Contributions	Post-Period Benefit/ Capacity Interim Financing	Grants, Subsidies Other Contributions	Other Reserve/Reserve Fund Draws	Tax Supported Operating Fund Contributions	Rate Supported Operating Fund Contributions	Debt Financing	Grants, Subsidies Other Contributions
Public Works (Facilities & Fleet)											
Drum Roller	191,567	191,567									
Slip In Water Tank	39,590	19,795						19,795			
Sub-Total	**$ 231,157**	**$ 211,362**	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Parks & Recreation Service											
Lawn Mower	22,922	22,922									
Sub-Total	**$ 22,922**	**$ 22,922**	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Growth Studies											
Official Plan Update	28,419	28,419									
DC Update	10,945	10,945									
Sub-Total	**$ 39,364**	**$ 39,364**	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total	**$ 293,443**	**$ 273,648**	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

Unaudited

Attachment 2
Town of Greater Napanee
Description of the Service (or Class of Service) for which each Development Charge Reserve Fund was Established

Service/Class of Service	Description
Services Related to a Highway	The fund is used for growth-related projects for roads, bridges, structures, active transportation, streetlights, sidewalks, and other related road infrastructure
Public Works (Facilities and Fleet)	The fund is used for growth-related projects for public works related facilities, vehicles, and equipment
Water Services	The fund is used for growth-related projects for water treatment, supply, storage, pumping, distribution, and other water related infrastructure
Wastewater Services	The fund is used for growth-related projects for wastewater treatment, storage, pumping, collection, and other wastewater related infrastructure
Fire Protection Services	The fund is used for growth-related projects supporting fire protection services, including facilities, vehicles, equipment, and gear
Parks and Recreation Services	The fund is used for growth-related projects related to parkland development, parkland amenities, recreational trails, parkland buildings, recreation facilities, and parks & recreation vehicles and equipment
Growth Studies	The fund is used for growth-related to growth-related studies
Provincial Offences Act including By-Law Enforcement	The fund is used for growth-related projects including facilities, vehicles, and equipment

Staff Report

To:	Mayor Richardson and Members of Council
Meeting Date:	June 9, 2026
Date Council Decision Required:	
Prepared By:	Ellen Hamel, Treasurer, Financial & IT Services
Presented By:	Ellen Hamel, Treasurer, Financial & IT Services
Subject:	Financial & It Services Report - Use of Municipal Accommodation Tax Reserve Funds Policy
Report Number:	SR-1351-2026

Staff Recommendation:

That Council receive for information Financial & IT Services - Use of Municipal Accommodation Tax Reserve Funds Policy report;
And further that Council adopt the Use of Municipal Accommodation Tax Reserve Funds Policy as presented.

Background Information and Discussion:

On April 28, 2026 Council received SR-1302-2026 Financial & IT Services Report - Municipal Accommodation Tax Draft Policy and Tourism Entity.

Council received the first draft of the policy and indicated they were in agreeance with the policy, with a minor amendment to include the use of some wages in particular instances, such as support new tourism specific projects. This language was added to the final draft attached.

Alternative Options and Implications:

Council may suggest any amendment to the policy prior to adoption.

Attachments:

MAT Policy - Final

Ellen Hamel, Treasurer	Approved - 01 Jun 2026
Shawn Armstrong, Fire Chief	Approved - 01 Jun 2026
Matthew Grant, CAO	Approved - 02 Jun 2026
Christina Reeve, Deputy Clerk	Approved - 02 Jun 2026

Town of Greater Napanee

Use of Municipal Accommodation Tax Reserve Funds Policy

Approval Date:		Resolution #	
Revised Date:		Resolution #	
Review Scheduled:	[Next Review Date]		
Department:		Contact:	Treasurer
Approval Authority:	Council	Policy No:	XX-YYYY-01

1. Introduction

This Policy establishes funding principles to guide the use of the Municipal Portion of funds collected through the Town of Greater Napanee's Municipal Accommodation Tax (MAT) program. While provincial legislation permits the municipal portion of MAT program revenue to be used for any purpose that Council deems appropriate, Council wishes to establish guidelines and expectations on the future use of these funds.

2. Purpose

The purpose of this policy is to ensure that revenue collected through the Municipal Accommodation Tax program is directed to support and manage Tourism development, including infrastructure, services and initiatives, and to address tourism-related opportunities and issues facing the community, including tourism operators, accommodation providers, businesses, residents and visitors to the Town of Greater Napanee.

3. Scope

This policy applies to the revenue generated by the MAT program in the Town of Greater Napanee. It does not apply to any other reserve funds or budget policies of the Town.

4. Definitions

Council - shall mean the Council for The Corporation of the Town of Greater Napanee

Municipality or Town - shall mean The Corporation of the Town of Greater Napanee.

Municipal Accommodation Tax or MAT - shall mean the Transient Accommodation Tax in accordance with Ontario Regulation 435/17 - Transient Accommodation Tax.

Municipal Portion - shall mean the percentage of the MAT revenue retained by the

Town of Greater Napanee, which is 50% of the total MAT revenue after reasonable costs for collecting and administering the program.

5. Responsibilities

a) Town Council

Council is responsible for:

a) Approval of the Municipal Accommodation Tax Reserve Funds Policy
b) Approval of any amendments to the policy
c) Approval of all contributions to and/or withdrawals from reserves and reserve funds, normally as part of the annual budget approval process or specifically by resolution.
d) Pursuant to Ontario Regulation 435/17: TRANSIENT ACCOMMODATION TAX, Council reserves the right to use the Municipal Portion of Municipal Accommodation Tax funds at their sole discretion through the form of Council direction provided by certified resolution.

b) Treasurer

Treasurer has the overall responsibility for the management of reserves and reserve funds, ensuring that funds are allocated in accordance with this policy.

c) Staff

Staff are responsible for ensuring that the reserve funds are allocated in accordance with this policy.

6. Policy

a) A Municipal Accommodation Tax Reserve Fund shall be established, to which the municipal portion of the net MAT revenue collected shall be deposited.

b) This revenue shall be dispersed at the discretion of Council based on the utilization of funds outlined in this policy through annual budget deliberations or specific resolution, where warranted.

c) Withdrawals from reserve or reserve funds will be made at the actual cost of the project or purchase. Where a project or purchase requires more than the amount of the budgeted funding, staff will require Council approval for withdrawing additional funds in excess of 20% of the budget.

d) All contributions to and/or withdrawals from the reserve or reserve funds will be clearly identified and segregated within the Corporation's accounting.

6.1 Utilization of the Funds

The Municipal Accommodation Reserve Fund can be utilized to fund the following tourism related expenses:

a) Investments into Tourism Related Infrastructure:
For example:
- Wayfinding and signage

- Streetscaping
- Public amenities such as parks, boat launches and trails
- Waterfront and downtown beautification
- Capital Improvements and investments where such expenditures can be demonstrated to support tourism promotion or visitor attraction

b) Programs that increase visitor spending and strengthen the local economy

c) Projects that expand the community's capacity for tourism offerings such as sports, art, music, heritage, and cultural experiences

d) Wages, benefits, and direct operating expenses for new Tourism-Related projects which are directly tied to the delivery of tourism related services that attract visitors. For example:
- Operation of tourism information booths or visitor centers
- Staffing for new tourism events, new festivals, or new experiences that attract visitors,
- Temporary or seasonal staff hired specifically to support tourism related functions

e) Funding of small business and other grants under an approved Community Improvement Plan

6.2 Ineligible Funding

Programs, projects or initiatives unrelated to a tourism-related purpose shall not receive funding through the MAT revenue without prior authorization by Council.

This includes:
a) Salaries, Wages, and Benefits, unless otherwise eligible under 6.1 d.
b) Operating Costs of Public Works Road Maintenance and Repair
c) Operating Costs of Existing Municipal Facilities

7. Related Documents

By-Law 2026-0018, Being a Bylaw to Implement a Municipal Accommodation Tax

Ontario Regulation 435/17, Transient Accommodation Tax

Revision History

Date	Number	Description

Staff Report

To:	Mayor Richardson and Members of Council
Meeting Date:	June 9, 2026
Date Council Decision Required:	
Prepared By:	Chris Brown, Ellen Hamel, , Financial & IT Services, Parks, Recreation & Culture
Presented By:	Ellen Hamel, , Financial & IT Services
Subject:	Financial & IT Services - Heritage Race Donation
Report Number:	SR-1352-2026

Staff Recommendation:

That Council receive for information Financial & IT Services Heritage Race Donation report;
And further that Council accept the donation of $35,532.64 from the Napanee Heritage Race to support the in-town rail Trail Revitalization.

Background Information and Discussion:

On May 12, 2026 Council received a deputation from Heather Griffin - Napanee Heritage Race Donation.

During this deputation, the organizers indicated their intention to donate approximately $35,000 from the funds raised through this volunteer driven initiative. The donors requested that the funds be directed towards amenities associated with the in-town Rail Trail Revitalization Project.

Alternative Options and Implications:

Council may choose to decline the donation.
Doing so would forgo a significant community contribution toward trail development and reduce available funding for planned amenities.

Financial Implications:

Upon receipt, the donation will be placed into a recreation deferred revenue accounts and restricted for future use on in-town trail development amenities.
It is anticipated that these funds will be accessed in 2027, following completion of the trail base construction scheduled for fall 2026.

Community Implications:

A donation of this magnitude represents a meaningful investment in local recreation infrastructure and enhances the Town’s ability to deliver in-town trail amenities.

Legislative Implications:

As per the The Town of Greater Napanee Donations and Sponsorships Policy the Treasurer is permitted to approve donations valued up to $50,000 in consultation with the CAO and Council approval is required for donations valued at $50,000 or greater. Given the public deputation and this being the first donation since the inception of this policy, staff prepared the attached report and recommendation for Council's consideration.

Ellen Hamel, Treasurer	Approved - 01 Jun 2026
Michael Nobes, General Manager - Growth & Infrastructure	Approved - 01 Jun 2026
Matthew Grant, CAO	Approved - 02 Jun 2026
Christina Reeve, Deputy Clerk	Approved - 02 Jun 2026

Staff Report

To:	Mayor Richardson and Members of Council
Meeting Date:	June 9, 2026
Date Council Decision Required:	
Prepared By:	Jessica Walters, Clerk, Executive Services
Presented By:	Jessica Walters, Clerk, Executive Services
Subject:	Executive Services - Update on Mandate Item - Closed Session Meeting Transparency
Report Number:	SR-1350-2026

Staff Recommendation:

That Council receive for information the Executive Services - Update on Mandate Item - Closed Session Meeting Transparency;
And further, that Council consider this mandate item completed for the current term of Council.

Background Information and Discussion:

One of the assigned mandate items for Legislative Services has been to improve closed session meeting transparency under the area of Creating Predictable Organizational Behavior through Standards, Policies, and Systems, as follows:

"Develop and implement policies and related staff training designed to limit to the extent possible the use of in-camera meeting, including the requirement that all in-camera items are accompanied by a public report that provides general details on the matters that were discussed and the specific legislative details that require discussion to occur in an in-camera format."

The following actions have been undertaken since the mandate letter was issued in support of this mandate item:

Updated Closed Session Report Formats

- New report templates and training were provided to staff who provide closed session reports to Council.
- All closed session reports are required to include both the exemption under Section 239(2) of the *Municipal Act* which authorizes the closed session meeting and an explanation of why the exemption is being applied or deemed to be necessary.
- All closed session reports are required to include a section which explains the timing and method for public reporting on the matter, or the reason why such public reporting will not be given (such as in the case of certain human resource matters).

Updated Open Session Agenda Formats

- Open session agendas now list the report numbers and high level descriptions of each report being presented in closed session.
- The rise and report from closed session is followed by a separate resolution to ratify each direction given in closed session, with as much detail as possible while still preserving the reason for closed session discussion, if applicable.
- The open session minutes list the individuals present and the times they were present for each closed session meeting.

Updated Land Sale By-law

- As land transactions have previously been the greatest source of concern with respect to the use of closed session meetings, the land sale by-law has been amended to require an open session staff report to accompany each closed session report dealing with the disposition of land which details the property being discussed and the general purpose of the discussion.

Additional Planned Actions

- A page is planned to be added to the Town website which provides more details on the purpose and limitations of closed session meetings and the process for filing a complaint with the Ombudsman if a resident believes the Town is misusing the closed session meeting process.

Alternative Options and Implications:

If Council wishes to see additional actions taken in order to deem this mandate item complete, they can provide that direction by way of alternate resolution.

Jessica Walters, Clerk	Approved - 02 Jun 2026
Michael Nobes, General Manager - Growth & Infrastructure	Approved - 02 Jun 2026
Matthew Grant, CAO	Approved - 02 Jun 2026
Christina Reeve, Deputy Clerk	Approved - 02 Jun 2026

Staff Report

To:	Mayor Richardson and Members of Council
Meeting Date:	June 9, 2026
Date Council Decision Required:	
Prepared By:	Jessica Walters, Clerk, Executive Services
Presented By:	Jessica Walters, Clerk, Executive Services
Subject:	Executive Services - Update on Mandate Item - Reporting Systems
Report Number:	SR-1353-2026

Staff Recommendation:

That Council receive for information the Executive Services - Update on Mandate Item - Reporting Systems;
And further, that Council consider this task completed for the 2022-2026 term, and that any future reporting requirements be established by the next term of Council.

Background Information and Discussion:

One of the assigned mandate items for Legislative Services has been to establish regular reporting processes to Council under the area of Creating Predictable Organizational Behavior through Standards, Policies, and Systems, as follows:

"Develop, implement, and/or oversee the schedule of regular reporting for key organizational priorities, including outstanding Council resolutions, fleet and facility condition reporting, service level target updates, legislative compliance requirements, and monthly recommendations to Council from Advisory Committees. As the staff member accountable for public reporting requirements, these efforts are to be undertaken in collaboration with members of the Senior Leadership Team who have functional oversight of the relevant program areas."

The following reporting has been or is being established in support of this mandate item:

Advisory Committees

- Monthly report is compiled to highlight recent and upcoming activities of each advisory committee.
- A report format has been implemented for any committee recommendations which require ratification or consideration by Council in order to move forward.
- Lead Staff: Clerk
- Report Format: Staff report on the consent agenda, to the first meeting of each month

Fleet and Facility Condition Reporting

- Currently in the data acquisition and standardization stage, this is intended to be an annual report that is brought to Council as a pre-budget exercise
- Work will continue in developing this report into the next term of Council
- Lead Staff: Manager of Corporate Capital Assets
- Report Format: To be determined

Operations

- Monthly departmental activity reports continue to provide information on key operations, including priority areas that have been identified by Council (for example, monthly accounts payable listing, alcohol license operations)
- Activity Reports are one of the vehicles used for routine Council reporting and may continue to be customized to respond to Council identified priorities.
- Lead Staff: Senior Leadership Team
- Report Format: Staff reports on the consent agenda, to the second meeting of each month.

Outstanding Council Resolutions

- Following each Council meeting, resolutions are reviewed by the Senior Leadership Team. Administrative, operational, or long term future referrals are assigned to an internal staff tracker for follow up (for example, implementation of a new policy or program, execution of agreements, referrals to the next budget process). The CAO is responsible for ensuring these matters are followed up on.
- Resolutions with an element of reporting back to Council and/or the public are included on a separate Council resolution tracker and assigned to responsible staff. The CAO brings a bi-monthly report to Council highlighting actions completed since the last report, items still outstanding, and any factors that may be impacting the completion of outstanding items or require new direction.
- Status updates on mandate items are also included in this report. If a different reporting method for mandate items is preferred, Council may provide that direction.
- Lead Staff: CAO, in consultation with SLT
- Report Format: Staff report for discussion, every two months (report may be delayed following months with only one meeting, or when required to manage agenda length.)

Procurement

- As per the Procurement By-law, delegated authority memos providing information about purchase awards between $50,000 - 100,000 are included with the Finance activity report each month. Purchase award decisions over $100,000 must be brought to Council for approval.
- As per the Procurement By-law, reporting on emergency procurement under $50,000 is included in the departmental activity report each month, if applicable. Emergency procurement over $50,000 is reported through a standalone Council report to the first possible meeting after the purchase decision is made.
- Lead staff: Department Head, in consultation with the Treasurer
- Report Format: Inclusion on the monthly activity report (consent agenda, second meeting of each month), except for emergency purchases over $50,000

Service Level Target Updates

- Departments are on track to implement service levels by summer of 2026. As service levels are approved by Council, they are posted to the Town website (Department Service Standards)

- Review of service levels is intended to be an annual pre-budget exercise, beginning with the Council orientation sessions in November 2026.
- Departments will begin reporting on measurable service level targets on an annual basis after a full year of data has been collected.
- Lead staff: CAO
- Report Format: To be determined

Legislative Compliance

- Legislative compliance matters will be reported to Council in the following methods and circumstances:
- Where Council ratification or reporting is required under legislation, those matters will continue to be reported as standalone Council agenda reports (for example, the development charge reserve fund report included on this agenda).
- Where a service level includes legislative compliance matters, the annual service level target update report will include a status update on whether compliance was maintained or not. Areas of non-compliance, if any, will include a detailed report.
- Where a change in legislation imposes new compliance requirements which will impact operations or require a service level change to meet, a staff report will be brought to Council.
- Where a change in circumstances mean the Town is at risk of not being able to meet or maintain compliance, a report will be brought to Council.
- Lead staff: Responsible Department Head
- Report Format: Varies.

Alternative Options and Implications:

If Council wishes to see additional operational areas reported on in order to deem this mandate item complete for this term, they can provide that direction by way of alternate resolution.

Jessica Walters, Clerk	Approved - 02 Jun 2026
Michael Nobes, General Manager - Growth & Infrastructure	Approved - 02 Jun 2026
Matthew Grant, CAO	Approved - 02 Jun 2026
Christina Reeve, Deputy Clerk	Approved - 02 Jun 2026

Staff Report

To:	Mayor Richardson and Members of Council
Meeting Date:	June 9, 2026
Date Council Decision Required:	
Prepared By:	Jessica Walters, Clerk, Executive Services
Presented By:	Jessica Walters, Clerk, Executive Services
Subject:	Executive Services - Land Sale Amendment By-law
Report Number:	SR-1358-2026

Staff Recommendation:

That Council receive for information the Executive Services - Land Sale Amendment By-law report.

Background Information and Discussion:

This agenda contains a by-law to amend the Land Sale By-law to include a new reporting provision for offers presented in closed session that are rejected by Council.

Council reviewed SR-1322-2026 on May 12, 2026 and gave direction for the amendment to be drafted. Public notice of the proposed amendment was posted on the Town's website fora minimum of two weeks in accordance with the updated Public Notice Policy. No comments, questions or concerns were received from the public during that time.

Alternative Options and Implications:

If Council wishes to amend the by-law prior to its adoption, they may do so between first and final reading of the by-law at this meeting, or defer adoption of the by-law subject to any specified amendments as may be requested by Council through resolution.

Jessica Walters, Clerk	Approved - 04 Jun 2026
Shawn Armstrong, Fire Chief	Approved - 04 Jun 2026
Matthew Grant, CAO	Approved - 04 Jun 2026
Christina Reeve, Deputy Clerk	Approved - 04 Jun 2026

Staff Report

To:	Mayor Richardson and Members of Council
Meeting Date:	June 9, 2026
Date Council Decision Required:	June 9, 2026
Prepared By:	Chris Brown, Director of Parks, Recreation & Culture, Parks, Recreation & Culture
Presented By:	Chris Brown, Director of Parks, Recreation & Culture, Parks, Recreation & Culture
Subject:	Parks, Recreation, & Culture - Community Event Application for Napanee Heritage Race
Report Number:	SR-1342-2026

Staff Recommendation:

That Council receive for information Parks, Recreation, & Culture - Community Event Application for Napanee Heritage Race report;
And further, that Council approves the Napanee Heritage Race in accordance with the Community Events Policy.

Background Information and Discussion:

The Napanee Heritage Race is an annual community road race and fundraising event that brings together runners, walkers, volunteers, sponsors, spectators, and community partners from across the region to promote healthy active living, community engagement, and local pride. The event includes organized race activities within Greater Napanee and is designed to provide a safe, inclusive, and family friendly experience for participants of all ages and abilities.

This year, the Lennox and Addington County General Hospital Foundation will run the event for the first time.
The 2026 Napanee Heritage Race supports local healthcare priorities and community-based health and wellness initiatives benefiting Greater Napanee and surrounding communities. Event organizers are committed to maintaining a safe and well-coordinated event environment through proactive planning, risk management, emergency preparedness, and collaboration with municipal services, volunteers, and community partners.
Event Date: Saturday, June 13, 2026
Event Location: Museum of Lennox & Addington, 97 Thomas St., Napanee
Event Time:
• Set-up 6:00 a.m.
• Race kit pick up 7:00 a.m.
• 7:45 a.m. 5km walkers start
• 8:00 a.m. Kids 1-mile race
• 8:30 a.m. 5km run

• 9:30 a.m. Awards ceremony
• 11:00 a.m. Clean-up

The Napanee Heritage Race consists of two events, a children's 1-mile run, and a 5km walk/run.

The kid's 1-mile event will take place at 8:00 am, starting in front of the County Courthouse on Thomas St. E. The route will consist of two laps, north on East St. to Isabella St., south on John St. to Thomas St., and ending back at the L&A County Museum.

The 5km walk will begin at approximately 7:45 a.m. and the run at approximately 8:30 a.m. Both events will begin in front of the courthouse on Thomas St. E., north on East St. to Isabella St., south on John St. to Thomas St. E. Runners and walkers will then travel to Alma Ave., turning south toward Bridge St. E. and cross the intersection following to Camden Rd. Right turn on King St., north on Barrett Blvd., right onto Church St., right into the Riverside Cemetery loop and return to Church St. and continue heading North. Left onto Heritage Park Dr. and turn back south on Ginger St., back to Barrett Blvd, right on King St. W. back to Camden Rd. South on Camden Rd., follow Bridge St. W. to Alma Ave., and ending at the L&A County Museum.

Traffic Management and Traffic control:
OPP will be positioned at the intersection of Bridge St. and Alma Ave. As well as Camden Rd. at King St. to provide traffic calming measures where participants need to cross the road to access the sidewalk.

Temporary 'Local Traffic Only' signs/barriers will be needed along Thomas St. E. between John St. and Alma Ave. and at Adelphi Street and Alma Ave. from Bridge St. E. until after the last participant passes through.

Temporary Road Closure is needed at the intersection of Dundas St. E. and Alma Ave. to prevent traffic from turning onto Alma Ave. from Hwy #2/Dundas St. E. Detour routes will be in place until the race is over.

On-Course Volunteers will be set up at the following locations to assist in directing participants and keeping everyone on the route:

Position	Location
A	Thomas St E and East St
B	Isabella St E and East St
C	Isabella St and John St
D	Thomas St E and John St
E	Graham St E and John St
F	Graham St E and East St
G	Thomas St E and Alma Ave
H	Alma Ave and Bridge St E
I	Camden Rd and Elizabeth St
J	Camden Rd and King St
K	King St and Barrett Blvd
L	Church St and Heritage Park Drive

M	Ginger St and Heritage Park Drive

Financial Implications:

There is no cost to the Municipality for the proposed event.

Operational Implications:

Public Works staff will deliver pylons and road barriers to the appropriate locations on Friday, June 12th and return to pick everything up on Monday, June 15th. Trained volunteers will establish the barriers on race day before the race begins.

Attachments:

Heritage Race Route - Map 2026

Chris Brown, Director of Parks, Recreation & Culture	Approved - 02 Jun 2026
Michael Nobes, General Manager - Growth & Infrastructure	Approved - 02 Jun 2026
Matthew Grant, CAO	Approved - 03 Jun 2026
Christina Reeve, Deputy Clerk	Approved - 03 Jun 2026


Legend
Race Start/ End Point
Heritage Race Route
Special Closure
KELLWOOD CRESCENT
KELLWOOD CRESCENT
COMMERCIAL COURT
RICHMOND BOULEVARD
BARMISH LANE
MILLIGAN LANE
MILLIGAN LANE
INDUSTRIAL BOULEVARD
CAMDEN ROAD
CROUSE STREET
ADVANCE AVENUE
MEADOW LANE
ANGLIA STREET
HERITAGE
PARK DRIVE
GATEWAY PLACE
Riverside Cemetery
STONE STREET
GINGER STREET
CHURCH STREET
SNOW ROAD
CHURCH STREET
DAIRY AVENUE
SMITH CRESCENT
BARRETT DRIVE
QUEEN STREET
CARDIFF LANE
CARDIFF LANE
CARDIFF LANE
ISABELLA STREET EAST
GRAHAM STREET EAST
RACE START/ FINISH
SMART CRESCENT
KING STREET
THOMAS STREET EAST
THOMAS STREET EAST
ELIZABETH STREET
EAST STREET
KENT AVENUE
JOHN STREET
HUFFMAN STREET
HILLSIDE AVENUE
ADELPHI STREET
CLARKE AVENUE
MARKET SQUARE (N)
HILLSIDE AVENUE
DUNDAS ST
MILL STREET EAST
WATER STREET EAST
YEOMANS STREET
PALACE ROAD
PARKS STREET
BRACKEN STREET
CATHERINE STREET
BLAKE STREET
HENRY STREET
OLD HAMBURG ROAD
Canadian National
2
N
W
E
S
0.15 0.07 0 0.15 0.3 0.45 0.6
Kilometers

Staff Report

To:	Mayor Richardson and Members of Council
Meeting Date:	June 9, 2026
Date Council Decision Required:	
Prepared By:	Andrew Girouard, Kristie Kelly, , Growth & Infrastructure Services
Presented By:	Andrew Girouard, , Growth & Infrastructure Services
Subject:	Growth & Infrastructure Services - 2025 Annual Monitoring Reports for the South Fredericksburgh , the Roblin Waste Disposal Sites, and the former Water St. Landfill.
Report Number:	SR-1331-2026

Staff Recommendation:

That Council receive for information Growth & Infrastructure Services - 2025 Annual Monitoring Reports for the South Fredericksburgh, the Roblin Waste Disposal, and the former Water St. Landfill reports.

Background Information and Discussion:

As per the Environmental Compliance Approvals (ECAs) for the municipally owned and operated Waste Disposal Sites, annual reports are required to be submitted to the Ministry of Environment, Conservation and Parks (MECP) for the South Fredericksburgh Waste Disposal Site and the Roblin Waste Disposal Site. The ECA for the former Water St. Landfill requires a bi-annual report. Pinchin Ltd. was contracted to complete the required sampling, analysis, monitoring, and annual reporting for the South Fredericksburgh Waste Disposal Site, the Roblin Waste Disposal Site and the former Water St. Landfill in 2025.

The Monitoring Reports were received by staff in April 2026 and subsequently forwarded to the MECP for review.

Summary:

South Fredericksburgh Waste Disposal Site (SF WDS) – Report Summary:

- Based on recent survey data and the long-term fill plan, the remaining landfill capacity at the SF WDS is estimated to be approximately 226,638 m³ with an estimated remaining lifespan of approximately 50 years assuming current fill rates. Of note, the current approach to landfill cover placement is resulting in higher fill material usage and less efficient use of available landfill capacity. To fully implement the fill plan and work toward achieving the full 50-year life expectancy, additional investment in site practices and infrastructure will be required.

- Overall, groundwater quality conditions at the SF WDS remain consistent with historical trends, and no significant changes in groundwater quality or plume behaviour were identified during the 2025 monitoring program relative to results from 2024.

- Waste diversion programs continued to successfully divert significant volumes of waste from the final disposal in a landfill.

Roblin Waste Disposal Site (Roblin WDS) – Report Summary:

- Waste diversion programs continued in 2025 to successfully divert significant volumes of waste from the Roblin WDS.

- Surface water and ground water sampling results remain similar to historical sampling events.

Former Water St. Landfill- Report Summary:

- This is the first bi-annual report prepared for the Water Street Landfill under the new Environmental Compliance Approval. While this is the first report issued under this approval, the site has been subject to ongoing monitoring through various programs over many years.

- The site undergoes seasonal monitoring for seep activity. Seepages observed during 2025 were generally minor in extent and limited to localized areas of shallow groundwater discharge. All observed landfill seeps were interpreted to infiltrate into the surrounding ground surface and do not appear to discharge directly to the Napanee River.

- Seepage sample results indicated exceedances of select Provincial Water Quality Objectives (PWQO) parameters; however, some elevated concentrations may be influenced by sediment entrainment during sampling.

- Groundwater samples indicated exceedances of select parameters. It was noted that sediment was present in some samples, which may have affected analytical results.
- Sampling will continue in 2026 to confirm results and establish trends.

- Wells will be purged and maintained to limit the amount of sediment in samples for 2026.

Attachments:

2025 Former Water St Landfill AR
2025 Roblin WDS AR
2025 South Fredericksburgh WDS AR

Michael Nobes, General Manager - Growth & Infrastructure	Approved - 06 May 2026
Ellen Hamel, Treasurer	Approved - 07 May 2026
Matthew Grant, CAO	Approved - 07 May 2026

FINAL

2025 Water Quality Monitoring Report

Former Water Street Landfill Site
Napanee, Ontario

Prepared for:

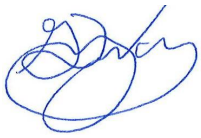
Town of Greater Napanee
99-A Advance Avenue
Napanee, Ontario

March 31, 2026

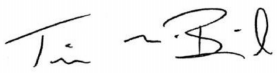
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Issued to:	**Town of Greater Napanee**
Issued on:	**March 31, 2026**
Pinchin File:	**350221.003**
Issuing Office:	**Sudbury, ON**
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Author: Greg Way, B.Sc.
Project Technologist



Reviewer: Tim McBride B.Sc., P.Geo., QP_{ESA}
Practice Specialist – Hydrogeology
Director, Northern Ontario

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1.0 INTRODUCTION

Pinchin Ltd. (Pinchin) was retained by the Town of Greater Napanee (the Town) to complete the 2025 water quality monitoring and reporting for the Former Water Street Waste Disposal Site (the Site) located in Napanee, Ontario, which is owned and operated by the Town. The Site location is presented on Figure 1 (all figures are provided in the attached Appendix I).

The purpose of completing the monitoring program was to assess the hydraulic media for contaminants of concern during the spring and fall of 2025 as a compliance requirement under Environmental Compliance Approval (ECA) Number **1608-D6TLA4** for the Site, prepared by the Ministry of the Environment, Conservation and Parks (MECP), dated July 12, 2024. A copy of the ECA is provided in Appendix II.

The following report provides a detailed evaluation and summary of the 2025 monitoring data and was completed to constitute the 2025 Water Quality Monitoring Report. This document includes, but is not limited to a summary of historical geochemical data, a review/evaluation of the historical and current geochemical data (as well as groundwater flow), a summary of geochemical trends and all Site inspections completed in 2025. This report represents the first Water Quality Monitoring Report completed under the ECA. In accordance with the ECA requirements, monitoring and reporting will be completed on a biennial basis moving forward, unless otherwise directed by the MECP.

1.1 Location

The Site is located on Lot 20, Concession I, in the Town of Greater Napanee, within the County of Lennox and Addington. The former landfill Site is located at Universal Transverse Mercator (UTM) coordinates 343,558 metres (m) Easting and 4,900,390 m Northing, Zone 18T relative to the North American Datum (NAD) 83 (collected via handheld Global Positioning System (GPS) and accurate to within 10 m).

In a letter addressed to MECP from Cunningham Swan Lawyers on May 22, 2025, the law firm confirmed that the municipal property known as the Water Street Closed Landfill Site, located in Lot 20, Concession I, is legally described as “PT LYING S OF LT 8-12 S/S FRONT ST PL 82; GREATER NAPANEE”. The legal description of the Site comprises a 1.2 hectare (ha) area on the north shore of the Napanee River between Hessford Street and Napier Street. The Site has been formally closed and is currently occupied as the west end of Kinsmen Park for recreational use. The Kinsmen Park property is approximately 2.4 hectares and between Hessford Street and Raglan Street. The Kinsmen Park is bordered by residential uses to the north and east, the Water Pollution Control Plant to the west, and the Napanee River immediately to the south.

During a review of the historical reporting inconsistencies were unveiled with regards to defining its location. The closed landfill has sometimes been described as spanning the entire 2.4 ha municipal park property (e.g., the 2008 Monitoring Report & the 2018 Comprehensive Review) or more narrowly defined

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as the 1.2 ha western portion of the park (e.g., the 2011 Remediation Report & the 2015 Groundwater Remediation Report), consistent with provided legal description. Based on the results of previous investigations including the entire 2.4 ha park property, previous environmental consultants chose to abandon monitoring efforts of the east end of park, between Napier and Raglan Streets, focusing on the identified historic waste deposits documented on the west end of the property. The recently issued ECA in 2024 describes the Site as a 2.4 ha disposal area of an "unknown type" located on Lot 20, Concession I, in the Town of Greater Napanee, within the County of Lennox and Addington; however, the ECA was issued prior to legal confirmation of the Site. Subsequent to the legal clarification, a Certificate of Requirement under Section 197(2) of the *Environmental Protection Act* was registered on title for the Water Street Landfill (PIN 45098-0070 (R)) on July 22, 2025. The filing serves to notify current and future landowners of the closed landfill status of the Site and the requirement to disclose the associated ECA in any future land transaction. Thus, based on the available evidence, the Site is the 1.2 ha area on the north shore of the Napanee River between Hessford Street and Napier Street. A Site plan is presented on Figure 2.

1.2 Ownership and Key Personnel

The Site is owned and operated by the Town of Greater Napanee. The project was completed for the following representative on behalf of the Town:

Sarah McCallum
Town of Greater Napanee
99-A Advance Avenue
Napanee, Ontario, K7R 3Y5

The Competent Environmental Practitioner (CEP) for the Site groundwater and surface water monitoring program was Mr. Tim McBride of Pinchin Ltd. Mr. McBride's contact information is provided below:

Tim McBride, B.Sc., P.Geo., QP_{ESA}
Pinchin Ltd.
662 Falconbridge Road, Unit 3
Sudbury, Ontario, P3A 4S4

1.3 Background

Pinchin was provided with the following historical reports for the Site, and they are referenced within this document:

- Report entitled "Environmental Monitoring and Sampling 2008, Water Street Closed Landfill Site, Napanee, Ontario" prepared by Malroz Engineering Inc. (Malroz), dated January 2009 (the 2008 Monitoring Report);

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- Letter report entitled "Former Water Street Landfill – Town of Greater Napanee, Additional Assessment and Targeted Remediation (Area B/C)" prepared by GENIVAR, dated August 26, 2011 (the 2011 Remediation Report);
- Letter report entitled "*Town of Greater Napanee, Former Water Street Landfill, Environmental Monitoring – Seep and Sediment Sampling, Fall 2013*" prepared by WSP Canada Inc. (WSP), dated January 27, 2014 (the 2013 Seep and Sediment Report);
- Letter report entitled "*Former Water Street Landfill – Town of Greater Napanee, 2015 Groundwater Remediation Report*" prepared by WSP, dated March 30, 2016 (the 2015 Groundwater Remediation Report);
- Report entitled "Water Street Closed Landfill Site, Napanee, Ontario, Comprehensive Review of Existing Studies and Monitoring Reports" prepared by EVB Engineering (EVB), dated July 22, 2018 (the 2018 Comprehensive Review);
- Report entitled "*2020 Monitoring Report, Former Water Street Landfill*" prepared by EVB, dated June 3, 2021 (the 2020 Monitoring Report); and
- Report entitled "Trigger Mechanism and Contingency Plan, former Water Stret Landfill Site, Napanee, Ontario" prepared by Pinchin, dated May 29, 2025 (the Trigger Plan).

1.4 Monitoring and Reporting Program Objectives and Requirements

The reporting requirements must be completed in accordance with Section 5, Condition 3 of the ECA No. 1608-D6TLA4, which requires the submission of a monitoring report by March 31, 2026, and on a biennial thereafter, to the to the MECP. The principal objectives of the 2025 monitoring program are as follows:

- To evaluate groundwater at the Site in relation to the Ontario Drinking Quality Water Standards (ODWQS) and to the trigger concentrations, and assess the potential for impacts to nearby water resources as a result of the former landfill;
- To evaluate surface water along the shoreline of the Napanee River, from Hessford Street to Napier Street, in relation to the Provincial Water Quality Objectives (PWQO) and trigger concentrations, should seepage be observed between July to January on an annual basis prompting the surface water sampling;
- A summary of the twice annual inspections required by ECA Condition 5(1);
- To summarize annual Site inspections (twice per year);
- To assess the adequacy of the existing monitoring program with respect to evaluating the potential for impacts at nearby water resources;

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- To determine whether remedial actions are required in consideration of the findings the monitoring program; and
- To document and report the findings of the monitoring program on by March 31, 2026, and on a biennial thereafter, to the Town and provide a report to the MECP on behalf of the Town.

Additionally, each report shall include, as a minimum, the following information:

- A plan of the Site outlining monitoring locations;
- Conclusions of the monitoring data, a review of the adequacy of monitoring programs, recommendations for any changes to monitoring programs that may be necessary;
- A statement as to compliance with all Conditions of the ECA; and
- A summary of any public complaints received by the owner and the responses made.

The monitoring and reporting completed by Pinchin has been generally developed based on the MECP document entitled "*Monitoring and Reporting for Waste Disposal Sites Groundwater and Surface Water Technical Guidance Document*" dated November 2010, as well as the Town 2024 Request for Proposal (RFP) Document entitled "*Consulting Engineering Services to Support the Town of Greater Napanee's Municipal Waste Disposal Sites*", (RFP-ES-2024-01 and addendum No. 1 and 2).

The ECA for the Site provides detailed monitoring and reporting program objectives and requirements. A copy of the ECA is provided in Appendix II. It should be noted that the Site has been traditionally assessed according to O.Reg. 153/04, however, the ECA specifies that ODWQS should be utilized as the evaluation critieria.

1.5 Site Topography

Previous reports indicate that the Site is situated on a stepped terrace system adjacent to the Napanee River, where the subsurface conditions reflect the glacial and post-glacial depositional history of the river valley. The upper terrace of the Site, now Kinsmen Park, slopes southward toward the lower terrace and the Napanee River. The lower terrace consists of a marshy, periodically saturated zone that plays a role in attenuating shallow groundwater discharge before it reaches the river. Stormwater on the closed landfill drains naturally over the vegetated cover toward the lower terrace and ultimately to the Napanee River; there are no known constructed stormwater works on-Site.

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1.6 Site Geology and Hydrogeology

Based on previous intrusive investigations summarized in the historical reports, the subsurface soil conditions at the Site have been reported to consist of an upper layer of a moist, organic mixture of silt, clay and granular fill materials to a depth of 0.6 to 1.0 meters below ground surface (mbgs) and a lower layer of dense, grey clay with some gravel to a maximum depth of approximately 5.8 mbgs. Layers of broken brick and rock were observed between the upper and lower layers. Bedrock was not typically encountered in the shallow investigations. Ontario Geological Survey mapping (OGS Map 2544) indicates that the Napanee area is underlain by Middle Ordovician carbonate bedrock of the Simcoe Group, consisting predominantly of limestone and dolostone formations (commonly mapped as Verulam, Bobcaygeon, and Gull River–type carbonates).

The Site has been instrumented with a series of groundwater monitoring well installations to complete annual water quality monitoring activities. Static groundwater elevations are recorded at each of the groundwater monitoring wells and utilized to assess the hydrogeology of the Site. Groundwater at the Site is encountered within the shallow overburden, generally at depths of 1.0 to 3.0 mbgs, with variance according to seasonal river levels and precipitation conditions.

Based on a review of the available groundwater elevation data (provided in Appendix III), the groundwater flow direction across the Site is inferred to follow the topographic surface, sloping from north to the south towards the Napanee River. Figure 3 presents the inferred groundwater contour elevations generated via the data collected during the fall 2025 monitoring event.

The groundwater flow regime is strongly influenced by the proximity of the Napanee River, which acts as a local discharge boundary. Groundwater gradients in the upper terrace ranging from approximately 0.01 to 0.02 m/m and a steeper gradient of roughly 0.04 m/m in the lower terrace, reflect the break in slope and natural drainage toward the river.

Historical seep observation programs, including the sediment and seep assessment completed by WSP in 2013 and subsequent reporting, confirm that shallow groundwater discharge occurs intermittently along the lower terrace, particularly during high-water periods in the river. These seeps have been the focus of regular monitoring at the Site. Despite the periodic seepage, the combination of fine-grained soils, shallow groundwater flow toward the river, and the low hydraulic conductivity of the overburden provides a natural attenuation framework that limits the lateral migration of landfill-impacted groundwater and supports the long-term stability of the closed landfill.

2.0 CONTAMINANT ATTENUATION ZONE DETERMINATION

A Contaminant Attenuation Zone (CAZ) for the Site was presented in the 2024 D&O Plan. The CAZ was based on the inferred groundwater flow direction (calculated using groundwater elevation measurements

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collected from existing wells at the Site during previous monitoring events), Site and surrounding topography, and dimensions of the existing property boundary. Based on a comparison of the observed concentrations within the groundwater monitoring wells representative of the source conditions and the groundwater wells representative of the downgradient water quality, the CAZ boundary is required to extend to the furthest downgradient limit of the property boundary, up to the shoreline of the Napanee River. The proposed CAZ is presented on Figures 2, 3 and 4. The effectiveness of the CAZ boundary should be evaluated on an ongoing basis through the established trigger mechanism and contingency plan.

3.0 SITE DEVELOPMENT & CLOSURE

The Water Street Landfill operated between the early 1950s and late 1970s, although exact dates of operation are not documented. After closure, the site was covered, graded and converted into Kinsmen Park, a public greenspace containing a playground, shelter, walking areas and a baseball diamond.

3.1 Summary of Previous Investigations and Remediations

Site investigations date as far back as 2004, including an environmental impact study by Malroz in 2005. A comprehensive review of existing studies and monitoring reports was provided by EVB Engineering in 2018 (the 2018 Comprehensive Review). As part of the environmental impact study by Malroz, a Geonics EM31 electromagnetic (EM) survey was completed, a total of ten (10) boreholes were advanced across the Site, and eleven drive point monitoring wells installed. The EM survey identified several significant geophysical anomalies (i.e., areas of elevated conductivity). Soil samples collected during the borehole advancement revealed elevated metal concentrations, such as lead, at several locations on the west end of the property.

The 2008 investigation by Malroz involved the installation of , several drivepoint monitoring wells (MW-14, MW-15, MW-15A, MW-16, MW-16A, MW-17 and MW-17A) at four locations in the lower terrace in September 2008, as well as the sampling of several previously installed monitoring wells (MW-6, MW-7, MW-8, MW-9, MW10, MW-11, MW-12 and MW-13). The location of the monitoring wells additions in 2008 were informed by the 2004 EM survey instrument which identified significant geophysical anomalies (i.e., several areas of elevated conductivity). The water levels in several previously installed wells, MW-2, MW-3 and MW-4, located on the west end of the Site, were recorded, however, these wells were not sampled in 2008 or in subsequent monitoring programs. Malroz reports that Town staff manually removed illegally dumped debris from the lower terrace in October 2008.

The Town retained GENIVAR in 2011 to complete a targeted remediation of select areas identified in the 2004 EM survey. In June 2011, thirteen (13) 2 m by 4 m test pits were excavated in areas of concern. The locations of the 13 test pits are presented on Figure 4. The GENIVAR investigation confirmed the

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presence of historic waste in the nearshore area adjacent to monitoring wells MW-9 and MW-10, which was subsequently excavated and transported off-site for disposal. This investigation uncovered buried waste material consistent with historical dumping, which was subsequently removed and transported off-Site for disposal. A total of 36.84 tonnes of solid waste (e.g., contaminated soils and metallic waste) was removed and a total of 9,897 litres (L) of liquid waste was also removed from the test pits by skimming the surface of groundwater accumulation at the base of the excavations.

In parallel with the waste removal, GENIVAR initiated an in-situ groundwater bioremediation program in 2010, summarized in both the 2011 Remediation Report completed by GENIVAR and later in the 2013 Sediment and Seep Assessment completed by WSP. This program involved the injection of Epsom salt (magnesium sulfate) into selected monitoring wells to stimulate sulfate-reducing bacteria and enhance anaerobic degradation of petroleum hydrocarbons (PHCs) and polycyclic aromatic hydrocarbons (PAHs) detected in groundwater. GENIVAR reported that 230 kilograms (kg) of Epsom salt was applied between July and October 2010, and approximately 910 kg was cumulatively applied between July 2010 and December 2011, indicating a measurable correlation with reductions in PHC concentrations and changes in redox conditions. The 2013 Sediment and Seep Assessment also included intrusive nearshore work, such as seep mapping, shallow excavation and sediment sampling along the Napanee River to assess whether groundwater discharge was influencing sediment quality.

In the 2015 Groundwater Remediation Report, prepared by WSP (March 2016), they completed a comprehensive review of the GENIVAR remediation program and confirmed that in-situ treatment continued intermittently until 2015, when it was terminated due to diminishing geochemical response and program cost. WSP confirmed that no additional buried waste requiring removal was identified after the 2011 GENIVAR excavations and that the earlier intrusive investigations, sediment surveys and groundwater treatment measures had addressed the most accessible nearshore and source-area impacts. These findings were later carried forward into the broader Site review presented in the 2018 Comprehensive Review (WSP, 2018) and subsequent monitoring updates.

3.2 Waste Footprint and Final Cover

The precise waste footprint within the 1.2 hectare Site is unknown. Site investigations have been largely focussed on the upper and lower terrace and areas of high conductivity, outlined in the 2004 EM survey. There is no documentation of an engineered cover; the composition, extent and thickness of the existing cover have not been confirmed and thus, it cannot be considered low permeability. Based on the previous investigations, the uppermost geological unit at the Site appears to consist of a heterogeneous mix of peat or silty clay and granular soil that also forms the final cover layer overlying the waste deposits. The cover has been successfully vegetated with grass/sedges and low shrubs, providing erosion control and further limiting water percolation into the waste mass. Historical remedial work, including targeted

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excavation and leachate interception in localized hot spots, contributed significantly to the current stability and integrity of the cover system. Beneath this surficial zone, the natural geology consists predominantly of fine-grained silty clay.

4.0 SITE FACILITIES

4.1 Fencing and Gates

The Site does not contain any continuous perimeter fencing or gates. Public access is unrestricted.

4.2 Signage

In accordance with Section 2, Condition 1 of the ECA, a permanent sign has been posted at the west entrance to the park, and includes the following information:

- The ECA number of the Site;
- The Owner's name (i.e., Town of Greater Napanee);
- Status of the Site (e.g., Closed Waste Disposal Site (No Waste Accepted));
- Contact information (name and phone numbers) for reporting complaints and emergencies; and
- Warning against unauthorized dumping at and outside Site.

This signage is required to ensure that the public, maintenance staff and contractors are fully informed of the regulatory status of the Site and understand the restrictions and reporting procedures associated with the closed landfill. Given the current land use as an active public park, the required regulatory sign should be visible, durable, and accessible, yet steps can be taken to limit the intrusiveness. It is recommended that the sign be integrated into existing municipal park infrastructure, using a dual-purpose sign or a small standalone regulatory panel placed adjacent to park entrance features. All signage should be monitored and replaced as required to maintain good condition. In the future, any signs that exhibit fading or appear to be damaged should be replaced.

4.3 On-Site Access Roads

Access to the Site, now functioning as Kinsmen Park, is provided through the municipal road network.

4.4 Site Inspection and Equipment

As a result of the landfill having been closed and the Site converted to parkland, no landfill-specific heavy equipment is used for daily operations. Periodic maintenance may require the use of light municipal equipment such as lawn mowers, small tractors, utility vehicles and occasionally a rubber-tired loader or small excavator for localized grading or cover repairs. This equipment is not stored at the Site. The ECA

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requires that an inspection of the entire Site and all equipment on the Site shall be conducted twice per year as to ensure that the Site is being operated in compliance with this Approval.

It is noted that a portion of the Site is currently being used on a temporary basis for the stockpiling of soils associated with the adjacent Water Pollution Control Plant project. The stockpiled materials are intended for reuse as part of the WPCP works. This activity is considered temporary in nature and is not anticipated to materially impact the environmental conditions at the Site or the findings of the current monitoring program.

5.0 SITE OPERATIONS

Kinsmen Park at the Water Street Closed Landfill does not have formal posted hours, because it is part of a municipal green space rather than a staffed or gated facility. Under Section 3 of municipal by-law 2024-0064, titled Public Parks and Spaces, it states that no person shall remain in or enter into any Town property between the hours of 11:00 p.m. and 5:00 a.m.

5.1 Site Security

The Site employs passive security appropriate for a closed landfill located within a municipal park setting. Site access is controlled primarily through regulatory signage, as well as locked and protected monitoring wells. The Site receives regular municipal oversight through routine park maintenance, monitoring activities and public visibility. No perimeter fencing is required or warranted given the parkland use and absence of active waste management operations.

5.2 Public Complaints

No landfill complaints were received regarding the Site during 2025.

6.0 ENVIRONMENTAL MONITORING PROGRAM

Various groundwater, surface water, landfill leachate seep and sediment monitoring activities have taken place at the Site since 2005, in order to delineate potential environmental impacts originating from the former waste deposits and evaluate remedial options where required.

The primary objectives of monitoring are to assess groundwater quality, identify potential leachate seeps, evaluate surface water quality in the Napanee River and ensure that any changes in environmental conditions are detected early. The ECA for the Site outlines the monitoring and reporting requirements under Section 4, Condition 1 and Schedule B. The monitoring should also follow approved methods and protocols for sampling, analysis and recording as specified in the MECP document entitled “Monitoring and Reporting for Waste Disposal Sites Groundwater and Surface Water Technical Guidance Document”, dated November 2010.

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6.1 Groundwater Monitoring

6.1.1 Groundwater Locations

The current groundwater monitoring network consists of eight (8) groundwater monitoring well locations as illustrated on Figure 2 and summarized in the following table.

Well ID	Location
MW-6	Background
MW-7	Background
MW-9	Top Edge of Upper Terrace
MW-10	Top Edge of Upper Terrace
MW-11	Near Shore (along edge of Napanee River)
MW-12	Near Shore (along edge of Napanee River)
MW-13	Near Shore (along edge of Napanee River)
MW-17	Near Shore (along edge of Napanee River)

Groundwater monitoring occurs twice annually in April and October (spring and fall). Monitoring wells include background wells located upgradient, upper terrace wells located within the landfill property, lower terrace wells situated between the waste footprint and the river, and near-shore wells installed close to the riverbank. As MW-12 could not be sampled during 2025, MW-8 (located on the upper terrace) was temporarily added to the program for supplementary due diligence purposes. A photographic log of the groundwater monitoring locations is provided in Appendix V.

6.1.2 Groundwater Parameters and Sampling Frequency

Groundwater samples are analyzed for general chemistry, alkalinity, ammonia, chloride, sulphate, hardness, total dissolved solids (TDS), iron, magnesium, nitrate and dissolved organic carbon (DOC), as well as field parameters such as pH and electrical conductivity. The monitoring program also includes PAHs and PHCs F1–F4, consistent with historic detections reported in both shallow groundwater and near-shore seepage areas.

Static water levels are to be measured concurrently with each sampling event to document hydraulic gradients and assess groundwater-surface water interaction.

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A summary of the current groundwater monitoring program for the Site is provided in the table below.

Sample Locations	Frequency	Parameters
MW-6 MW-7 MW-9 MW-10 MW-11 MW-12 MW-13 MW-17	Twice per year (April & October)	**General Chemistry:** Alkalinity, Ammonia, Chloride, Conductivity, Nitrate, Sodium, TDS, DOC, Sulphate, BOD, COD, Hardness, pH **Metals:** Magnesium, Iron **PAHs:** Acenaphthene, Acenaphthylene, Anthracene, Benz (a) anathracene, Benzo (a) fluoranthene, Benzo (b+k) fluoranthene, Benzo (g,h,i) perylene, Benzo (l) fluoranthene, Chrysene, Dibenzo (a,h) anthracene, Fluoranthene, Fluorene, Indo (1,2,3,-c,d) pyrene, Methylnaphthalene 1-, Methylnaphthalene 2-, Methylnaphthalene 2-(1-), Naphthalene, Phenanthrene, Pyrene **PHCs:** F1-F4

Groundwater was sampled by Pinchin during the spring and fall on the following dates in 2025:

- April 28-29, 2025; and
- October 8, 2025.

Typical sampling dates attempt to capture periods with an elevated groundwater table found to occur during the spring freshet and during recurring or heavy rainstorm events typically found to occur late in the fall. Winter sampling with temperatures below freezing or early spring with frost impacting shallow groundwater deposits is also not preferable as sampling locations are frozen, which does not facilitate the ability to collect samples.

6.2 Seepage Monitoring

Leachate seeps have been intermittently noted along the lower terrace at the southern boundary of the Site throughout the historical monitoring record. Samples have been collected from the identified seep locations when conditions allowed; however, water level fluctuations in the Napanee River have limited the ability to observe these seeps consistently.

Seep monitoring is performed bi-weekly from July through January, when seeps are observed, along the lower terrace shoreline between Hessford Street and Napier Street, a historically active zone of intermittent seepage. Field staff record conductivity and temperature at identified seep locations and assess for visible evidence of seepage or iron-stained rivulets.

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Sample Locations	Frequency	Parameters
Shoreline of the Napanee River from Hessford St. to Napier St. along the Water Street Landfill	Bi-weekly monitoring from July to January. Sample collection and photographs taken if seeps observed.	**General Chemistry:** Alkalinity, Chloride, Sodium, Total Suspended Solids (TSS), Sulphate, Biological Oxygen Demand (BOD), Chemical Oxygen Demand (COD), Hardness, pH, Conductivity (Field), Temperature (Field) **Metals:** Magnesium, Iron, Lead, Copper, Cobalt, Zinc **Polycyclic Aromatic Hydrocarbons (PAHs):** Acenaphthene, Acenaphthylene, Anthracene, Benz (a) anathracene, Benzo (a) fluoranthene, Benzo (b+k) fluoranthene, Benzo (g,h,i) perylene, Benzo (l)fluoranthene, Chrysene, Dibenzo (a,h) anthracene, Fluoranthene, Fluorene, Indo (1,2,3,-c,d) pyrene, Methylnaphthalene 1-, Methylnaphthalene 2-, Methylnaphthalene 2-(1-), Naphthalene, Phenanthrene, Pyrene **Petroleum Hydrocarbons (PHCs):** F1-F4

Seep samples were collected from four discrete sample locations (SP1, SP2, SP3 and SP4) along the lower terrace shoreline between Hessford Street and Napier Street by the Town during the following monitoring events in 2025:

- July 3, 2025 (SP1);
- August 26, 2025 (SP2); and,
- November 19, 2025 (SP3 and SP4).

Once a seep was observed, it was given a unique ID (with SP prefix) and the location tracked during subsequent inspection events. A photographic log of the four observed seep locations, SP1 through SP4, is provided in Appendix V.

7.0 METHODOLOGY

7.1 Scope of Work

The objectives of the monitoring program as requested by the client were provided in the Pinchin proposal entitled "*Request for Proposal (RFP-ES-2024-01) for Waste Management Environmental Consulting Services*", dated December 5, 2024. The objectives of the current monitoring program included the following scope of work:

- Mobilization to the Site during the spring and fall of 2025 and collection of groundwater samples from the existing well network;

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- Completion of seep monitoring and sampling along the lower terrace shoreline between Hessford Street and Napier Street, where seepage was observed during the monitoring period;
- Submission of representative spring and fall groundwater samples, and seep samples where applicable, to an accredited analytical laboratory for analysis of the ECA-listed parameters (refer to Section 6.2); and,
- Submission of representative spring and fall groundwater samples to an accredited analytical laboratory for analysis of the ECA listed parameters (refer to Section 6.2); and,
- Preparation of a report outlining the 2025 field work completed and the analytical results, an evaluation of the results and any subsequent recommendations.

The investigation methodology was also conducted in general accordance with and reference is made to the following regulatory and guidance documents:

- MECP document entitled "Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario", dated December 1996 (MECP Sampling Guideline);
- MECP document entitled "Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act", dated March 9, 2004, amended July 1, 2011 (Analytical Methods);
- Ontario Regulation 169/03 "*Ontario Drinking Water Quality Standards*" under the Safe Drinking Water Act, dated 2002 (ODWQS);
- MECP document entitled "Technical Support Document for Ontario Drinking Water Standards, Objectives and Guidelines", dated June 2003 (ODWQS Guideline);
- MECP document entitled "*Determination of Contaminant Limits and Attenuation Zones, Procedure B-7-1*", (formerly referenced by 15-08), dated 2018 and updated in 2021;
- Ontario Regulation 903 R.R.O. 1990 "*Wells*", under the Ontario Water Resources Act as amended in 2019;
- MECP document entitled "*Water Management Policies Guidelines Provincial Water Quality Objectives*" (PWQO), dated July 1994, revised February 1999;
- MECP document entitled "Rationale for the Development of Soil and Groundwater Standards for Use at Contaminated Sites in Ontario" (Table 3.1 - Aquatic Protection Values) dated April 15, 2011 (APV); and
- Canadian Council of Ministers of the Environment (CCME) document entitled "*Canadian Environmental Quality Guidelines*" (Water Quality Guidelines for the Protection of Freshwater Aquatic Life) dated 1999 (CWQG).

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7.2 Monitoring Procedures and Methods

7.2.1 Standard Operating Procedures

The following Pinchin Standard Operating Procedures (SOPs) were followed by Pinchin and Town field personnel for each portion of this project:

- Groundwater Sampling SOP; and
- Surface Water Sampling SOP.

All Pinchin monitoring SOPs have been developed in accordance with the MECP Sampling Document and are consistent with standard engineering practices.

7.2.2 Groundwater Monitoring Activities

To perform the groundwater monitoring activities, the following tasks were conducted:

- Pinchin notified the Client prior to field activities and subsequently mobilized staff from the Kingston office to the Site;
- Static groundwater levels were collected using a Solinst™ water level tape. Measurements were collected from the top of riser pipe;
- During the monitoring events, groundwater from each monitoring well was purged prior to the collection of the sample using a moderate-flow sample methodology via high-density polyethylene (HDPE) or low-density polyethylene (LDPE) 3/8" tubing and a Waterra™ inertial foot valve system. The inertial pump system was chosen as an approved method to minimize sediment/particulate within each sample and to minimize sample agitation and well trauma in accordance with the MECP Sampling Document. Pinchin purged a minimum of three well volumes to a maximum of six well volumes using the inertial pump system until the well volume column was representative of the surrounding formation. During purging activities, additional groundwater monitoring parameters were collected from each monitoring well using a YSI-556 water quality meter for measurement of field parameters. Sample residual was disposed of onto the ground surface, on-Site and upgradient within the landfill confines;
- Groundwater samples were collected using the inertial pump system in accordance with the MECP Sampling Document. Dissolved metals were field-filtered using a dedicated in-line 0.45-micron disposable filter. Upon completion of field sampling and monitoring activities, all samples collected were submitted to the project laboratory, SGS Canada Inc. (SGS) in Lakefield, Ontario. All parameters were analyzed by the project laboratory using MECP approved procedures and are consistent with the analytical methods prescribed in the Analytical Methods document; and

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- The groundwater samples collected were analyzed at the project laboratory for the parameters listed in Column 1 and 2 of Schedule 5 of the MECP Landfill Standards for the spring and fall events, respectively. Groundwater sample results were compared to the applicable ODWQS as applied in accordance with the ODWQS Guideline document. Groundwater sample results were also compared to the reasonable usage parameters and were assessed using Guideline B-7 and Site-specific trigger criteria to establish and determine levels of contaminant discharges to the groundwater formation which would be considered acceptable by the MECP from naturally attenuating landfill sites with respect to human consumption and potable considerations.

7.2.3 Surface Water (Seep) Monitoring Activities

- All field activities at each monitoring location were initiated at downstream locations working upstream to avoid sediment disturbance and influencing sample integrity;
- Care was taken during collection of surface water samples to ensure that a representative sample was collected, and that underlying sediments were not disturbed. For the surface water samples only, no filtration was done (in accordance with MECP surface water sampling protocols);
- Surface water samples were collected during each sampling event using a direct grab sampling methodology in accordance with the MECP Sampling Document. Upon completion of field sampling and monitoring activities, all samples collected were submitted to SGS. All parameters were analyzed by the project laboratories using MECP approved procedures and are consistent with the analytical methods prescribed in the Analytical Methods document;
- During sampling activities, surface water monitoring field parameters were collected at each surface water monitoring location using a Heron™ Water Level Tape (with temperature and conductivity capabilities); and
- Surface water samples were analyzed during the monitoring event at the pre-determined monitoring locations for parameters listed in the previous monitoring reports. Sample results were compared to the applicable PWQO criteria.

The initial seepage monitoring and sampling event on July 3, 2025, was a joint effort between Pinchin and Town personnel, however, all subsequent seepage monitoring was completed by the Town.

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7.2.4 Groundwater and Surface Water (Seep) Field Measurements

Prior to sampling groundwater in the wells, Pinchin monitored groundwater depth using a Solinst™ 100-metre electronic water level meter. The water level tape is calibrated in 1.0 mm increments. Reproducibility of the depth measurements is generally within 2.0 millimeters (mm) or less.

Subsequent to groundwater depth measurement and during purging activities, additional groundwater monitoring parameters were collected from each monitoring well using a YSI-556 water quality meter for measurement of field parameters. Field parameters at each surface water (i.e., seepage) monitoring location were also collected using the Heron™ Water Level Tape with temperature and conductivity reading capabilities. The following field parameters were measured during the 2025 monitoring program:

- *Dissolved Oxygen* (DO) refers to the relative quantity of oxygen molecules which are dissolved or carried within a quantity of water. Oxygen enters water as rooted aquatic plants and algae undergo photosynthesis and as oxygen is transferred across an air and water interface. Oxygen's solubility in water is indirectly correlated with water's temperature, salinity and pressure. DO concentrations have a significant effect on groundwater quality by regulating the valence state of trace of metals and constraining the bacterial metabolism of dissolved organic species;
- *Conductivity* is the measurement of water's capacity to pass an electrical current. It is considered to be a reasonable indicator of ionic activity and dissolved solids concentration levels. It is affected by the presence of inorganic dissolved solids which carry a negative charge such as chloride, nitrate, sulphate and phosphate anions, or a positive charge such as sodium, magnesium, calcium, iron and aluminum cations. Organic compounds such as oil and phenol do not conduct an electrical current very well, and would therefore, have low conductivity in water. Conductivity is also directly correlated to the water temperature. Specific conductivity is a measurement of conductivity values which have been compensated to 25ºC;
- *pH* is a measure of water's acidic/basic properties on a logarithmic scale from 1 (strongly acidic) to 14 (strongly alkaline or basic). It determines the solubility and biological availability of chemical constituents such as nutrients and heavy metals. For example, in addition to affecting how much and what form of phosphorus is most abundant in the water, pH also determines whether aquatic life and use it. The degree to which heavy metals are soluble determines their toxicity. Metals tend to be more toxic at lower pH values because they are more soluble. Excessively high and low pHs can have serious environmental and health effects. A high pH may cause the release of iron, copper, or lead into potable water, corrosion on water pipes and water using appliances and reduces the effectiveness of water disinfection with chlorine. Low pH values corrode

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substances such as metals and plastics. Fluctuations in groundwater pH values may be indicative of groundwater contamination;

- *Temperature* has a dramatic influence on water quality. The rate of chemical reactions is generally correlated to temperature which in turn affects the biological availability of nutrients within the water. As previously mentioned, oxygen's solubility in water is indirectly correlated with its temperature. Declining concentrations of oxygen within warming water is magnified by aquatic plants increasing metabolism as water temperature increases. Low concentrations of DO weaken aquatic plants resistance to disease, parasites and other pollutants; and
- *Oxidation-reduction potential* (ORP) characterizes the oxidation-reduction state of the water on a scale from approximately -300mV (strongly reducing) up to +500mV (strongly oxidizing). The primary application of ORP is recording significant changes in the redox potential which is observed when purging a stagnant water column in piezometer and replacing it with "fresh" groundwater.

7.2.5 *Record Keeping and Field Notes*

Field notes were collected during the spring and fall water quality monitoring events and recorded relevant observations, including, but not limited to:

- Dates and time of work being completed;
- Instrumentation and instrument condition;
- Calibration methods and results;
- Field parameter measurements;
- Field personnel conducting the investigations;
- Field methods used;
- Sampling location identifications;
- Sampling equipment and condition;
- Sample identification (i.e. type, media, number of containers, etc.);
- Sample preparation methods (i.e. preservatives, filtration, etc.);
- Field QA/QC measurements;
- Field and sample identifiers;
- Anomalous conditions (i.e. damage to monitoring wells);
- Photographs of monitoring wells and monitoring stations;

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- Weather conditions at the time of the monitoring events; and
- Field conditions.

There are also requirements in the ECA for biweekly (twice monthly) seepage inspections from July to January. All raw data and field notes are preserved and retained in Pinchin's custody, however, the ECA requires that an inspection of the entire Site and all equipment on the Site shall be conducted twice per year and recorded in a log book that includes:

- the name and signature of person that conducted the inspection;
- the date and time of the inspection;
- the list of any deficiencies discovered;
- the recommendations for remedial action; and
- the date, time and description of actions taken.

It is recommended that this log book be retained in the custody of the Town. In the July through December seepage inspection period in 2025, twelve seepage inspections were completed on the following dates, on an approximate bi-weekly basis:

- July 3, 2025;
- July 14, 2025;
- July 25, 2025;
- August 11, 2025;
- August 25, 2025;
- September 9, 2025;
- September 24, 2025;
- October 6, 2025;
- November 6, 2025;
- November 19, 2025;
- December 8, 2025; and,
- December 23, 2025.

A photographic log of the four observed seep locations, SP1 through SP4, is provided in Appendix V.

7.3 Quality Assurance for Sampling and Analysis

Pinchin uses recognized industry standards, including the Canadian Council of Ministers of the Environment (CCME) *Subsurface Assessment Handbook for Contaminated Sites* and MECP's manual *Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario* for conducting

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environmental assessments. For quality assurance, all work is supervised and internally reviewed by senior staff members. As such, various QA/QC protocols were followed during the water quality sampling events to ensure that representative samples were obtained, and that representative analytical data were reported by the laboratory.

Field QA/QC protocols that were employed by Pinchin included the following:

- Clean, labelled and pre-preserved (when applicable) sample containers were provided by the laboratory;
- Water quality samples were placed in laboratory-supplied sample jars;
- The monitoring wells were purged to remove stagnant water prior to sample collection, so that representative groundwater samples could be obtained. Dedicated purging and sampling equipment was used for monitoring well development, purging and sampling to minimize the potential for cross-contamination;
- All water quality samples were placed in coolers on ice immediately upon collection with appropriate sample temperatures maintained prior submission to the laboratory;
- Dedicated and disposable Nitrile™ gloves were used for all sample handling;
- All non-dedicated monitoring and sampling equipment (i.e. water level meter and YSI-556) was cleaned before initial use and between uses to minimize the potential for cross-contamination by washing with an Alconox™/potable water mixture followed by a deionized water rinse;
- Field duplicate groundwater and surface water samples were collected during the spring and fall sampling event (1 in 10); and
- Sample collection and handling procedures were performed in general accordance with the MECP Sampling Guideline.

The SGS laboratory has an established QA/QC program and is a member of the Canadian Association for Laboratory Accreditation (CALA) and is accredited by the Standards Council of Canada (SCC) for specified environmental analyses.

SGS's internal laboratory QA/QC consisted of the analysis of laboratory duplicate, method blank, matrix spike and spiked blank samples, an evaluation of relative percent difference calculations for laboratory duplicate samples and an evaluation of surrogate recoveries for the method blank, matrix spike and spiked blank samples.

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7.4 Data Quality Evaluation

In order to provide confidence in the data obtained, a comprehensive QA/QC component was included in the monitoring program. The QA/QC procedures developed for this monitoring program are prepared in accordance with MECP Sampling Document and in most cases, exceed the minimum requirements.

Relative per cent difference (RPD) values (the absolute difference between two values divided by the average value and expressed as a per cent) were calculated between the parent sample and the field duplicate as part of the QA/QC program. RPD results of sample and duplicate analyses that are less than 50 percent indicate an acceptable level of analytical uncertainty. RPD values calculated for measured analyte concentrations for sample and duplicate pairs that exceed 50 per cent generally warrant discussion because they may indicate the presence of elevated analytical uncertainty and a potential for making interpretive errors based on the analysis results. Use of calculated RPD values to assess analytical uncertainty when using measured analyte concentrations for sample and sample duplicate pairs is not appropriate when either measured analyte concentration is within a multiple of 5 of the method detection limit (a value designated as the practical quantification limit (PQL)), where analytical uncertainty is typically elevated.

All field instrumentation calibration checks were completed by Pinchin field staff members prior to use on Site. All field operations conducted by Pinchin field staff members were completed using standard equipment decontamination and sampling procedures, and no deviations from the sampling plan were noted.

All field instrumentation calibration checks were completed by Pinchin of Town field staff prior to use at the Site. Field activities were conducted in accordance with standard equipment decontamination and sampling procedures. Minor sampling plan modifications to the sampling program were discussed in Section 6.1.1, however, these adjustments were operational in nature and are not considered to have adversely affected the quality or interpretability of the analytical data.

8.0 ASSESSMENT, INTERPRETATION AND DISCUSSION

8.1 Groundwater Flow Interpretation

The inferred groundwater contours flow pattern is southward towards the Napanee River. Static groundwater elevations are presented in Appendix IV. The inferred groundwater elevation contours and groundwater flow directions in the overburden aquifer during the spring and fall 2025 monitoring events are presented on Figures 3 and 4.

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8.2 Groundwater Quality Monitoring

8.2.1 Ontario Drinking Water Quality Standards (ODWQS)

Through the establishment of the ODWQS, the province of Ontario has determined legally enforceable standards on contaminants in drinking water. The standards are designed to protect public health by restricting the quality of specific contaminants in drinking water. Three categories of contaminates are regulated under the O. Reg. 169/03 Drinking Water Standards:

- Microbiological – Originating from human and animals waste, coliforms and bacteria are common in the environment. Most are harmless; however, their presence may be indicative of other harmful bacteria in the water; and,
- Chemical – ODWQS regulates maximum quantities of organic and inorganic chemicals allowed in drinking water. Industrial discharges or agricultural runoff are not necessarily removed by drinking water treatment. Consuming water exhibiting a greater concentration of these chemicals than the ODWQS may cause serious health problems.

The ODWQS Guideline Document is the MECP technical guidance document which provides guidance on the applicability of the ODWQS and also provides applicable interim guidelines where legal standards are absent.

8.3 Trigger Assessment

The Site-specific groundwater and surface water trigger levels, response actions and contingency measures for the Former Water Street Landfill are documented in the Trigger Response and Contingency Plan, prepared by Pinchin, and are implemented in accordance with the requirements of the ECA. The proposed trigger mechanism and contingency plan has been submitted to the MECP in accordance with the ECA requirements and is currently awaiting formal approval. The Trigger Mechanism and Contingency Program for the Former Water Street Landfill provides an adaptive, tiered framework to identify, confirm, and respond to changes in groundwater, seep, and surface water quality in a manner protective of the Napanee River and consistent with post-closure management requirements.

In case of a trigger exceedance, the following actions are to be followed:

Teir I – Routine Monitoring

- Scheduled groundwater and seep monitoring (as well as Napanee River surface water monitoring, if applicable) and visual shoreline inspections;
- Comparison of results against applicable regulatory criteria, historical ranges, established baseline conditions and trigger criteria; and

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- Identification of exceedances, trend changes or anomalous field observations (e.g., changes in seep behaviour or conductivity).

Teir II – Confirmation Monitoring

- Initiated when Tier I identifies a potential concern (i.e., trigger criteria exceedance);
- Focused re-sampling during the next regularly scheduled seasonal event and/or increased monitoring frequency at affected locations;
- Evaluation of seasonal effects (e.g., river stage, groundwater elevation, redox conditions) to distinguish natural variability from Site-related change; and
- Determination of whether observed conditions are persistent, worsening or transient.

Teir III – Contingency and Compliance Response

- Triggered when Tier II confirms sustained exceedances or conditions that may result in an adverse effect;
- Implementation of appropriate contingency measures, which may include expanded monitoring, targeted investigations or evaluation of remedial or seep-control options;
- Notification of the MECP and other agencies, where required; and
- Documentation of actions taken and incorporation of findings into ongoing Site management.

Overall, the trigger program ensures that routine and historically understood conditions are differentiated from abnormal or escalating issues, that responses are proportional to risk, and that the Site continues to be managed in a stable, compliant post-closure condition.

Under Tier I monitoring, groundwater monitoring results from downgradient wells MW-11, MW-12, MW-13 and MW-17 are compared to established trigger concentrations for key leachate indicator parameters. The groundwater trigger parameters selected for the Site are chloride, iron, TDS and PHCs F1-F4.

Condition 4(6) of the ECA requires that a trigger mechanism and associated contingency plan for surface water be provided in this report. However, given the limited number of seepage and surface water samples collected to date, particularly in recent years, it is the opinion of Pinchin that the development of Site-specific surface water trigger criteria at this time would be premature. Additional seep sampling results, obtained when and if seeps are observed during the biweekly monitoring program would assist in evaluating any potential seepage-related impacts to the river and in establishing appropriate site-specific trigger criteria.

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8.3.1 Contingency Plan

Where trigger monitoring results indicate confirmed and persistent impacts, the contingency response for the Site is focused on confirming the extent of impact, protecting the Napanee River and implementing appropriate control or treatment measures.

Contingency actions may include the installation of additional monitoring wells to further delineate groundwater conditions, expanded surface water and seep investigations along the river margin and evaluation of engineered mitigation measures. Where localized source areas persist, additional targeted source removal may also be undertaken, to physically remove buried waste or residual PHC/PAH-impacted soils contributing to observed exceedances. Potential engineered contingency measures include passive containment or treatment systems (such as physical cutoff or reactive barriers) and, where warranted, active groundwater or leachate collection and treatment systems.

The selection and implementation of contingency measures are based on the nature and persistence of observed impacts and are undertaken in consultation with the MECP to ensure that responses are proportionate and protective of downgradient receptors. These measures would be considered only if monitoring identifies significant or persistent off-site impacts.

All contingency options would be selected, refined and implemented in consultation with MECP Technical Support staff, following confirmation monitoring under Tier II and Tier III of the site's Trigger Mechanism framework. The Town would assess feasibility, costs, regulatory requirements and environmental benefit to ensure that any implemented contingency measures are appropriate, effective and proportionate to the observed impacts.

8.4 Groundwater Results

Groundwater samples were collected from all groundwater monitoring wells during the spring and fall 2025 monitoring events, with the exception of monitoring well MW-12 during the spring and fall, due to an obstruction within the well annular space, approximately 1.28 m below the top of casing.

All sampled wells were inspected and found to be in good condition in compliance with O. Reg. 903, with the exception of MW-12. Field personnel also noted resistance during the manual reciprocation ("push-pull") of the Waterra tubing used for inertial sampling in MW-6, which increased the difficulty of sample acquisition. It was suspected that there may have been subsidence in the former fill material within the vicinity of MW-6 that has altered the subsurface vertical riser alignment and this well may be at an increased risk of becoming compromised in the future. With the permission of the Town, Pinchin also sampled monitoring well MW-8. MW-8 is not one of the groundwater monitoring locations outlined in the ECA, however, it is situated closer to the eastern property boundary than any of the other monitoring

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wells in the groundwater monitoring network and as such, is inferred to be useful for quantifying compliance at the eastern property, adjacent to the upper terrace.

Pinchin reviewed the historical water quality data and reporting. The following discussion of parameters documents the groundwater quality in comparison to Ontario Regulation (O.Reg.) 153/04, the Site-specific trigger criteria and the ODWQS. The analytical data for each well in comparison to the applicable regulatory criteria is provided in Tables 2 through 10 in Appendix VI.

8.4.1 Background Water Quality Review

Groundwater monitoring wells MW-6 and MW-7 are considered background or upgradient locations relative to the Former Water Street Landfill and provide an important baseline for comparison with on-Site and downgradient conditions. Water quality data from these wells have generally demonstrated relatively stable groundwater chemistry with limited and infrequent exceedances of the ODWQS. Detected parameters are typically consistent with natural background conditions for shallow overburden groundwater in the Napanee area, including elevated iron and manganese attributable to reducing geochemical conditions. PAHs and PHCs have been largely non-detectable or detected at low, sporadic concentrations without persistent trends. Iron concentrations at these locations are also significantly lower, relative to the rest of the monitoring network. The overall stability and compliance of MW-6 and MW-7 support the conclusion that Site-related impacts are not migrating upgradient and that observed exceedances at other wells are attributable to localized landfill influences rather than regional groundwater quality.

Monitoring well location MW-6 met the ODWQS for all parameters analyzed, with the exception of alkalinity (high – spring only), hardness (high), chloride (spring only), TDS and iron across the 2025 monitoring events. Monitoring well MW-7 met the ODWQS for all parameters analyzed, with the exception of hardness (high), iron (fall) and benzo(a)pyrene across the 2025 monitoring events.

8.4.2 Upper Terrace Groundwater Quality Review

Groundwater monitoring wells located on the upper terrace of the Site represent conditions beneath the former waste footprint now occupied by Kinsmen Park. Groundwater in this area is characterized by MW-8, MW-9 and MW-10. Water quality in these wells has historically shown intermittent detections of PAHs and PHCs, with occasional exceedances of the ODWQS. These exceedances have been episodic rather than persistent and are generally consistent with residual impacts from historic waste placement rather than active contaminant migration. Long-term trend analysis indicates that concentrations have remained stable or declined following remedial activities implemented between 2010 and 2015. Metals concentrations in upper terrace wells are generally low, with iron occasionally elevated under reducing conditions. No sustained increasing trends have been identified, indicating that groundwater quality beneath the upper terrace is stable in the post-closure period.

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Monitoring well location MW-8 met the ODWQS for all parameters analyzed, with the exception of hardness (high), TDS (fall), iron and benzo (a) pyrene (spring only) across the 2025 monitoring events. Monitoring well MW-9 met the ODWQS for all parameters analyzed, with the exception of hardness (high), iron, TDS and benzo(a)pyrene (fall) across the 2025 monitoring events. Monitoring well MW-10 met the ODWQS for all parameters analyzed, with the exception of hardness (high), iron, TDS and benzo(a)pyrene across the 2025 monitoring events.

8.4.3 Lower Terrace Groundwater Quality Review

Lower terrace groundwater monitoring wells are located downgradient of the primary waste footprint and closer to the Napanee River and therefore represent the most hydraulically sensitive portion of the groundwater monitoring network. These wells have historically exhibited the highest frequency of exceedances for PAHs and PHCs, particularly PHC F3 and F4 fractions, as well as elevated iron concentrations. The observed water quality is strongly influenced by seasonal groundwater fluctuations, redox conditions and proximity to historic waste materials. While elevated concentrations of the aforementioned parameters have occurred periodically, the data do not indicate a worsening trend over time. In fact, several parameters have shown decreasing or stable concentrations following remediation and natural attenuation processes. The persistence of localized impacts in the lower terrace is consistent with the conceptual site model and does not indicate uncontrolled plume expansion or off-site groundwater migration.

The near-shore groundwater wells MW-11, MW-12, MW-13 and MW-17 are all located within approximately 30 m of the Napanee River and have traditionally been assessed against O. Reg. 153/04 Table 9 criteria due to their proximity to surface water. These wells have historically recorded intermittent exceedances of Table 9 criteria for select PAHs and PHCs, reflecting the interface between groundwater and surface water along the southern boundary of the Site. Concentrations at these locations have been variable, with fluctuations driven by river stage, groundwater gradients and dilution effects. While exceedances continue to occur on occasion, they are consistent with historical patterns and have not increased in frequency or magnitude in recent monitoring periods. The data indicate that near-shore groundwater quality remains stable overall and that impacts are localized to the immediate shoreline zone.

Monitoring well location MW-11 met the ODWQS for all parameters analyzed, with the exception of hardness (high), TDS (fall), iron and benzo (a) pyrene across the 2025 monitoring events. Monitoring well MW-13 met the ODWQS for all parameters analyzed, with the exception of hardness (high), iron, TDS and benzo(a)pyrene across the 2025 monitoring events. Monitoring well MW-17 met the ODWQS for all parameters analyzed, with the exception of hardness (high), iron, TDS and benzo(a)pyrene across the 2025 monitoring events. The quantified benzo(a)pyrene concentration reported at MW-11 (spring only), MW-13 and MW-17 also exceeded the O.Reg. 153/04 Table 9 criteria.

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8.4.4 *Groundwater Trend Analysis*

A series of time versus concentration graphs were developed to evaluate the concentrations of a select number landfill indicator parameters (including chloride, iron and TDS) at each monitoring well for the Site. Current and historical groundwater quality data was utilized to identify any apparent trends or inconsistencies in the water quality within the monitoring well network. It is important to note that groundwater monitoring has not been consistently completed at the Site since the beginning of the monitoring record in 2008 and there are several years of analytical data gaps. The most recent results in the historical database prior to 2025 were from 2022, limiting the interpretation of recent trends; additional data will needed to confirm recent trends. The time versus concentration graphs are provided in Appendix VII.

Iron concentrations indicate the greatest variability over time, particularly in the lower-terrace and near-shore monitoring wells. Elevated iron is interpreted to reflect naturally reducing conditions within the shallow overburden and landfill refuse, rather than a discrete contaminant source. Trend plots generally do not indicate any increasing pattern, with concentrations either stabilizing or gradually declining following remediation activities. Localized spikes are episodic and consistent with changes in redox conditions and groundwater levels.

Chloride trends are comparatively stable across the monitoring network. Concentrations typically remain within a narrow range over time, with no consistent upward trend. Minor fluctuations correspond to seasonal variation. The absence of a sustained increase indicates no ongoing chloride source or plume migration. TDS concentrations are also generally stable or slightly declining, with short-term variability attributed to changes in groundwater flow paths, recharge conditions and river influences. Overall, the trend charts indicate long-term groundwater quality stability and attenuation at the Site.

8.4.5 *Trigger Mechanism Assessment*

Table 11 in Appendix VI presents the trigger parameters and groundwater trigger concentrations for the 2025 monitoring period.

The trigger parameter concentrations complied with their respective trigger concentrations during the 2025 monitoring period, with the exception of:

- PHCs F2-F4 at MW-11 during the spring and fall event; and
- PHC F3-F4 at MW-13 during the spring and fall event.

Based on the aforementioned exceedances, Tier II confirmation monitoring should be initiated, per the Site proposed trigger mechanism program. Elevated concentrations of TSS were observed in samples collected during the 2025 monitoring program, suggesting that sediment entrainment may have contributed to the elevated concentrations of PHCs and PAHs.

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8.5 Seepage Monitoring

8.5.1 Provincial Water Quality Standards

The PWQO are numerical and narrative criteria which serve as chemical and physical indicators representing satisfactory levels for surface water and groundwater where it discharges to the surface. The PWQO are levels which are protective of the water quality for all forms of aquatic life during their indefinite exposures to the water. The PWQO levels include protection for anthropogenic recreational water uses where there is a high potential of exposure and are based on public health and aesthetic considerations.

In general, the PWQO stated that the surface water quality of a water body shall be “free from contaminating levels of substances and materials attributable to human activities which in themselves, or in combination with other factors can: settle to form objectionable deposits; float as debris or scum or oil or other matter to form nuisances; product objectionable colour, odour, taste, or turbidity; injure, are toxic to, or produce adverse physiological or behavioural responses in humans, animals, or plants; or enhance the production of undesirable aquatic life or result in the dominance of nuisance species”.

8.5.2 Seepage Results

Several leachate seeps have sporadically been observed at the Site at the southern boundary along the lower terrace throughout the historic monitoring record. Several samples have been collected from the identified seep locations; however, due to water level fluctuations of the Napanee River, seep observations have not been continuous. Based on an evaluation of the historic sample results, it was previously determined that the seeps are not having a measurable impact on the water quality of the Napanee River. MECP technical support correspondence in 2015 indicated that no further sampling of surface water or sediments in the Napanee River are required provided that the leachate seeps are controlled. Continued seep monitoring of the southern boundary at the lower terrace is required as outlined in the table below.

The analytical data for each seep sample taken in 2025 in comparison to the PWQO is provided in Table 12 of Appendix VIII. Seep monitoring was conducted periodically from July through December 2025 to document the presence, condition and any changes to previously identified seep locations at the Site. Once a seep was observed, a sample was taken at this location and the seep further documented in photos during the remainder of seepage inspection events. A total of four discrete seep locations were documented in 2025 and sampled. Initial observations on July 3, 2025 identified seep SP1, where a sample was collected and field parameters recorded. SP1 was recorded in all subsequent events, appearing to incrementally grow in area until the October 6 monitoring event, in which it reduced in size. On August 26, 2025, a second seep (SP2) was identified. SP2 appeared to shrink during subsequent events and was largely absent by the November 6 monitoring event. The November 11 monitoring event revealed two new seeps, SP3 and SP4. Late-season monitoring on December 8, 2025 noted that the Site

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was snow covered and no seeps were observed, limiting visual assessment. No seeps were detected during the final 2025 monitoring event on December 23 which reported snow free conditions with largely dormant vegetation.

Seepage sample results identified several exceedances of the PWQOs for metals, including iron, lead, copper, cobalt, and zinc, as well as several PAHs including benzo(a)pyrene, fluorene, and phenanthrene. Elevated concentrations of iron were observed at SP1, SP3, and SP4, while lead exceedances were identified at SP2 and SP3, copper at SP3, and zinc at SP1, SP3, and SP4. Several PAHs also exceeded the PWQO, including benzo(a)pyrene at SP2 and SP4, fluorene at SP4, and phenanthrene at SP4. Other parameters were generally detected at concentrations below their respective PWQO or below laboratory detection limits. Elevated concentrations of TSS were observed in several samples, suggesting that sediment entrainment may have influenced the analytical results, particularly for metals and hydrophobic compounds such as PAHs. It should be noted that the seepage locations consisted of shallow pools, which limited the ability to collect samples without disturbing the underlying sediment. As such, elevated concentrations of PAHs may be attributable to sediment entrainment during sample collection.

8.6 QA/QC Results

8.6.1 Groundwater QA/QC Results

The groundwater duplicate results from the 2025 monitoring events are provided in Tables 13 and 14 of Appendix IX, respectively. When compared to concentrations reported in the original samples, duplicate water quality data reported that all parameters were within an acceptable range with respect to relative percent difference (i.e., the industry standard of less than 50%).

8.6.2 Seepage QA/QC Results

The seepage duplicate results from the 2025 monitoring event are provided in Table 15 of Appendix IX. When compared to concentrations reported in the original samples, duplicate water quality data reported that all parameters were within an acceptable range with respect to relative percent difference (i.e., the industry standard of less than 50%), with the exception of TSS. Any inconsistency between the original and duplicate samples are attributed to sample inhomogeneity and possible sediment entertainment

9.0 ADEQUACY OF THE MONITORING PROGRAM

Pinchin concludes that the current groundwater and surface water monitoring network is currently considered adequate for evaluating the Former Water Street Landfill Site with the respect to the characterization of Site conditions, the evaluation of Site performance and the assessment of Site compliance. Per the trigger mechanism and contingency framework recently established for the Site, additional surface water samples within Napanee River are recommended as an initial contingency action during the spring and fall 2026 sample events, due to the trigger exceedances observed in 2025. This

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surface water sample will assist in evaluating potential impacts to the river and devising a surface water trigger mechanisms suitable for the Site.

Monitoring well MW-12 was observed as damaged in 2025 due to an obstruction within the annular space of the well below ground surface. The historical monitoring results for this location appear to be similar to the groundwater results of monitoring well locations, MW-11 and MW-13, which are located on opposite ends of MW-12 along the sample plane of the lower terrace. Condition 4(3) of the ECA requires that any damaged groundwater monitoring well within the groundwater monitoring program be assessed, repaired, replaced or decommissioned by the Owner, as required. Additional efforts will be made during the 2026 sampling events to recover the obstruction in monitoring well MW-12, which is assumed to be the dedicated sampling equipment (i.e., Waterra tubing and foot valve).

All ECA Conditions with respect to inspection and reporting requirements were met during the reporting period. This ECA specifies that an inspection of the entire Site and all equipment must take place twice per year and that a record of the inspection must be kept in a log book that includes the name and signature of person that conducted the inspection; the date and time of the inspection; the list of any deficiencies discovered; the recommendations for remedial action; and the date, time and description of actions taken. Site inspections were completed by Pinchin personnel during each of the monitoring events. No recommendations were given for remedial actions with regards to the overall Site conditions.

10.0 CONCLUSIONS

Based on the work completed, the following is a summary of the findings of the 2025 water quality monitoring program:

1. Groundwater flow is interpreted to be directed south towards the Napanee River;
2. Samples were not acquired from MW-12 due to an obstruction within the annular space of the well below ground surface. The historical monitoring results for this location appear to be fairly similar to the groundwater results of MW-11 and MW-13 which are located on opposite ends of MW12, along the sample plane of the lower terrace. Given the similar historical results and temporal proximity, groundwater quality of the lower terrace/southern property boundary is inferred as sufficiently characterized by the three other monitoring wells within this area of the Site (i.e., MW-11, MW-13, and MW-17). Condition 4(3) of the ECA requires that any damaged groundwater monitoring well within the groundwater monitoring program be assessed, repaired, replaced or decommissioned by the Owner, as required.
3. Monitoring well MW-8 was temporarily added to the monitoring program in 2025. The monitoring well is not one of the groundwater monitoring locations listed in the ECA,

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however, was inferred to be a useful addition for evaluating compliance along the east end of the Site. This location has been periodically sampled since the installation of the well in order to evaluate groundwater compliance.

4. Based on the 2025 groundwater results, the CAZ proposed in the D&O plan is interpreted to be appropriate for this Site.
5. Landfill derived impact was greatest within the downgradient wells of the lower terrace, particularly MW-11 and MW-13.
6. PHCs F3 to F4 concentrations at MW-11 and MW-13, as well as PHC F2 concentrations at MW-13 did not meet their respective trigger concentration and as a result Tier II confirmation monitoring will take place in 2026. If Tier II confirmation sampling confirms the 2025 exceedances, then the Site will need to be evaluated for remedial options.
7. Elevated TSS concentrations of were observed in groundwater samples collected during the 2025 monitoring program, indicating that sediment entrainment may have influenced analytical results.
8. Seepage sample results identified several metal exceedances of the PWQO including several metals (iron, lead, copper, cobalt and zinc) and several PAHs (benzo(a)pyrene, fluorene, and phenanthrene). Elevated concentrations of PAHs and PHCs may be attributed to sediment entrainment in the samples.
9. Seepages observed during 2025 were generally minor in extent and limited to localized areas of shallow groundwater discharge. The observed seeps were not continuous and were characterized by isolated zones of damp soils and minor staining, with no evidence of sustained or channelized flow. Thus, all observed landfill seeps were interpreted to infiltrate into the surrounding ground surface and do not appear to discharge directly to the Napanee River.

11.0 RECOMMENDATIONS

Based on a review of the existing dataset and regulatory requirements to date, Pinchin recommends the following:

1. Continue with routine monitoring of groundwater annually;
2. Establishing a bi-weekly checklist for documenting seepage monitoring.
3. Monitoring well MW-12 should be further assessed in an attempt to collect additional details with regards to the nature of the obstruction and whether the obstruction is likely to be cleared through maintenance. The monitoring well should be decommissioned and replaced with another well, if recovery is not possible. Per the ECA, a report on the

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decommissioning of the well shall be included in the biennial report for the period during which the well was decommissioned all in accordance with R.R.O. 1990, O. Reg. 903.

4. Tier II confirmation monitoring should be initiated, per the Site proposed trigger mechanism program.
5. It is recommended that low-flow groundwater sampling be implemented during the 2026 monitoring program to minimize sediment entrainment during sample collection. This approach is expected to improve data quality and will assist in evaluating whether previously observed exceedances of PAH and PHCs are influenced by suspended sediment.
6. It is recommended that the Town evaluate additional monitoring well maintenance measures in advance of the 2026 sampling program, including nitrogen gas purging of select wells to remove accumulated sediment. Implementation of such measures may improve well performance and reduce turbidity, thereby enhancing overall data quality.
7. It is recommended that additional surface water sampling be conducted to better characterize potential seepage influences on the Napanee River and to support the development of appropriate site-specific trigger criteria, which should be presented in the next biennial report.
8. A dedicated inspection log book should be established for the Site, for the twice annual complete Site Inspection.
9. Despite only a single exceedance between SP3 and its respective duplicate, duplicate sampling is not recommended for the seepage sample during future monitoring events as a result of limited sample volume available and elevated risk of sediment disturbance.

12.0 MONITORING AND SCREENING CHECKLIST

In accordance with the MECP Landfill Standards, the Monitoring and Screening Checklist for the Site completed by the Pinchin CEP is completed and provided in Appendix X.

13.0 REFERENCES

- Canadian Council of Ministers of the Environment. *Canadian Environmental Quality Guidelines*. https://ccme.ca/en/summary-table
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- Pinchin. Trigger Mechanism and Contingency Plan, Former Water Street Landfill Site, Napanee, Ontario" prepared by Pinchin, dated May 29, 2025 (the Trigger Plan); and,
- WSP. March 30, 2016. 2015 Groundwater Remediation Report (the 2015 Groundwater Report).

14.0 TERMS AND LIMITATIONS

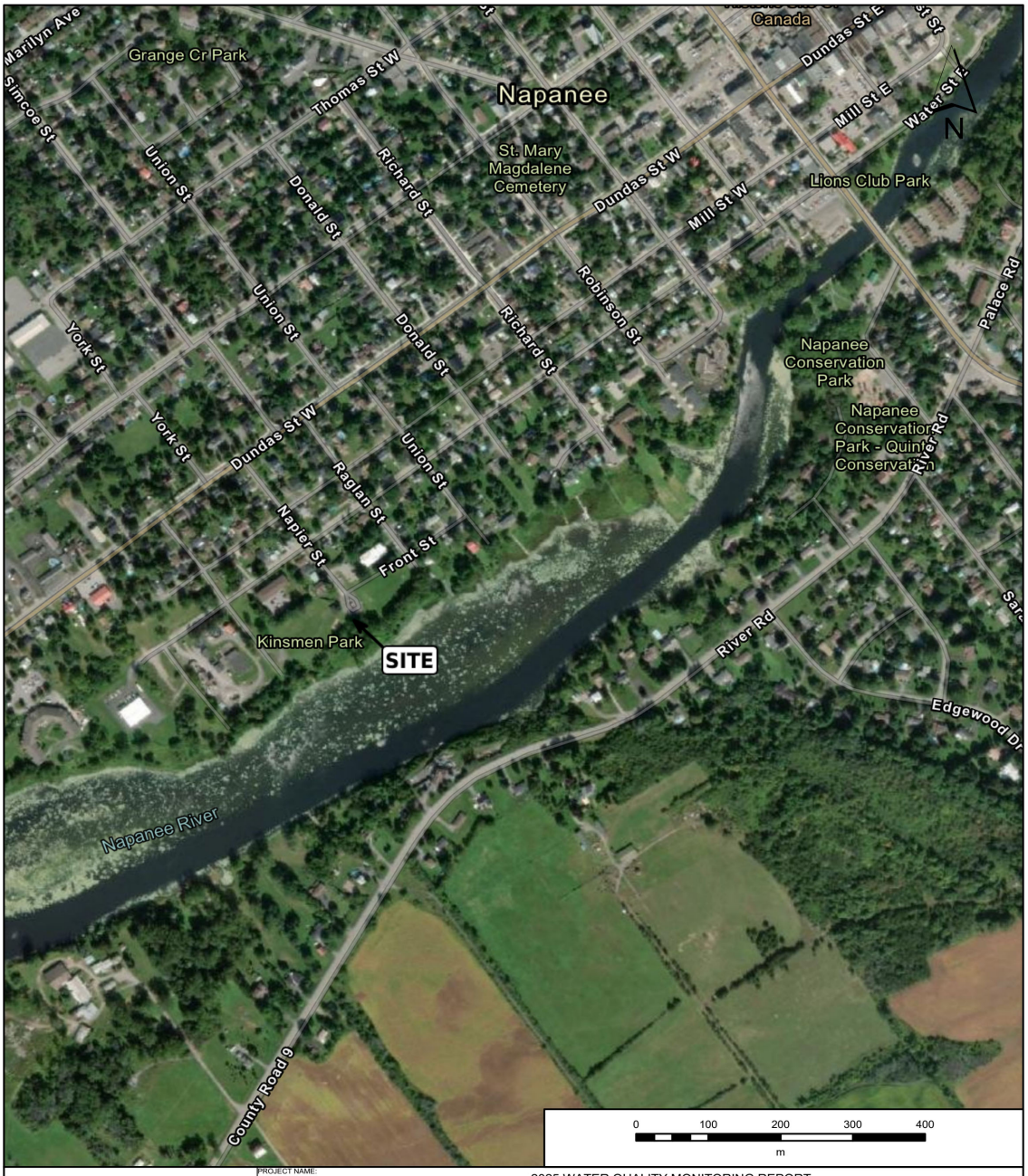
This work was performed subject to the Terms and Limitations presented or referenced in the proposal for this project.

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APPENDIX I

Figures



PINCHIN

PROJECT NAME:	2025 WATER QUALITY MONITORING REPORT
CLIENT NAME:	TOWN OF GREATER NAPANEE
PROJECT LOCATION:	FORMER WATER STREET LANDFILL SITE, NAPANEE, ONTARIO
FIGURE NAME:	KEY MAP
FIGURE NUMBER	1

PROJECT NUMBER:	SCALE:	DRAWN BY:	REVIEWED BY:	DATE:
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LEGEND

- APPROXIMATE KINSMAN PARK BOUNDARY
- MONITORING WELL
- CONTAMINANAT ATTENUATION ZONE
- FENCE
- SITE BOUNDARY

COORDINATE SYSTEM - UTM 83-18

LEGEND IS COLOUR DEPENDENT. NON-COLOUR COPIES MAY ALTER INTERPRETATION.

PINCHIN

PROJECT NAME:	2025 WATER QUALITY MONITORING REPORT
CLIENT NAME:	TOWN OF GREATER NAPANEE
PROJECT LOCATION:	FORMER WATER STREET LANDFILL SITE, NAPANEE, ONTARIO
FIGURE NAME:	SITE PLAN
PROJECT NUMBER: 350221.003	SCALE: AS SHOWN
DRAWN BY: KL	REVIEWED BY: AV
DATE: DECEMBER 2025	FIGURE NUMBER: 2

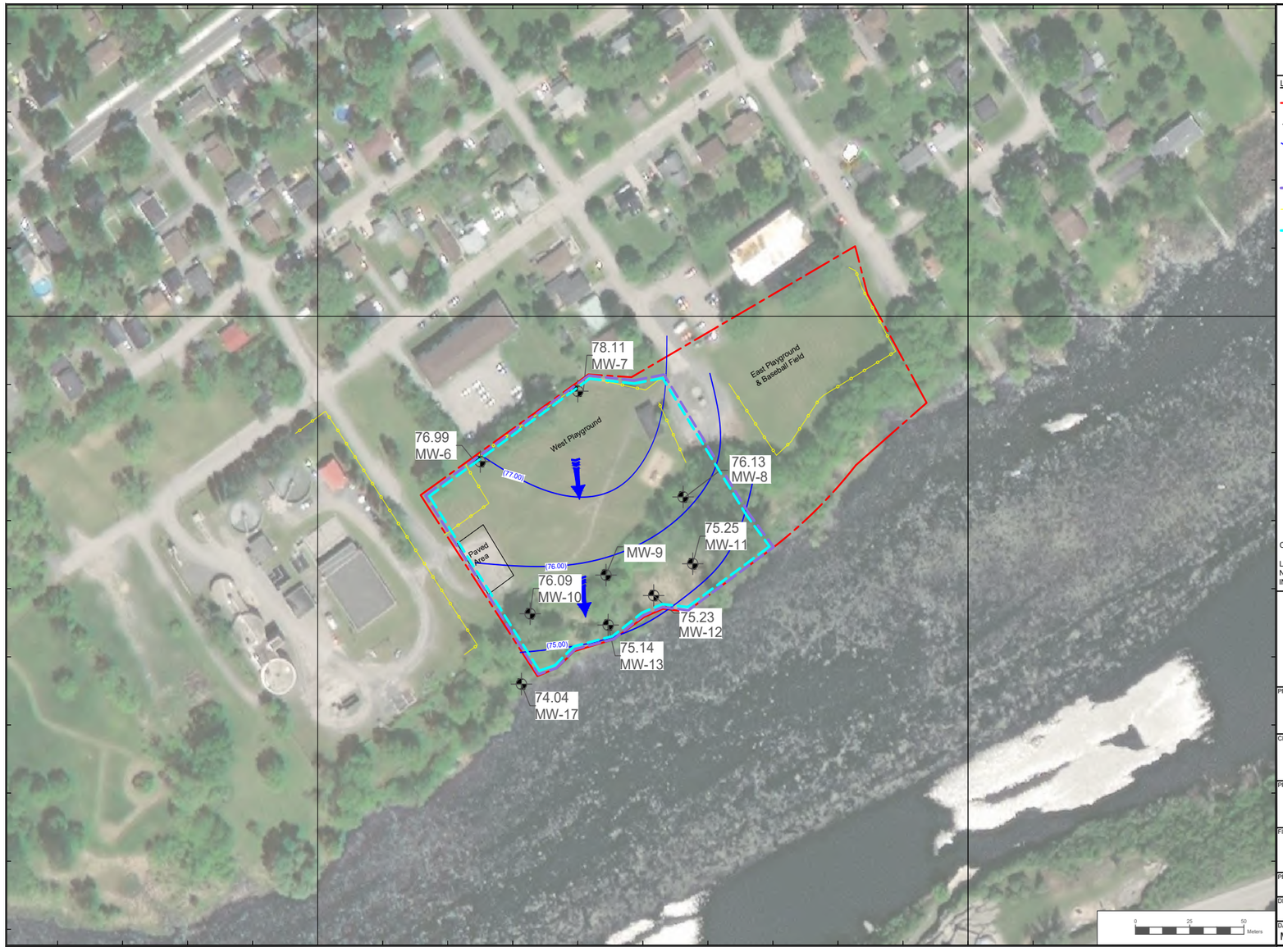
343500.000

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4900500.000



N

LEGEND

- APPROXIMATE KINSMAN PARK BOUNDARY
- MONITORING WELL
- GROUNDWATER CONTOUR LINES
- GROUNDWATER FLOW DIRECTION
- CONTAMINANAT ATTENUATION ZONE
- FENCE
- SITE BOUNDARY

COORDINATE SYSTEM - UTM 83-18

LEGEND IS COLOUR DEPENDENT. NON-COLOUR COPIES MAY ALTER INTERPRETATION.

PINCHIN

PROJECT NAME:
2025 WATER QUALITY MONITORING REPORT

CLIENT NAME:
TOWN OF GREATER NAPANEE

PROJECT LOCATION:
FORMER WATER STREET LANDFILL SITE, NAPANEE, ONTARIO

FIGURE NAME:
SPRING 2025 INFERRED GROUNDWATER CONTOURS

PROJECT NUMBER:	SCALE:
350221.003	AS SHOWN
DRAWN BY: KL	REVIEWED BY: AV
DATE: MARCH 2026	FIGURE NUMBER: 3

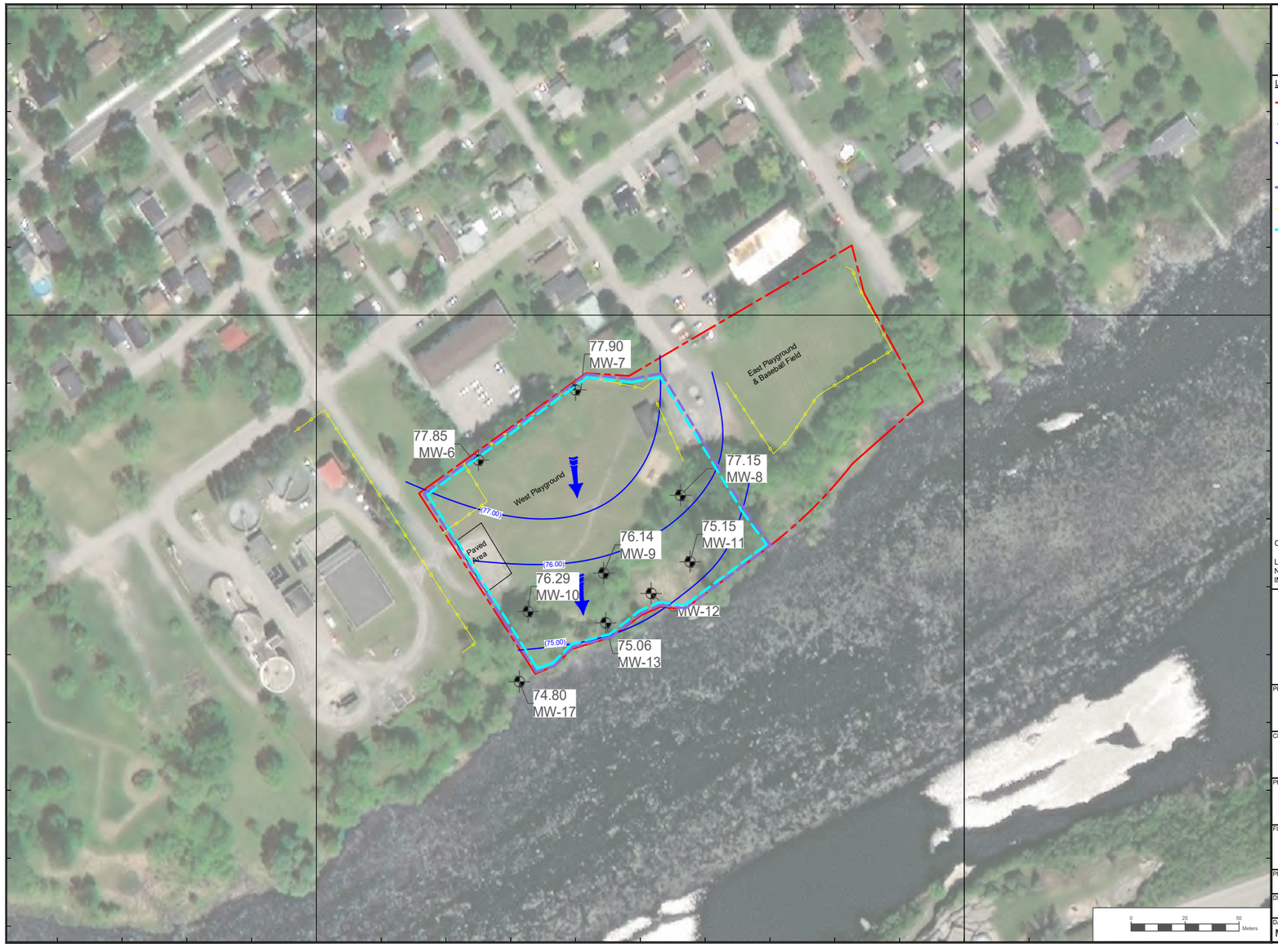
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N

LEGEND

- APPROXIMATE KINSMAN PARK BOUNDARY
- MONITORING WELL
- GROUNDWATER CONTOUR LINES
- GROUNDWATER FLOW DIRECTION
- CONTAMINANAT ATTENUATION ZONE
- FENCE
- SITE BOUNDARY

COORDINATE SYSTEM - UTM 83-18

LEGEND IS COLOUR DEPENDENT. NON-COLOUR COPIES MAY ALTER INTERPRETATION.

PINCHIN

PROJECT NAME:
2025 WATER QUALITY MONITORING REPORT

CLIENT NAME:
TOWN OF GREATER NAPANEE

PROJECT LOCATION:
FORMER WATER STREET LANDFILL SITE, NAPANEE, ONTARIO

FIGURE NAME:
FALL 2025 INFERRED GROUNDWATER CONTOURS

PROJECT NUMBER:	SCALE:
350221.003	AS SHOWN
DRAWN BY: KL	REVIEWED BY: AV
DATE: MARCH 2026	FIGURE NUMBER: 4

APPENDIX II

Environmental Compliance Approval No. 1608-D6TLA4

Ontario

Ministry of the Environment, Conservation and Parks
Ministère de l'Environnement, de la Protection de la nature et des Parcs

ENVIRONMENTAL COMPLIANCE APPROVAL
NUMBER 1608-D6TLA4
Issue Date: July 12, 2024

The Corporation of the Town of Greater Napanee
99A Advance Avenue
Napanee, Ontario
K7R 3Y5

Site Location: Water Street Closed Landfill Site
Lot 20, Concession 1
Napanee, County of Lennox and Addington, Ontario

You have applied under section 20.2 of Part II.1 of the Environmental Protection Act, R.S.O. 1990, c. E. 19 (Environmental Protection Act) for approval of:

a 2.4 ha disposal site

that was used for historic waste disposal

of unknown type and is now closed.

Note: Use of the site for any other type of waste is not approved under this environmental compliance approval, and requires obtaining a separate approval amending this environmental compliance approval.

For the purpose of this environmental compliance approval, the following definitions apply:

"Adverse Effect" as defined in the EPA;

"Approval" means this entire Environmental Compliance Approval and any Schedules attached to it;

"Director" means any Ministry employee appointed by the Minister pursuant to Section 5 of the EPA as a Director for the purposes of Part II.1 of the EPA;

"District Manager" means the District Manager of the local District Office of the Ministry;

"EPA" means the Environmental Protection Act, R.S.O. 1990, C. E-19 as amended;

"Ministry" means the Ministry of Environment, Conservation and Parks;

"NMA" means the Nutrient Management Act, 2002, S.O. 2002, c. 4, as amended;

“OWRA” means the Ontario Water Resources Act, R.S.O. 1990, c. O.40, as amended;

“Owner” means any person that is responsible for the establishment or operation or maintenance of the Site being approved by this Approval, and includes The Corporation of the Town of Greater Napanee and its successors and assigns;

"ODWS" means the Ontario Drinking Water Standards, as amended;

“PA” means the Pesticides Act, R.S.O. 1990, c. P-11, as amended;

“Provincial Officer” means any person designated in writing by the Minister as a provincial officer pursuant to Section 5 of the OWRA, Section 5 of the EPA, Section 17 of the PA, Section 4 of the NMA, or Section 8 of the SDWA;

“Reg. 347" means Regulation 347, R.R.O. 1990, made under the EPA, as amended;

“Regulation 903” means Regulation 903, R.R.O. 1990, made under the OWRA, as amended;

"Scavenging" means the uncontrolled removal of reusable material from waste at a waste disposal site;

"SDWA" means the Safe Drinking Water Act, 2002, S.O. 2002, c. 32, as amended;

"Site" means Water Street Closed Landfill Site located on Lot 20, Concession 1, Napanee, County of Lennox and Addington, Ontario; and

“Trained Personnel” means personnel knowledgeable in the following through instruction and/or practice:

a. relevant waste management legislation, regulations and guidelines;

b. major environmental concerns pertaining to the waste to be handled;

c. occupational health and safety concerns pertaining to the processes and wastes to be handled;

d. management procedures including the use and operation of equipment for the processes and wastes to be handled;

e. emergency response procedures;

f. specific written procedures for the control of nuisance conditions;

g. specific written procedures for refusal of unacceptable waste loads; and

h. the requirements of this Approval.

You are hereby notified that this environmental compliance approval is issued to you subject to the terms and conditions outlined below:

TERMS AND CONDITIONS

1. GENERAL

Compliance

1. The Owner shall ensure compliance with all the conditions of this Approval, and shall ensure that any person authorized to carry out work on, or operate any aspect of, the Site is notified of this Approval and the conditions herein, and shall take all reasonable measures to ensure any such person complies with the same.

2. Any person authorized to carry out work on or operate any aspect of the Site shall comply with the conditions of this Approval.

In Accordance

3. Except as otherwise provided for in this Approval, the Site shall be operated and maintained in accordance with the supporting documentation provided in the application as listed in Schedule "A".

Interpretation

4. Where there is a conflict between a provision of any document, including the application, referred to in this Approval, and the conditions of this Approval, the conditions in this Approval shall take precedence.

5. Where there is a conflict between the application and a provision in any documents listed in Schedule "A", the application shall take precedence, unless it is clear that the purpose of the document was to amend the application and that the Ministry approved the amendment.

6. Where there is a conflict between any two documents listed in Schedule "A", other than the application, the document bearing the most recent date shall take precedence.

7. The conditions of this Approval are severable. If any condition of this Approval, or the application of any condition of this Approval to any circumstance, is held invalid or unenforceable, the application of such condition to other circumstances and the remainder of this Approval shall not be affected thereby.

Other Legal Obligations

8. The issuance of, and compliance with, this Approval does not:

   (a) relieve any person of any obligation to comply with any provision of any applicable statute, regulation or other legal requirement; or

   (b) limit in any way the authority of the Ministry to require certain steps be taken or to require the Owner or operator to furnish any further information related to compliance with this Approval.

Adverse Effect

9. The Owner shall take steps to minimize and ameliorate any adverse effect on the natural environment or impairment of water quality resulting from the Site, including such accelerated or additional monitoring as may be necessary to determine the nature and extent of the effect or impairment.

10. Despite an Owner, operator or any other person fulfilling any obligations imposed by this Approval the person remains responsible for any contravention of any other condition of this Approval or any applicable statute, regulation, or other legal requirement resulting from any act or omission that caused the adverse effect to the natural environment or impairment of water quality.

Change of Owner

11. The Owner shall notify the Director, in writing, and forward a copy of the notification to the District Manager, within 30 days of the occurrence of any changes in the following information:

   (a) the ownership of the Site;

   (b) the operator of the Site;

   (c) the address of the Owner;

   (d) the partners, where the Owner is or at any time becomes a partnership and a copy of the most recent declaration filed under the Business Names Act, R. S. O. 1990, c. B.17, shall be included in the notification.

12. No portion of this Site shall be transferred or encumbered prior to or after closing of the Site unless the Director is notified in advance. In the event of any change in ownership of the works, other than change to a successor municipality, the Owner shall notify the successor of and provide the successor with a copy of this Approval, and the Owner shall provide a copy of the notification to the District Manager and the Director.

13. Pursuant to Section 197 of the EPA, no person having an interest in the Site shall deal with the Site in any way without first giving a copy of this Approval to each person acquiring an interest in the Site as a result of the dealing.

Inspections

14. No person shall hinder or obstruct a Provincial Officer from carrying out any and all inspections authorized by the OWRA, the EPA, or the PA or the NMA or the SDWA, of any place to which this Approval relates, and without limiting the foregoing:

    (a) to enter upon the premises where the approved works are located, or the location where the records required by the conditions of this Approval are kept;

    (b) to have access to, inspect, and copy any records required to be kept by the conditions of this Approval;

    (c) to inspect the Site, related equipment and appurtenances;

    (d) to inspect the practices, procedures, or operations required by the conditions of this Approval; and

    (e) to sample and monitor for the purposes of assessing compliance with the terms and conditions of this Approval or the EPA, the OWRA or the PA or the NMA or the SDWA.

Information and Record Retention

15. (a) The Owner shall retain all documentation listed in Schedule "A" for as long as this Approval is valid.

    (b) All records collected as per Condition 15 are to be kept at the Site/office (electronic or printed form) until they are included in the monitoring report.

    (c) The Owner shall retain employee training records as long as the employee is working at the Site.

    (d) The Owner shall make all of the above documents available for inspection upon request of Ministry staff.

16. The receipt of any information by the Ministry or the failure of the Ministry to prosecute any person or to require any person to take any action, under this Approval or under any statute, regulation or other legal requirement, in relation to the information, shall not be construed as:

    (a) an approval, waiver, or justification by the Ministry of any act or omission of any person that contravenes any term or condition of this Approval or any statute, regulation or other

legal requirement; or

(b) acceptance by the Ministry of the information's completeness or accuracy.

17. Any information related to this Approval and contained in Ministry files may be made available to the public in accordance with the provisions of the Freedom of Information and Protection of Privacy Act, RSO 1990, CF-31.

Registration on Title Requirement

18. (a) Within two (2) years from the date of issuance of this Approval, the Owner shall submit to the Director a completed Certificate of Requirement which shall include:

(i) a plan of survey prepared, signed and sealed by an Ontario Land Surveyor, which shows the area of the Site where waste has been or is to be deposited at the Site;

(ii) proof of ownership of the Site;

(iii) a letter signed by a member of the Law Society of Upper Canada or other qualified legal practitioner acceptable to the Director, verifying the legal description provided in the Certificate of Requirement;

(iv) the legal abstract of the property; and

(v) any supporting documents including a registerable description of the Site.

(b) Within fifteen (15) calendar days of receiving a Certificate of Requirement authorized by the Director, the Owner shall:

(i) register the Certificate of Requirement in the appropriate Land Registry Office on the title to the property; and

(ii) submit to the Director and the District Manager, written verification that the Certificate of Requirement has been registered on title.

Certificate of Withdrawal of Requirement

19. If the Owner wants to withdraw the Certificate of Requirement, the Owner shall:

(a) submit to the Director, a completed Certificate of Withdrawal of Requirement; and its supporting documents, outlining the reasons for the Withdrawal of the Requirement.

(b) submit to the Director:

(i) a plan of survey of the area where waste was deposited sealed by an Ontario Land

Surveyor and for the Site;

(ii) a letter signed by a member of the Law Society of Upper Canada or other qualified legal practitioner acceptable to the Director verifying the legal description of the Certificate of Withdrawal of Requirement,

(iii) the legal abstract of the property; and

(iv) completed Certificate of Withdrawal of Requirement containing a registerable description of the Site.

(c) within fifteen (15) calendar days of receiving a Certificate of Withdrawal of Requirement authorized by the Director, the Owner may:

(i) register the Certificate of Withdrawal of Requirement in the appropriate Land Registry Office on the title to the property; and

(ii) submit to the Director and District Manager, written verification that the Certificate of Requirement has been registered on title.

2. SITE OPERATIONS - GENERAL

1. A sign shall be posted at the entrance to the landfill, with the following information:

(a) the Environmental Compliance Approval number of the Site;

(b) the Owner's name;

(c) status of the Site;

(d) staff contact name and telephone number to call in the event of an emergency and/or complaint; and

(e) warning against unauthorized dumping at and outside Site.

Staff Training

2. The Owner shall develop and maintain a training plan to ensure all Site employees have been adequately trained and receive on-going training with respect to the following:

(a) terms, conditions and operating requirements of this Approval;

(b) the operation, inspection, and maintenance of the Site with respect to the approved operations;

(c) record keeping requirements;

(d) relevant waste management legislation and regulations;

(e) environmental concerns related to waste management at the Site;

(f) occupational health and safety concerns related to waste management at the Site; and

(g) emergency procedures and contingency plans in cases of fire, spills, off-site impacts and any other emergency situations.

Complaints

3. If at any time, the Owner receives complaints regarding the operation/maintenance of the Site, the Owner shall respond to these complaints according to the following procedure:

   (a) The Owner shall record each complaint on a formal complaint form. The information recorded shall included the nature of the complaint, the name, address and telephone number of the complainant and the time and date of the complaint;

   (b) The Owner, upon notification of the complaint, shall initiate appropriate steps to determine all possible causes of the complaint, proceed to take the necessary actions to eliminate the cause of the complaint and forward a formal reply to the complainant; and

   (c) The Owner shall retain on-site or in office a report written within one (1) week of the complaint date, listing the actions taken to resolve the complaint and any recommendations for remedial measures, and managerial or operational changes to reasonably avoid the reoccurrence of similar incidents.

3. LANDFILL OPERATIONS

Vermin, Vectors, Dust, Litter, Odour, Noise and Traffic

1. The Site shall be operated/maintained in a manner that minimizes the impact from vermin, vectors, litter, odour, and noise.

Site Status

2. The Site is now closed and no new waste shall be accepted at the Site.

Burning and Scavenging Waste Prohibited

3. Burning and scavenging of waste at the Site is prohibited.

Waste Cover

4. A minimum 600 mm thick layer of final cover soil consisting of a 0.15 metre of top soil shall be placed/maintained at all the time.

Design and Operations Report

5. Within 36 months from the date of this Approval, contingent upon timely feedback from the Ministry's technical support, the Owner shall submit for the Director's approval, a Design and Operations Report including closure plan (that has been implemented) that includes as a minimum the following information:

   (a) waste footprint, final contours, and an estimate of the amount of existing waste;

   (b) delineation of contamination attenuation zone (CAZ);

   (c) description and location of the fencing and the gate(s), if applicable;

   (d) details of the clean surface water drainage from the Site;

   (e) details on housekeeping practices undertaken to control litter, odour, rodents, insects and other disease vectors, scavenging birds or animals;

   (f) details on the Site closure activities that have been completed to date, including the description of the final cover and its thickness;

   (g) environmental monitoring program for surface water, and groundwater;

   (h) site-specific trigger mechanism program for the implementation of the groundwater and surface water, contingency measures and a description of such measures;

   (i) maintenance activities proposed for the Site and for the monitoring well network, including the type of the activities, the frequency of the activities and the personnel responsible for them;

   (j) inspection activities proposed for the Site, including the frequency of the activities and the personnel responsible for them;

   (k) details of training provided for the personnel responsible for the activities at the Site;

   (l) contingency plans for emergency situations that may occur at the Site;

   (m) storm water management, including the location and the design of any works required; and

   (n) any other information relevant to the design and operation of the Site or the information

required by the District Manager.

6. In support of the Design and Operations Report that is required by Condition 3(5), the Owner shall undertake consultations with the Ministry's Regional Technical Support Section and obtain agreement on the development of CAZ and the monitoring programs required by Condition 3(5) (b), (g), and (h). The finalized CAZ, monitoring plan, and corresponding consultation, shall be included with the Design and Operations Report.

Site Inspections

7. The Owner shall ensure that the following inspection schedule is adhered to:

   (a) on a semi-annual basis, an inspection of the areas under final cover, road condition, and access road; and

   (c) on an annual basis, an inspection of the monitoring wells.

4. ENVIRONMENTAL MONITORING PROGRAM

Monitoring

1. (a) The Owner shall implement environmental monitoring program outlined in Schedule "B".

   (b) The Owner shall determine compliance by retaining qualified professionals to imlement environmental monitoring program required as per Condition 4(1)(a).

Groundwater Wells and Monitors

2. The Owner shall ensure that all groundwater monitoring wells which form part of the monitoring program are properly capped, locked and protected from damage.

3. Any groundwater monitoring well included in the on-going monitoring program that are damaged shall be assessed, repaired, replaced or decommissioned by the Owner, as required.

4. The Owner shall repair or replace any monitoring well which is destroyed or in any way made to be inoperable for sampling such that no more than one regular sampling event is missed.

5. All monitoring wells which are no longer required as part of the groundwater monitoring program, and have been approved by the Director for abandonment, shall be decommissioned by the Owner, as required, in accordance with R.R.O. 1990, Reg. 903 made under the OWRA, that will prevent contamination through the abandoned well. A report on the decommissioning of the well shall be included in the biennial report for the period during which the well was decommissioned all in accordance with R.R.O. 1990, Reg. 903 made under the OWRA.

Trigger Mechanisms and Contingency Plans

6. The trigger mechanism and contingency plan for surface water shall be provided in the biennial report due on March 31, 2025 as per Condition 5(3). Upon its acceptance by the Distict Manager, the trigger mechanism and contingency plan shall be submitted to the Director for Approval.

7. The Owner shall ensure that any proposed changes to the site-specific trigger levels for leachate impacts to the surface water or groundwater, are approved in advance by the Director via an amendment to this Approval.

Cap Inspection

8. The Owner shall inspect the cap of the closed landfill twice per year for evidence of any cracks, seeps, fissures, erosion and any other deficiency.

5. INSPECTION, RECORD KEEPING & REPORTING

Inspections and Log Book

1. An inspection of the entire Site and all equipment on the Site shall be conducted twice per year as per Item 2 in Appendix "A" to ensure that the Site is being operated in compliance with this Approval. Any deficiencies discovered as a result of the inspection shall be remedied on a priority basis.

2. A record of the inspections shall be kept in a log book that includes:

   (a) the name and signature of person that conducted the inspection;

   (b) the date and time of the inspection;

   (c) the list of any deficiencies discovered;

   (d) the recommendations for remedial action; and

   (e) the date, time and description of actions taken.

3. By March 31, 2026, and on a biennial thereafter, the Owner shall prepare and submit to the District Manager a biennial report covering the previous two calendar years. Each report shall include, as a minimum, the following information:

   (a) a plan of the Site outlining monitoring locations;

   (b) a summary of inspections required by Conditions 5(1) ;

   (c) an assessment of surface water quality in relation to the PWQO and trigger concentrations

(if and when the surface water trigger mechanism is in place);

(d) an assessment of groundwater quality in relation to the Ontario Drinking Water Standards and to the trigger concentrations (if and when the groundwater trigger mechanism is in place);

(e) conclusions of the monitoring data, a review of the adequacy of monitoring programs, recommendations for any changes to monitoring programs that may be necessary;

(f) a statement as to compliance with all Conditions of this ECA and with the inspection and reporting requirements of the Conditions herein; and

(g) a summary of any public complaints received by the owner and the responses made.

Schedule "A"

1. Environmental Compliance Approval Application dated June 26th, 2024 and supporting documents.

2. Monitoring Plan & ECA Application, Water Street Landfill, prepared by the Town of Greater Napanee, June 21, 2024

Schedule "B"

Seep Monitoring

Location: Shoreline of the Napanee River from Hessford St. to Napier St. along the Water Street Landfill

Frequency: Bi-weekly monitoring from July to January. Photographs of the seep, when observed, must be taken.

Sampling: When and if seeps observed, from July to January each year.

General Chemistry	Alkalinity, Chloride, Sodium, TSS, Sulphate, BOD, COD, hardness, pH, conductivity (field), temperature (field)
Metals	Magnesium, Iron, lead, copper, cobalt and zinc
PAHs	Acenaphthene, Acenaphthylene, Anthracene, Benza (a) nathracene, Benzo (a) fluoranthene, Benzo (b+k) fluoranthene, Benzo (g,h,i) perylene, Benzo (l) fluoranthene, Chrysene, Dibenzo (a,h) anthracene, Fluoranthene, Fluorene, Indo (1,2,3,-c,d) pyrene, Methylnaphthalene 1-, Methylnaphthalene 2-, Methylnaphthalene 2-(1-), Naphthalene, Phenanthrene, Pyrene
PHCs	F1-F4

Groundwater Monitoring

Water Level Monitoring: Twice per year in April and October each year

Sampling: Twice per year in April and October each year

Monitoring wells	MW-6, MW-7, MW-9 & MW-10, MW11, MW-12, MW-13, and MW-17

Testing Protocol

General Chemistry	Alkalinity, ammonia, chloride, conductivity, iron, nitrate, sodium, TDS, DOC, sulphate, BOD, COD, hardness and pH.
Metals	Magnesium, Iron
PAHs	Acenaphthene, Acenaphthylene, Anthracene, Benza (a) nathracene, Benzo (a) fluoranthene, Benzo (b+k) fluoranthene, Benzo (g,h,i) perylene, Benzo (l) fluoranthene, Chrysene, Dibenzo (a,h) anthracene, Fluoranthene, Fluorene, Indo (1,2,3,-c,d) pyrene, Methylnaphthalene 1-, Methylnaphthalene 2-, Methylnaphthalene 2-(1-), Naphthalene, Phenanthrene, Pyrene
PHCs	F1-F4

The reasons for the imposition of these terms and conditions are as follows:

The reason for Conditions 1(1), (2), (4), (5), (6), (7), (8), (9), (10), (13), (16) & (17) is to clarify the legal rights and responsibilities of the Owner and Operator under this Approval.

The reasons for Condition 1(3), 3(6), 3(7), 3(10), 3(11) and 3(12) are to ensure that the Site is designed, operated, monitored and maintained in accordance with the application and supporting documentation submitted by the Owner, and not in a manner which the Director has not been asked to consider.

The reasons for Condition 1(11) are to ensure that the Site is operated under the corporate name which appears on the application form submitted for this approval and to ensure that the Director is informed of any changes.

The reasons for Condition 1(12) are to restrict potential transfer or encumbrance of the Site without the approval of the Director and to ensure that any transfer of encumbrance can be made only on the basis that it will not endanger compliance with this Approval.

The reasons for Condition 1(14) are to ensure that appropriate Ministry staff has ready access to the Site for inspection of facilities, equipment, practices and operations required by the conditions in this Approval. This Condition is supplementary to the powers of entry afforded a Provincial Officer pursuant to the Act, the OWRA, the PA, the NMA and the SDWA.

Condition 1 (15) has been included to clarify what information may be subject to the Freedom of Information Act.

The reasons for Conditions 1(18) and 1(19) are that the Part II.1 Director is an individual with authority pursuant to Section 197 of the Environmental Protection Act to require registration on title, withdrawal of registration on the title and provide any person with an interest in property before dealing with the property in any way to give a copy of the Approval to any person who will acquire an interest in the property as a result of the dealing.

The reason for Conditions 2 (1) is to ensure that users of the Site are fully aware of important information and restrictions related to Site operations and access under this Approval.

The reason for Condition 2(2) is to ensure that staff are properly trained in the operation of the Site.

The reason for Condition 2(3) is to ensure that any complaints regarding landfill operations at this Site are responded to in a timely and efficient manner.

The reason for the condition in section 3(1) is to ensure that the Site is operated in a manner which does not result in a nuisance or a hazard to the health and safety of the environment or people.

The reasons for Condition 3(2) are to specify the site capacity assessment and current status of the site.

The reasons for Condition 3(3) are open burning and scavenging of municipal waste is unacceptable.

The reasons for Condition 3(4) is that the proper closure of a landfill site requires the application of a final cover which is aesthetically pleasing, controls infiltration, and is suitable for the end use planned for the Site.

The reason for adding Condition 3(5) is to ensure that the Site is designed, operated, monitored and maintained in accordance with the application and supporting documentation submitted by the Owner, and not in a manner which the Director has not been asked to consider.

The reason for adding Condition 3(6) is to ensure that the Owner has undertaken consultation with the ministry on the monitoring programs prior to submitting the Design and Operations Report.

The reason for Condition 3(7), 5(1) and 5(2) is to ensure that detailed records of Site inspections are recorded and maintained for inspection and information purposes.

Conditions 4(1) are included to specify the groundwater and surface water monitoring requirements for monitoring groundwater and surface water quality, require the Owner to demonstrate that the Site comply with the applicable guidelines/standards and ensure the integrity of the groundwater monitoring network so that accurate monitoring results are achieved and the natural environment is protected. Regular monitoring allows for the analysis of trends over time and ensures that there is an early warning of potential problems so that any necessary remedial/contingency action can be taken.

Conditions 4(2) through 4(5) are included to ensure the integrity of the groundwater monitoring network so that accurate monitoring results are achieved and the natural environment is protected.

Conditions 4(6) and 4(7) inclusive are added to ensure the Owner has a plan with an organized set of procedures for identifying and responding to potential issues relating to groundwater and surface water contamination at the Site's compliance point.

The reasons for Conditions 5(3) are to ensure that regular review of site development, operations and monitoring data is documented and any possible improvements to site design, operations or monitoring programs are identified. An annual report is an important tool used in reviewing site activities and for determining the effectiveness of site design.

In accordance with Section 139 of the *Environmental Protection Act,* you may by written notice served upon me and the Ontario Land Tribunal within 15 days after receipt of this notice, require a hearing by the Tribunal. Section 142 of the *Environmental Protection Act* provides that the notice requiring the hearing ("the Notice") shall state:

a. The portions of the environmental compliance approval or each term or condition in the environmental compliance approval in respect of which the hearing is required, and;
b. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

The Notice should also include:

1. The name of the appellant;
2. The address of the appellant;
3. The environmental compliance approval number;
4. The date of the environmental compliance approval;
5. The name of the Director, and;
6. The municipality or municipalities within which the project is to be engaged in.

And the Notice should be signed and dated by the appellant.

This Notice must be served upon:

Registrar*
Ontario Land Tribunal
655 Bay Street, Suite 1500
Toronto, Ontario
M5G 1E5
OLT.Registrar@ontario.ca

and

The Director appointed for the purposes of
Part II.1 of the *Environmental Protection Act*
Ministry of the Environment,
Conservation and Parks
135 St. Clair Avenue West, 1st Floor
Toronto, Ontario
M4V 1P5

*** Further information on the Ontario Land Tribunal's requirements for an appeal can be obtained directly from the Tribunal at: Tel: (416) 212-6349 or 1 (866) 448-2248, or www.olt.gov.on.ca**

The above noted activity is approved under s.20.3 of Part II.1 of the *Environmental Protection Act.*

DATED AT TORONTO this 12th day of July, 2024

Mohsen Keyvani, P.Eng.
Director
appointed for the purposes of Part II.1 of the
Environmental Protection Act

AQ/
c: District Manager, MECP Kingston - District
n/a field alert only, The Corporation of the Town of Greater Napanee

APPENDIX III

Borehole Logs

Borehole Symbol Legend

Common

- Sand
- Silty Sand
- Sandy Silt
- Clayey Sand
- Sand and Gravel
- Gravel/Rubble
- Silt
- Clayey Silt
- Clay
- Silty Clay
- Sandy Silty Clay
- Silty Sand and Gravel
- Silty Gravel
- Silty Clay and Gravel
- Topsoil
- Peat/Organics
- Limestone
- Shale

Well Symbols

Pipes and Screens

- None (NONE)
- Pipe
- Double Walled Pipe
- Sealed Pipe
- Fine Screen
- Coarse Screen
- Screen 1
- Screen 2

Top Fittings

- None (NONE)
- Cap
- Flush-mount Cap
- Above-ground Cap
- Connector
- Reducer
- Pipe Break
- Slip top cap

Bottom Fittings

- None (NONE)
- Cap
- Cone
- Screw-on Cap
- Connector
- Enlarger
- Pipe Break
- Slip bottom cap

Packing and Backfill

- None (NONE)
- Bentonite
- Drill Cuttings
- Silt
- Cement
- Sand
- Sand and Gravel
- Gravel

Sample Symbols

- Split Spoon
- Auger
- Core
- Grab (G)
- Shelby Tube
- Excavation
- Undisturbed
- No Recovery

Project: Water Street Closed Landfill Site
Client: Town of Napanee, Ontario
File: 441.00

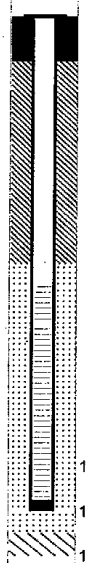
Borehole Log: BH-06

Sheet: 1 of 1

Driller: G.E.T. Drilling Ltd.
Equipment: CME 45 - 4" S.S. Auger
Monitor Number: MW-06

Ground Elevation (m): 78.60
Top of Monitor (m): 78.50

Field Observer: J.R.
Field Instrument: Minirae/RKI Eagle
Date: 04/03/16+18



SUBSURFACE PROFILE				SAMPLE					
Mon. Data	Depth (ft / m)	Lithology	Description	Number	Type	Blows/ft	Vapours (PID/CGI)	% Recovery	Remarks
	0 / 0		Ground Surface						
	1		***Sandy Clay*** brown, moist	-		6	-		vapours reported in ppm unless noted otherwise
	2		***Clay*** grey, some sand, moist	01		6	0/10		
	3 / 1		***Silty Sand*** brown, some clay, asphalt pieces, damp	02		2	0/5		
	6 / 2		***Peat*** dark, fiberous wood mixed with pieces of wood debris, wet	03		2	0/65		workspace vapours = 0/0
	8		***Clay*** grey, some sand, wet	04		3	0/10		some dark black staining at 2.4 - 2.6 m
	10 / 3			05		2	0/10		
	12 / 4		End of borehole at target depth (3.66 m)						
	20 / 6								

This borehole log should not be separated from the accompanying report.

Project: Water Street Closed Landfill Site
Client: Town of Napanee, Ontario
File: 441.00

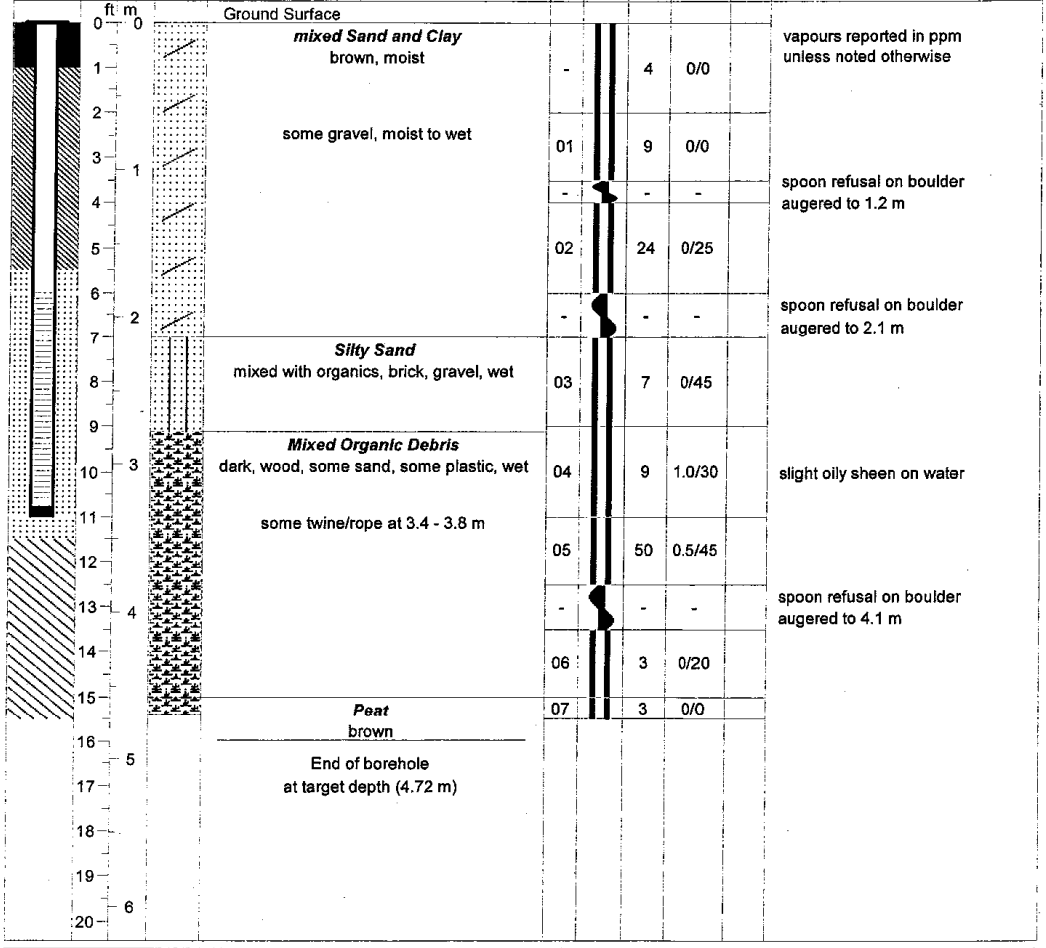
Borehole Log: BH-07

Sheet: 1 of 1

Driller: G.E.T. Drilling Ltd.
Equipment: CME 45 - 4" S.S. Auger
Monitor Number: MW-07

Ground Elevation (m): 78.90
Top of Monitor (m): 78.81

Field Observer: J.R.
Field Instrument: Minirae/RKI Eagle
Date: 04/03/18



Mon. Data	Depth (ft / m)	Lithology	Description	Number	Type	Blows/ft	Vapours (PID/CGI)	% Recovery	Remarks
	0 / 0		Ground Surface						
			mixed Sand and Clay brown, moist	-		4	0/0		vapours reported in ppm unless noted otherwise
			some gravel, moist to wet	01		9	0/0		
	1			-		-	-		spoon refusal on boulder augered to 1.2 m
				02		24	0/25		
	2			-		-	-		spoon refusal on boulder augered to 2.1 m
			Silty Sand mixed with organics, brick, gravel, wet	03		7	0/45		
			Mixed Organic Debris dark, wood, some sand, some plastic, wet	04		9	1.0/30		slight oily sheen on water
	3		some twine/rope at 3.4 - 3.8 m	05		50	0.5/45		
				-		-	-		spoon refusal on boulder augered to 4.1 m
	4			06		3	0/20		
			Peat brown	07		3	0/0		
	5		End of borehole at target depth (4.72 m)						
	6								

This borehole log should not be separated from the accompanying report.

Project: Water Street Closed Landfill Site
Client: Town of Napanee, Ontario
File: 441.00

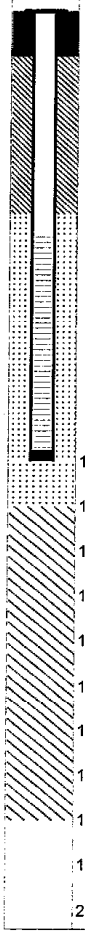
Borehole Log: BH-08

Sheet: 1 of 1

Driller: G.E.T. Drilling Ltd.
Equipment: CME 45 - 4" S.S. Auger
Monitor Number: MW-08

Ground Elevation (m): 77.55
Top of Monitor (m): 77.36

Field Observer: J.R.
Field Instrument: Minirae/RKI Eagle
Date: 04/03/18



SUBSURFACE PROFILE				SAMPLE					
Mon. Data	Depth (ft / m)	Lithology	Description	Number	Type	Blows/ft	Vapours (PID/CGI)	% Recovery	Remarks
	0 / 0		Ground Surface						
			Sandy Clay gravel, moist	-		6	0/0	50	vapours reported in ppm unless noted otherwise
	1		large boulders						
	2			01		3	0/0	20	
	3 / 1			-		-	-	-	spoon refusal on boulder augered through
	4		***Silty Sand*** grey, pieces of wood debris, wet	02		6	0/30	50	
	5		***mixed Sand and Clay*** dark, wood debris, pressed cardboard, wet	03		11	-	0	sample collected from auger oil globules on spoon downhole vapours = 1.5/4% LEL
	6 / 2		***Silty Sand*** dark, wet	04		6	0.1/25	>5	workspace vapours =NR/5 downhole vapours = 0.5/8% LEL
	7			-		-	-	-	steel wire wrapped around auger 0 recovery with spoon
	8		some wood and brick at 3.7 m						
	9			05		9	0.2/40	5	
	10 / 3								
	11			06a		7	0.2/30	10	workspace vapours =NR/5 downhole vapours = 0.3/1% LEL
	12			06b		-	0/0	100	augered to 4.88 m
	13 / 4		***Sand*** grey						
	14		***Peat*** brown	07		6	0.1/35	50	
	15								spoon to 5.49 m
	16								
	17 / 5								
	18								
	19		End of borehole at target depth (5.49 m)						
	20 / 6								

This borehole log should not be separated from the accompanying report.

Project: Water Street Closed Landfill Site
Client: Town of Napanee, Ontario
File: 441.00

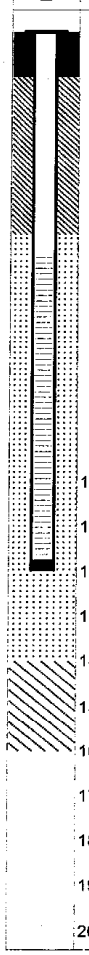
Borehole Log: BH-09

Sheet: 1 of 1

Driller: G.E.T. Drilling Ltd.
Equipment: CME 45 - 4" S.S. Auger
Monitor Number: MW-09

Ground Elevation (m): 77.55
Top of Monitor (m): 77.45

Field Observer: J.R.
Field Instrument: Minirae/RKI Eagle
Date: 04/03/18



Depth (ft)	Depth (m)	Description	Number	Type	Blows/ft	Vapours (PID/CGI)	% Recovery	Remarks
0	0	Ground Surface						
		mixed Sand and Clay brown, some brick and asphalt, gravel, moist	-		7	0/0	20	vapours reported in ppm unless noted otherwise
			01		7	0/20	25	
	1							
			02		8	0/25	5	
		groundwater entering borehole at 1.8 m						
	2		-		26	-	0	
		Silty Sand dark grey, mixed organic debris, rubber, gravel, wet	03		50	0.1/30	<5	workspace vapours = NR/10 collar vapours= 0.2/>100% LEL
	3		-		-	-	-	oily sheen on auger
		dark grey, almost black, wood, glass, metal, wet	04		28	0.2/1%	50	black staining
			05		50	0.2/95	20	
	4							augered to 4.27 m
			-		4	-	0	
		Peat brown	06		4	0/30	100	spoon to 4.88 m
	5	End of borehole at target depth (4.88 m)						
	6							

This borehole log should not be separated from the accompanying report.

Project: Water Street Closed Landfill Site
Client: Town of Napanee, Ontario
File: 441.00

Borehole Log: BH-10

Sheet: 1 of 1

Driller: G.E.T. Drilling Ltd.
Equipment: CME 45 - 4" S.S. Auger
Monitor Number: MW-10

Ground Elevation (m): 76.76
Top of Monitor (m): 76.64

Field Observer: J.R.
Field Instrument: Minirae/RKI Eagle
Date: 04/03/18

SUBSURFACE PROFILE				SAMPLE					
Mon. Data	Depth (ft / m)	Lithology	Description	Number	Type	Blows/ft	Vapours (PID/CGI)	% Recovery	Remarks
	0 / 0		Ground Surface						
	1		***mixed Sand and Clay*** brown, moist	01		8	0/0	50	vapours reported in ppm unless noted otherwise
	2		becoming grey with some wood debris, moist	02		25	0/30	40	
	3 / 1		groundwater entering borehole at 1.2 m						
	4		***Silty Sandy Clay*** grey, wet	03		4	-	0	
	5		some brick and gravel, 1.5 m						
	6			04		16	0.2/45	20	
	7 / 2		some refuse and brick, petroleum odour at 2.4 m						
	8			05		12	1.5/95	20	
	9								
	10 / 3		***Sandy Silt*** dark grey, petroleum odour/solvent odour, some organcis and wood, wet	06		10	1.5/10	10	
	11								
	12		***Peat*** brown						augered to 3.66 m
	13 / 4			07		2	0.2/10	20	
	14								spoon to 4.27 m
	15		End of borehole at target depth (4.27 m)						
	16								
	17 / 5								
	18								
	19								
	20 / 6								

This borehole log should not be separated from the accompanying report.

Project: Water Street Closed Landfill Site

Client: Town of Greater Napanee, Ontario

File: 441.00/138

Driller: G.E.T Drilling

Ground Surface (m): -

Equipment: Hand Held Jackhammer

Top of Monitor (m): 76.14/76.24

Monitor Number: MW17/17A

Borehole Log: BH17/17A

Sheet: 1 of 1

Field Observer: DC

Field Instrument: RKI Eagle CGI/Photovac PID

Date: September 12, 2008

SUBSURFACE PROFILE

Mon. Data	Depth (ft)	Depth (m)	Lithology	Description	Sample #	Type	Blow/ft	CGI/PID Vapours (ppm)	% Recovery	Remarks
				Ground Surface						
	0–1	0		***Fill*** abundant clay, some silt, abundant organic material, some brick fragments, brown	S01		-	NR/-	80	
	2–3	1		***Clay*** some silt, grey	S02		-	-/-	-	split spoon refusal at 0.9m
	4–5				-		-	-/-	-	
	6	2		end of borehole at 1.5m						
	7–10	3								
	11–13	4								
	14–16	5								
	17–20	6								

MW17 Construction Details:
-31.75mm schedule 40 PVC riser
-0.25mm slotted screen

MW17A Construction Details:
-refer to figure 3 for typical sand pack monitoring well installation

This borehole log should not be separated from the accompanying report.

MALROZ

APPENDIX IV

Monitoring Elevations and Details

TABLE 1
Groundwater Elevation Data
Former Water Street Landfill Site
Town of Napanee, Ontario

Well ID Number	Date (dd/mm/yyyy)	Ground Surface Elevation (masl)	TOC Elevation (masl)	Height of TOC from Ground Surface (m)	Water Level Measurement from TOC (m)	Total Well Depth from TOC (m)	Depth to Groundwater (mbgs)	Calculated Water Level Elevation (masl)	Comments
MW-9	2010-07-20	77.55	77.45	-		77.15	-	76.18	-
	2010-07-27							76.07	
	2010-07-29			-			-	76.09	-
	2010-08-03							76.09	
	2010-08-10							76.11	-
	2010-08-12							76.11	
	2010-08-17							76.09	-
	2010-08-19							76.08	
	2010-08-26							76.07	-
	2010-09-01							76.09	
	2010-09-02							76.09	-
	2010-09-10							76.08	
	2010-09-14							76.07	-
	2010-09-16							76.07	
	2010-10-01							76.14	-
	2010-10-15							76.08	
	2010-10-29							76.06	-
	2010-12-03							76.16	
	2011-01-06							76.05	-
	2011-02-04							76.05	
	2011-03-04							76.02	-
	2011-04-01							76.08	
	2011-05-06							76.14	-
	2011-06-03							76.11	
	2011-07-08							76.16	-
	2011-08-05							76.17	
	2011-09-02							76.15	-
	2011-09-30							76.16	
	2011-11-03							76.15	-
	2011-12-08							76.29	
	2012-01-24							76.26	-
	2012-03-01							76.16	
	2012-04-12							76.11	-
	2012-05-25							76.11	
	2012-08-16							76.14	-
	2012-11-09							76.16	
	2012-12-14							76.16	-
	2013-02-15							76.13	
	2013-04-05							76.16	-
	2013-05-03							76.14	
	2015-04-29							76.20	-
	2015-11-10							76.22	
	2020-10-26				1.29			76.16	
	2020-12-15				1.28			76.17	
	2021-04-13				1.3			76.15	
	2022-05-03				1.36			76.09	-
	2022-10-12				1.5			75.95	
	2025-04-25								-
	2025-10-08				1.31			76.14	
MW-10	2010-07-20	76.76	76.64	-			-	76.07	-
	2010-07-27							76.05	
	2010-07-29			-			-	76.08	-
	2010-08-03							76.06	
	2010-08-10							76.07	-
	2010-08-12							76.08	
	2010-08-17							76.08	-
	2010-08-19							76.07	
	2010-08-26							76.06	-
	2010-10-01							76.05	
	2010-09-02							76.06	-
	2010-09-10							76.19	
	2010-09-14							76.04	-
	2010-09-16							76.06	
	2010-10-01							76.08	-
	2010-10-15							76.07	
	2010-10-29							76.04	-
	2010-12-03							76.14	
	2011-01-06							76.02	-
	2011-02-04							76.02	
	2011-03-04							76.05	-
	2011-04-01							76.04	
	2011-05-06							76.09	-
	2011-06-03							76.08	
	2011-07-08							76.16	-
	2011-08-05							76.11	
	2011-09-02							76.12	-
	2011-09-30							76.12	
	2011-11-03							76.12	-
	2011-12-08							76.25	
	2012-01-24							76.21	-
	2012-03-01							76.13	
	2012-04-12							76.14	-
	2012-05-25							76.14	
	2012-08-16							76.15	-
	2012-11-09							76.14	
	2012-12-14							76.12	-
	2013-02-15							76.14	
	2013-04-05							76.10	-
	2013-05-03							76.09	
	2015-04-29							76.14	-
	2015-11-10							76.15	
	2020-10-26				0.53			76.11	
	2020-12-15				0.53			76.11	
	2021-04-13				0.66			75.98	
	2022-05-03				0.56			76.08	-
	2022-10-12				0.78			75.86	
	2025-04-25				0.55			76.09	-
	2025-10-08				0.35			76.29	
MW-11	2010-07-20		76.55	-			-	75.24	-
	2010-07-27							75.19	
	2010-07-29			-			-	75.23	-
	2010-08-03							75.18	
	2010-08-10							75.22	-
	2010-08-12							75.21	
	2010-08-17							75.13	-
	2010-08-19							75.13	
	2010-08-26							75.13	-
	2010-10-01							75.07	
	2010-09-02							75.10	-
	2010-09-10							75.07	
	2010-09-14							75.13	-
	2010-09-16							75.04	
	2010-10-01							75.14	-
	2010-10-15							75.16	
	2010-10-29							75.07	-
	2010-12-03							75.28	
	2011-01-06							75.09	-
	2011-02-04							75.05	
	2011-03-04							75.12	-
	2011-04-01							75.21	
	2011-05-06							75.30	-
	2011-06-03							75.39	
	2011-07-08							75.35	-
	2011-08-05							75.30	
	2011-09-02							75.18	-
	2011-09-30							75.20	
	2011-11-03							75.16	-
	2011-12-08							75.24	
	2012-01-24							75.30	-
	2012-03-01								Frozen
	2012-04-12							75.31	-
	2012-05-25							75.33	
	2012-08-16							75.43	-
	2012-11-09							75.41	
	2012-12-14							75.17	-
	2013-02-15							75.15	
	2013-04-05							75.14	-
	2013-05-03							75.15	
	2015-04-29							75.23	
	2015-11-10							75.21	-
	2020-10-26				1.31			75.24	
	2021-04-13				1.38			75.17	
	2022-10-12								
	2025-04-25				1.30			75.25	-
	2025-10-08				1.4			75.15	
	2010-07-20			-			-	75.32	-
	2010-07-27							75.23	

TABLE 1
Groundwater Elevation Data
Former Water Street Landfill Site
Town of Napanee, Ontario

Well ID Number	Date (dd/mm/yyyy)	Ground Surface Elevation (masl)	TOC Elevation (masl)	Height of TOC from Ground Surface (m)	Water Level Measurement from TOC (m)	Total Well Depth from TOC (m)	Depth to Groundwater (mbgs)	Calculated Water Level Elevation (masl)	Comments
MW-12	2010-07-29		76.51	-			-	75.24	-
	2010-08-03							75.22	
	2010-08-10							75.23	-
	2010-08-12							75.21	
	2010-08-17							75.14	-
	2010-08-19							75.13	
	2010-08-26							75.11	-
	2015-11-10							75.08	
	2010-09-02							75.07	-
	2010-09-10							75.06	
	2010-09-14							75.03	-
	2010-09-16							75.03	
	2010-10-01							75.18	-
	2010-10-15							---	
	2010-10-29							75.09	-
	2010-12-03							75.26	
	2011-01-06							75.16	-
	2011-02-04							75.27	
	2011-03-04							75.20	-
	2011-04-01							75.18	
	2011-05-06							75.33	-
	2011-06-03							75.41	
	2011-07-08							75.37	-
	2011-08-05							75.31	
	2011-09-02							75.14	-
	2011-09-30							75.15	
	2011-11-03							75.12	-
	2011-12-08							75.32	
	2012-01-24							75.33	-
	2012-03-01							75.31	
	2012-04-12							75.31	-
	2012-05-25							75.33	
	2012-08-16							75.44	-
	2012-11-09							75.42	
	2012-12-14							75.25	-
	2013-02-15							75.23	
	2013-04-05							75.21	-
	2013-05-03							75.24	
	2015-11-10							75.15	
	2020-10-26				1.27			75.24	
	2020-12-15				1.30			75.21	
	2025-04-25				1.28			75.23	-
	2025-10-08								
MW-13	2010-07-20		76.64	-			-	75.23	-
	2010-07-27							75.20	
	2010-07-29			-			-	75.23	-
	2010-08-03							75.20	
	2010-08-10							75.17	-
	2010-08-12							75.19	
	2010-08-17							75.15	-
	2010-08-19							75.14	
	2010-08-26							75.07	-
	2010-09-01							75.07	
	2010-09-02							75.08	-
	2010-09-14							74.97	-
	2010-09-16							75.01	
	2010-10-01							75.06	-
	2010-10-15							75.01	
	2010-10-29							75.02	-
	2010-12-03							75.21	
	2011-01-06							75.00	-
	2011-02-04							74.94	
	2011-03-04							75.04	-
	2011-04-01							75.16	
	2011-05-06							75.35	-
	2011-06-03							75.43	
	2011-07-08							75.40	-
	2011-08-05							75.34	
	2011-09-02							75.12	-
	2011-09-30							75.07	
	2011-11-03							75.08	-
	2011-12-08							75.13	
	2012-01-24							75.24	-
	2012-03-01							75.25	
	2012-04-12							75.24	-
	2012-05-25							75.25	
	2012-08-16							75.47	-
	2012-11-09							75.46	
	2012-12-14							75.08	-
	2013-02-15							75.11	
	2013-04-05							75.24	-
	2013-05-03							75.15	
	2015-04-29							75.20	-
	2015-11-10							75.11	
	2020-10-26				1.46			75.18	
	2020-12-15				1.55			75.09	
	2021-04-13				1.88			74.76	
	2022-05-03				1.30			75.34	-
	2022-10-12				1.72			74.92	
	2025-04-25				1.50			75.14	-
	2025-10-08				1.58			75.06	
MW-17	20-07-2010		76.14	-			-	75.05	-
	27-07-2010							74.90	
	29-07-2010			-			-	74.96	-
	03-08-2010							74.88	
	2010-08-10							74.90	-
	2010-08-17							74.83	-
	2010-08-19							74.81	
	2010-08-26							74.76	-
	2010-09-01							74.69	
	2010-09-02							74.71	-
	2010-09-10							74.68	
	2010-09-14							74.63	-
	2010-09-16							74.64	
	2010-10-01							74.69	-
	2010-10-15							74.67	
	2010-10-29							74.63	-
	2010-12-03							75.06	
	2011-01-06							75.06	-
	2011-02-04							74.57	
	2011-03-04							74.79	-
	2011-04-01							74.86	
	2011-05-06							75.13	-
	2011-06-03							75.24	
	2011-07-08							75.07	-
	2011-08-05							75.04	
	2011-09-02							74.76	-
	2011-09-30							74.68	
	2011-11-03							74.72	-
	2011-12-08							75.03	
	2012-01-24							74.95	-
	2012-03-01							75.04	
	2012-04-12							75.06	-
	2012-05-25							75.12	
	2012-08-16							74.74	-
	2012-11-09							74.74	
	2012-12-14							74.79	-
	2013-02-15							74.77	-
	2013-04-05							74.73	
	2013-05-03							74.75	-
	2015-04-29							74.94	
	2015-11-10							74.84	-
	2020-10-26				1.30			74.84	
	2020-12-15				1.30			74.84	
	2021-04-13				1.29			74.85	
	2022-10-12				1.37			74.77	
	2025-04-25				1.10			75.04	-
	2025-10-08				1.34			74.80	

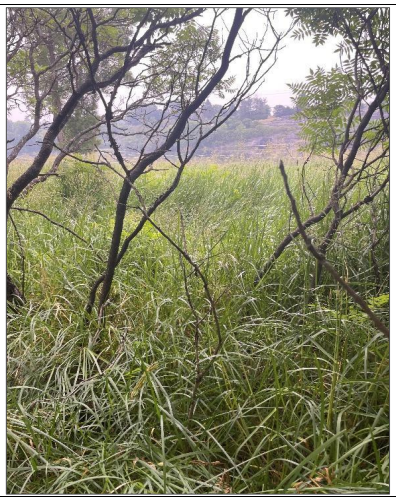
Notes:

mbgs	Meters below ground surface
masl	Meters above sea level
m	Meters
TOC	Top of casing
-	No data available

APPENDIX V

Photographic Log

	**SP1** (July 03, 2025)

	**SP1** (July 14, 2025)

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	**SP1** (July 25, 2025)
	**SP1** (August 11, 2025)

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	**SP2** (August 25, 2025)
	**SP1** (September 9, 2025)

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	**SP2** (September 9, 2025)
	**SP1** (September 24, 2025)

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	**SP2** (September 24, 2025)
	**SP1** (October 6, 2025)

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	**SP2** (October 6, 2025)
	**SP1** (October 23, 2025)

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	**SP2** (October 23, 2025)
	**SP1** (November 6, 2025)

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	**SP2** (November 6, 2025)

	**SP3** (November 19, 2025)

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	**SP4** (November 19, 2025)
	**SP3** (December 23, 2025)

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MW-6

(April 2025)



MW-6

(April 2025)

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	**MW-7** (April 2025)
	**MW-7** (April 2025)

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MW-8

(April 2025)



MW-8

(April 2025)

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MW-9

(April 2025)



MW-9

(April 2025)

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MW-10

(April 2025)



MW-10

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	**MW-11** (April 2025)

	**MW-11** (April 2025)

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	**MW-13** (April 2025)

	**MW-13** (April 2025)

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MW-17

(April 2025)



MW-17

(April 2025)

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APPENDIX VI

Groundwater Summary Tables

TABLE 2
Groundwater Quality Results - MW-6
Former Water Street Landfill Site
Town of Greater Napanee, Ontario

Parameter	Units	Sample Designation									ODWQS	O. Reg. 153/04	
		Sample Collection Date (dd/mm/yyyy)										Non-Potable (Table 3)	Non-Potable (Table 9)
		MW-6											
		29-04-2015	10-11-2015	25-08-2020	26-10-2020	13-04-2021	03-05-2022	12-10-2022	25-04-2025	08-10-2025			
Alkalinity	mg/L			408	**561**	**566**	475	**506**	**660**	430	30 - 500		
Ammonia	mg/L								0.20				
Ammonia+Ammonium (N)	mg/L						0.25	0.04	0.20	0.1			
Biochemical Oxygen Demand (BOD_5)	mg/L			6.00	< 3	< 3	<3	5.00	23.00	< 4			
COD	mg/L			51.00	10.00	12.00	24.00	24.00	23.00	14			
Conductivity	uS/cm								1900	1330			
Hardness	mg/L						**707**	**754**		**415**	80 - 100		
pH	pH Units						7.44	7.62	7.32	7.79	6.5 - 8.5		
DOC	mg/L						1.8	0.8	4.0	2	5.0		
Chloride	mg/L	133	157	105	186	172	12	144	**260**	84	250	2300	1800
Nitrate	mg/L						1.00	1.10	0.37	0.54	10		
Nitrite	mg/L										1.00		
Sulphate	mg/L	104.0	115.0	125.0	176.0	175.0	149.0	158.0	200.0	93	500		
TDS	mg/L						**815**	**871**	**1370**	**794**	500		
Magnesium	mg/L	46.00	48.70	50.50	74.90	71.70	57.00	60.70	72.70	32.20			
Calcium	mg/L									113.00			
Sodium	mg/L			51.30	73.40	78.80	62.90	57.90	103.00	58.30	200		
Iron	mg/L	0.08	0.15	**0.41**	0.18	< 0.005	<0.005	<0.005	**0.49**	**0.824**	0.3		
Acenaphthene	µg/L	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	<0.05	<0.05	< 0.1	< 0.1		(1700) 600	600
Acenaphthylene	µg/L	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	<0.05	<0.05	< 0.1	< 0.1		1.8	1.4
Anthracene	µg/L	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	<0.05	<0.05	< 0.1	< 0.1		2.4	1
Benzo(a)anthracene	µg/L	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	<0.06	<0.06	< 0.1	< 0.1		4.7	1.8
Benzo(a)pyrene	µg/L	< 0.005	< 0.01	< 0.005	< 0.01	0.01	<0.01	<0.01	< 0.01	< 0.01	0.01	0.81	0.81
Benzo(b+j)fluoranthene	µg/L								< 0.1	< 0.1			
Benzo(k)fluoranthene	µg/L	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	<0.05	<0.05	< 0.1	< 0.1			
Benzo(ghi)perylene	µg/L	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	<0.05	<0.05	< 0.2	< 0.2		0.2	0.2
Chrysene	µg/L	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	<0.05	<0.05	< 0.1	< 0.1		1.00	0.70
Dibenzo(a,h)anthracene	µg/L	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	<0.05	<0.05	< 0.1	< 0.1		0.52	0.4
Fluoranthene	µg/L	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	<0.05	<0.05	< 0.1	< 0.1		130	73
Fluorene	µg/L	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	<0.05	<0.05	< 0.1	< 0.1		400	290
Indeno(1,2,3-cd)pyrene	µg/L	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	<0.05	<0.05	< 0.2	< 0.2		0.2	0.2
1-Methylnaphthalene	µg/L	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	<0.05	<0.05	< 0.5	< 0.5		1800	1500
2-Methylnaphthalene	µg/L	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	<0.05	<0.05	< 0.5	< 0.5		1800	1500
Methylnaphthalene, 2-(1-)	µg/L						<1	<1	< 0.5	< 0.5			
Naphthalene	µg/L	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	<0.06	<0.06	< 0.5	< 0.5		(6400) 1400	1400
Phenanthrene	µg/L	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	<0.05	<0.05	< 0.1	< 0.1		580	380
Pyrene	µg/L	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	<0.05	<0.05	< 0.1	< 0.1		68	5.7
F1 (C6-C10)	µg/L	< 50	< 50	< 50	< 50	< 50			< 25	< 25		750	420
F1-BTEX (C6-C10)	µg/L								< 25				
F2 (C10-C16)	µg/L	< 50	< 50	< 50	< 50	< 50			< 100	< 100		150	150
F3 (C16-C34)	µg/L	<500	<500	<500	<500	<500			< 200	< 200		500	500
F4 (C34-C50)	µg/L	<500	<500	<500	<500	<500			< 200	< 200		500	500
Ion Ratio	none								0.97	0.84			
Langeliers Index 4° C	@ 4° C								0.56	0.49			
Saturation pH 4°C	pHs @ 4°C								6.76	7.30			
Temperature	°C	10.50	12.30			8.80	12.12	15.68	10.62		-	-	-
pH	pH Units	6.89	7.00						7.38		-	-	-
Conductivity	uS/cm	1041	1258			918	1360	1704	940		-	-	-
Oxidation Reduction Potential	mV	210.00	120.00						98.00		-	-	-
Dissolved Oxygen	mg/L								4.58		-	-	-

Notes:

ODWQS	Ontario Drinking Water Quality Standards - Ontario Regulation 169/03 "Ontario Drinking Water Quality Standards" under the Safe Drinking Water Act", dated 2002, and "Technical Support Document for Ontario Drinking Water Standards, Objectives and Guidelines", dated June 2003.
BOLD	Exceeds ODWQS
Units	All Units in mg/L Unless Otherwise Noted.

Pinchin Project No. 350221.003

TABLE 3
Groundwater Quality Results - MW-7
Former Water Street Landfill Site
Town of Greater Napanee, Ontario

Parameter	Units	Sample Designation									ODWQS	O. Reg. 153/04	
		Sample Collection Date (dd/mm/yyyy)										Non-Potable	Non-Potable
		MW-7										(Table 3)	(Table 9)
		29-04-2015	10-11-2015	25-08-2020	26-10-2020	13-04-2021	03-05-2022	12-10-2022	09-05-2025	08-10-2025			
Alkalinity	mg/L			377	372	348	332	365	358	395	30 - 500		
Ammonia	mg/L												
Ammonia+Ammonium (N)	mg/L						<0.01	0.04	< 0.1	0.2			
Biochemical Oxygen Demand (BOD_5)	mg/L			17	< 3	6	<3	3	< 4	< 4			
COD	mg/L			152	21	37	32	64	< 8	< 8			
Conductivity	uS/cm								812	889			
Hardness	mg/L						**434**	**456**	**459**	**438**	80 - 100		
pH	pH Units						7.50	7.64	7.36	7.77	6.5 - 8.5		
DOC	mg/L						2	1	1	2	5.0		
Chloride	mg/L	29.9	33.4	29	31	28	28	39	38	42	250	2300	1800
Nitrate	mg/L						3.70	1.00	0.86	< 0.06	10		
Nitrite	mg/L										1.00		
Sulphate	mg/L	83.0	74.0	39.0	33.0	61.0	58.0	55.0	68.0	52	500		
TDS	mg/L						447	479	491	491	500		
Magnesium	mg/L	47.40	85.00	55.30	46.90	43.60	41.80	44.80	43.80	42.0			
Calcium	mg/L									106.0			
Sodium	mg/L			20.90	21.10	20.50	19.90	21.10	21.10	22.1	200		
Iron	mg/L	0.13	**0.45**	**1.03**	0.18	< 0.005	<0.005	<0.005	0.09	**2.0**	0.3		
Acenaphthene	µg/L	<0.2	<0.05		< 0.05	< 0.05	<0.07	<0.05	< 0.1	< 0.1		(1700) 600	600
Acenaphthylene	µg/L	<0.2	<0.05	0.17	< 0.05	0.20	0.17	0.11	< 0.1	< 0.1		1.8	1.4
Anthracene	µg/L	<0.2	<0.05	0.26	< 0.05	0.30	0.21	0.18	< 0.1	< 0.1		2.4	1
Benzo(a)anthracene	µg/L	0.58	0.25	0.870	< 0.05	1.20	0.840	0.68	< 0.1	0.200		4.7	1.8
Benzo(a)pyrene	µg/L	**0.32**	**0.20**	**0.70**	< 0.01	**0.86**	**0.72**	**0.65**	**0.05**	**0.18**	0.01	0.81	0.81
Benzo(b+j)fluoranthene	µg/L								< 0.1	0.26			
Benzo(k)fluoranthene	µg/L	<0.2	0.07	0.26	< 0.05	0.50	0.29	0.39	< 0.1	< 0.1			
Benzo(ghi)perylene	µg/L	0.3200	0.06	0.78	< 0.05	0.80	0.71	0.62	< 0.2	0.26		0.2	0.2
Chrysene	µg/L	0.34	0.12	0.69	< 0.05	0.90	0.76	0.64	< 0.1	0.17		1.00	0.70
Dibenzo(a,h)anthracene	µg/L	<0.2	<0.05	ND	< 0.05	< 0.05	0.1300	0.11	< 0.1	< 0.1		0.52	0.4
Fluoranthene	µg/L	0.90	0.44	1.73	< 0.05	1.90	1.60	1.38	0.15	0.52		130	73
Fluorene	µg/L	<0.2	<0.05	< 0.05	< 0.05	< 0.05	<0.05	<0.05	< 0.1	< 0.1		400	290
Indeno(1,2,3-cd)pyrene	µg/L	0.26	0.06	0.520	< 0.05	0.70	0.630	0.50	< 0.2	< 0.2		0.2	0.2
1-Methylnaphthalene	µg/L	<0.2	<0.05	< 0.05	< 0.05	< 0.05	<0.06	<0.05	< 0.5	< 0.5		1800	1500
2-Methylnaphthalene	µg/L	<0.2	<0.05	< 0.05	< 0.05	< 0.05	<0.06	<0.05	< 0.5	< 0.5		1800	1500
Methylnaphthalene, 2-(1-)	µg/L			<1	<1	<1	<1	<1	< 0.5	< 0.5			
Naphthalene	µg/L	<0.2	<0.05	< 0.3	< 0.05	< 0.05	<0.1	<0.06	< 0.5	< 0.5		(6400) 1400	1400
Phenanthrene	µg/L	0.24	0.12	0.61	< 0.05	0.70	0.59	0.51	< 0.1	0.20		580	380
Pyrene	µg/L	0.64	0.31	1.3900	< 0.05	1.50	1.3500	1.12	0.12	0.39		68	5.7
F1 (C6-C10)	µg/L			< 50	< 50	< 50			< 25	< 25		750	420
F1-BTEX (C6-C10)	µg/L								< 25				
F2 (C10-C16)	µg/L	< 50	< 50	< 50	< 50	< 50			< 100	< 100		150	150
F3 (C16-C34)	µg/L	< 400	< 400	<500	<500	<500			418	921		500	500
F4 (C34-C50)	µg/L	< 400	< 400	<500	<500	<500			< 200	338		500	500
Ion Ratio	none								1.05	0.97			
Langeliers Index 4° C	@ 4° C								-0.02	0.42			
Saturation pH 4°C	pHs @ 4°C								7.38	7.35			
Temperature	°C	15.70	9.60			10	12.81	16.5	13.41		-	-	-
pH	pH Units	7.19	7.22						7.91		-	-	-
Conductivity	uS/cm	740	1234			549	777	1047	706	624	-	-	-
Oxidation Reduction Potential	mV	-6.30	-46.30						169		-	-	-
Dissolved Oxygen	mg/L								6.43	3.61	-	-	-

Notes:

ODWQS	Ontario Drinking Water Quality Standards - Ontario Regulation 169/03 "Ontario Drinking Water Quality Standards" under the Safe Drinking Water Act", dated 2002, and "Technical Support Document for Ontario Drinking Water Standards, Objectives and Guidelines", dated June 2003.
BOLD	Exceeds ODWQS
Units	All Units in mg/L Unless Otherwise Noted.

Pinchin Project No. 350221.003

TABLE 4
Groundwater Quality Results - MW-8
Former Water Street Landfill Site
Town of Greater Napanee, Ontario

Parameter	Units	Sample Designation / Sample Collection Date (dd/mm/yyyy) / MW-8							ODWQS	O. Reg. 153/04	
		10-11-2015	25-08-2020	26-10-2020	13-04-2021	03-05-2022	12-10-2022	09-05-2025	08-10-2025		Non-Potable (Table 3)	Non-Potable (Table 9)
Alkalinity	mg/L	Not Located	408	420	412	Not Sampled	Not Sampled	401	465	30 - 500		
Ammonia	as N mg/L											
Ammonia+Ammonium (N)	as N mg/L							1.00	1.1			
Biochemical Oxygen Demand (BOD_5)	mg/L		3	7	8			5	6			
COD	mg/L		20	13	20			22	14			
Conductivity	mg/L							524	921			
Hardness								**424**	**436**	80 - 100		
pH	mg/L							7.67	7.81	6.5 - 8.5		
DOC	mg/L							2.0	2	5.0		
Chloride	mg/L		32.00	31.00	33.00			43	41	250	2300	1800
Nitrate	mg/L							< 0.06	< 0.06	10		
Nitrite	mg/L									1.00		
Sulphate	mg/L		2.00	2.00	< 1			< 2	3	500		
TDS	mg/L							480	**503**	500		
Magnesium	mg/L		42.40	43.00	38.50			34.10	37.2			
Calcium	mg/L								113.00			
Sodium	mg/L		25.50	24.70	24.10			28.40	25.70	200		
Iron	mg/L		**12.80**	**10.60**	**12.90**			**15.40**	**15.400**	0.3		
Acenaphthene	µg/L		0.3700	0.29	0.33			0.45	0.33		(1700) 600	600
Acenaphthylene	µg/L			< 0.05	< 0.05			< 0.1	< 0.1		1.8	1.4
Anthracene	µg/L		0.06	< 0.05	< 0.05			< 0.1	< 0.1		2.4	1
Benzo(a)anthracene	µg/L		0.080	< 0.05	0.12			< 0.1	< 0.1		4.7	1.8
Benzo(a)pyrene	µg/L		**0.06**	< 0.01	**0.07**			**0.05**	0.01	0.01	0.81	0.81
Benzo(b+j)fluoranthene	µg/L							< 0.1	< 0.1			
Benzo(k)fluoranthene	µg/L		< 0.05	< 0.05	< 0.05			< 0.1	< 0.1			
Benzo(ghi)perylene	µg/L		< 0.05	< 0.05	< 0.05			< 0.2	< 0.2		0.2	0.2
Chrysene	µg/L		-0.94	< 0.05	0.06			< 0.1	< 0.1		1.00	0.70
Dibenzo(a,h)anthracene	µg/L		< 0.05	< 0.05	< 0.05			< 0.1	< 0.1		0.52	0.4
Fluoranthene	µg/L		0.26	< 0.05	0.20			0.19	< 0.1		130	73
Fluorene	µg/L		0.25	0.17	0.18			0.14	< 0.1		400	290
Indeno(1,2,3-cd)pyrene	µg/L		ND	< 0.05	0.06			< 0.2	< 0.2		0.2	0.2
1-Methylnaphthalene	µg/L		0.06	< 0.05	< 0.05			< 0.5	< 0.5		1800	1500
2-Methylnaphthalene	µg/L		ND	< 0.05	< 0.05			< 0.5	< 0.5		1800	1500
Methylnaphthalene, 2-(1-)	µg/L		ND					< 0.5	< 0.5			
Naphthalene	µg/L		ND	< 0.05	< 0.05			< 0.5	< 0.5		(6400) 1400	1400
Phenanthrene	µg/L		0.10	< 0.05	0.06			< 0.1	< 0.1		580	380
Pyrene	µg/L		0.1800	< 0.05	0.16			0.11	< 0.1		68	5.7
F1 (C6-C10)	µg/L		< 50	< 50	< 50			< 25	< 25		750	420
F1-BTEX (C6-C10)	µg/L							< 25				
F2 (C10-C16)	µg/L		< 50	< 50	< 50			< 100	< 100		150	150
F3 (C16-C34)	µg/L		<500	<500	<500			< 200	319		500	500
F4 (C34-C50)	µg/L		<500	<500	<500			< 200	< 200		500	500
Ion Ratio	none							1.15	1.02			
Langeliers Index 4° C	@ 4° C							0.36	0.55			
Saturation pH 4°C	pHs @ 4°C							7.31	7.26			
Temperature	°C				8.1			9.21	14.73	-	-	-
pH	pH Units							7.12	7.12	-	-	-
Conductivity	uS/cm				591			720	611	-	-	-
Oxidation Reduction Potential	mV							108	-123	-	-	-
Dissolved Oxygen	mg/L							3.83	2.2	-	-	-

Notes:

ODWQS	Ontario Drinking Water Quality Standards - Ontario Regulation 169/03 "Ontario Drinking Water Quality Standards" under the Safe Drinking Water Act", dated 2002, and "Technical Support Document for Ontario Drinking Water Standards, Objectives and Guidelines", dated June 2003.
BOLD	Exceeds ODWQS
Units	All Units in mg/L Unless Otherwise Noted.

Pinchin Project No. 350221.003

TABLE 5
Groundwater Quality Results - MW-9
Former Water Street Landfill Site
Town of Greater Napanee, Ontario

Parameter	Units	Sample Designation								ODWQS	O. Reg. 153/04	
		Sample Collection Date (dd/mm/yyyy)									Non-Potable	Non-Potable
		MW-9									(Table 3)	(Table 9)
		10-11-2015	25-08-2020	26-10-2020	13-04-2021	03-05-2022	12-10-2022	09-05-2025	08-10-2025			
Alkalinity	mg/L		411	435	423	433	446	433	463	30 - 500		
Ammonia	as N mg/L											
Ammonia+Ammonium (N)	as N mg/L					1.15	1.51	1.50	1.6			
Biochemical Oxygen Demand (BOD_5)	mg/L		9	7	3	4	13	13	21			
COD	mg/L		47	34	61	35	21	54	31			
Conductivity	mg/L							966	948			
Hardness	mg/L					**483**	**465**	**490**	**439**	80 - 100		
pH	mg/L					7.58	7.57	7.48	7.75	6.5 - 8.5		
DOC	mg/L					4.2	1.6	2.0	2	5.0		
Chloride	mg/L		33.00	37.00	37.00	32.70	40.60	120.00	62	250	2300	1800
Nitrate	mg/L					0.40	0.10	<0.06	< 0.06	10		
Nitrite	mg/L									1.00		
Sulphate	mg/L		2	2	3	7	<1	9	20	500		
TDS	mg/L					493	498	**577**	**537**	500		
Magnesium	mg/L		41.10	42.30	38.50	37.90	40.50	40.30	38.0			
Calcium	mg/L								113.0			
Sodium	mg/L		26.90	29.30	27.80	21.40	26.20	46.80	28.9	200		
Iron	mg/L		**11.10**	**11.60**	**10.60**	**0.01**	**13.10**	**16.30**	**15.800**	0.3		
Acenaphthene	µg/L	1.01	0.6900	0.43	0.54	0.5600	0.73	0.86	0.89		(1700) 600	600
Acenaphthylene	µg/L	<0.6		< 0.05	< 0.05	<0.06	<0.05	< 0.1	< 0.1		1.8	1.4
Anthracene	µg/L	<0.6	0.10	< 0.05	0.08000	0.13	0.12000	0.10000	0.31		2.4	1
Benzo(a)anthracene	µg/L	1.27	0.130	< 0.05	0.12000	0.210	0.14000	< 0.1	0.460		4.7	1.8
Benzo(a)pyrene	µg/L	**0.89**	**0.09**	< 0.01	**0.07**	**0.12**	**0.07**	**0.08**	**0.40**	0.01	0.81	0.81
Benzo(b+j)fluoranthene	µg/L							0.12	0.55			
Benzo(k)fluoranthene	µg/L	<0.6	<1	< 0.05	< 0.05	<0.05	<0.05	< 0.1	0.18			
Benzo(ghi)perylene	µg/L	<0.6	0.06	< 0.05	0.08	0.09	0.10	< 0.2	0.29		0.2	0.2
Chrysene	µg/L	1.01	0.10	< 0.05	0.08	0.13	0.10	< 0.1	0.42		1.00	0.70
Dibenzo(a,h)anthracene	µg/L	<0.6	<1	< 0.05	< 0.05	<0.05	<0.05	< 0.1	< 0.1		0.52	0.4
Fluoranthene	µg/L	2.54	0.27	< 0.05	0.21	0.39	0.31	0.41	1.700		130	73
Fluorene	µg/L	1.01	0.15	0.07000	0.12000	0.09	0.12000	0.30000	0.39		400	290
Indeno(1,2,3-od)pyrene	µg/L	0.634	0.060	< 0.05	0.06000	0.090	0.08000	< 0.2	0.230		0.2	0.2
1-Methylnaphthalene	µg/L	<0.6	<1	< 0.05	< 0.05	<0.06	<0.05	< 0.5	< 0.5		1800	1500
2-Methylnaphthalene	µg/L	<0.6	<1	< 0.05	< 0.05	<0.06	<0.05	< 0.5	< 0.5		1800	1500
Methylnaphthalene, 2-(1-)	µg/L		<1			<1	<1	< 0.5	< 0.5			
Naphthalene	µg/L	<0.6	<1	< 0.05	< 0.05	<0.1	<0.06	< 0.5	< 0.5		(6400) 1400	1400
Phenanthrene	µg/L	2.03	0.33	0.14	0.19	0.26	0.42	0.38	1.00		580	380
Pyrene	µg/L	2.03	0.2500	< 0.05	0.19	0.3400	0.29	0.32	1.4		68	5.7
F1 (C6-C10)	µg/L		< 50	< 50	< 50			< 25	< 25		750	420
F1-BTEX (C6-C10)	µg/L							< 25				
F2 (C10-C16)	µg/L		< 50	< 50	< 50			< 100	< 100		150	150
F3 (C16-C34)	µg/L		<500	<500	<500			229	626		500	500
F4 (C34-C50)	µg/L		<500	<500	<500			244	686		500	500
Ion Ratio	none							***	0.96			
Langeliers Index 4° C	@ 4° C							***	0.49			
Saturation pH 4°C	pHs @ 4°C							***	7.26			
Temperature	°C				7.3	11	17.87	13.8		-	-	-
pH	pH Units							7.11		-	-	-
Conductivity	uS/cm				615	530	1127	983		-	-	-
Oxidation Reduction Potential	mV							-51		-	-	-
Dissolved Oxygen	mg/L							4.47		-	-	-

Notes:

ODWQS	Ontario Drinking Water Quality Sta<1ards - Ontario Regulation 169/03 "Ontario Drinking Water Quality Sta<1ards" u<1er the Safe Drinking Water Act", dated 2002, a<1 "Technical Support Document for Ontario Drinking Water Sta<1ards, Objectives a<1 Guidelines", dated June 2003.
BOLD	Exceeds ODWQS
Units	All Units in mg/L Unless Otherwise Noted.

Pinchin Project No. 350221.003

PINCHIN

TABLE 5
Groundwater Quality Results - MW-10
Former Water Street Landfill Site
Town of Greater Napanee, Ontario

Parameter	Units	Sample Designation / Sample Collection Date (dd/mm/yyyy) MW-9									ODWQS	O. Reg. 153/04	
		29-04-2015	10-11-2015	25-08-2020	26-10-2020	13-04-2021	03-05-2022	12-10-2022	09-05-2025	08-10-2025		Non-Potable (Table 3)	Non-Potable (Table 9)
Alkalinity	mg/L			Not Sampled	412	449	382	492	390	473	30 - 500		
Ammonia	as N mg/L												
Ammonia+Ammonium (N)	as N mg/L						2.00	3.05	1.90	3.2			
Biochemical Oxygen Demand (BOD_5)	mg/L				11.00	9.00	14.00	19.00	20.00	16			
COD	mg/L				242	83	114	69	42	18			
Conductivity	mg/L								912	1510			
Hardness							**402**	**531**	**433**	**533**	80 - 100		
pH	mg/L						7.44	7.49	7.62	7.75	6.5 - 8.5		
DOC	mg/L						4.3	1.8	3.0	5	5.0		
Chloride	mg/L	59	69		77	37	51	115	99	220	250	2300	1800
Nitrate	mg/L						<0.1	0.30	<0.06	< 0.06	10		
Nitrite	mg/L										1.00		
Sulphate	mg/L	2.0	<1		8.0	3.0	2.0	<1	< 2	< 2	500		
TDS	mg/L						473	**677**	**571**	**814**	500		
Magnesium	mg/L	31.00	30.30		31.60	32.40	28.40	32.60	29.00	32.70			
Calcium	mg/L									159.0			
Sodium	mg/L	25.30	28.70		56.30	52.20	41.10	63.70	53.20	92.7	200		
Iron	mg/L				**18.10**	**22.10**	**0.01**	**24.00**	**21.30**	**28.4**	0.3		
Acenaphthene	µg/L	0.58	1.08		0.65	0.88	0.7100	0.94	1.00	1		(1700) 600	600
Acenaphthylene	µg/L	< 0.2	0.31		< 0.05	0.16	0.07	0.06	< 0.1	< 0.1		1.8	1.4
Anthracene	µg/L	< 0.2	0.59		0.06	0.21	0.18	0.13	0.27	0.17		2.4	1
Benzo(a)anthracene	µg/L	0.31	2.12		< 0.05	0.57	0.290	0.23	0.63	0.330		4.7	1.8
Benzo(a)pyrene	µg/L	**0.10**	**1.69**		< 0.01	**0.49**	**0.23**	**0.17**	**0.65**	**0.31**	0.01	0.81	0.81
Benzo(b+j)fluoranthene	µg/L								0.89	0.44			
Benzo(k)fluoranthene	µg/L	<0.2	0.59		< 0.05	0.21	0.14	0.11	0.39	0.15			
Benzo(ghi)perylene	µg/L	<0.2	0.82		< 0.05	0.36	0.16	0.11	0.51	0.21		0.2	0.2
Chrysene	µg/L	<0.2	1.36		< 0.05	0.47	0.29	0.17	0.64	0.31		1.00	0.70
Dibenzo(a,h)anthracene	µg/L	< 0.2	0.19		< 0.05	0.10	<0.05	<0.05	0.12	< 0.1		0.52	0.4
Fluoranthene	µg/L	0.62	3.45		0.12	1.14	0.73	0.53	1.80	0.97000		130	73
Fluorene	µg/L	0.45	1.08		0.37	0.57	0.39	0.36	0.24	0.15		400	290
Indeno(1,2,3-cd)pyrene	µg/L	< 0.2	0.93		< 0.05	0.36	0.180	0.13	0.45	< 0.2		0.2	0.2
1-Methylnaphthalene	µg/L	< 0.2	0.09		< 0.05	< 0.05	<0.05	0.06	< 0.5	< 0.5		1800	1500
2-Methylnaphthalene	µg/L	< 0.2	0.12		< 0.05	< 0.05	<0.05	0.06	< 0.5	< 0.5		1800	1500
Methylnaphthalene, 2-(1-)	µg/L				<1	<1	<1	<1	< 0.5	< 0.5			
Naphthalene	µg/L	0.58	0.33		< 0.05	0.52	0.18	0.10	< 0.5	< 0.5		(6400) 1400	1400
Phenanthrene	µg/L	0.39	2.20		0.19	0.67	0.50	0.44	0.90	0.47		580	380
Pyrene	µg/L	0.49	2.68		0.08	0.93	0.5700	0.42	1.10	0.75		68	5.7
F1 (C6-C10)	µg/L								< 25	< 25		750	420
F1-BTEX (C6-C10)	µg/L								< 25				
F2 (C10-C16)	µg/L	<50	<50						< 100	< 100		150	150
F3 (C16-C34)	µg/L	<400	2100						2280	1180		500	500
F4 (C34-C50)	µg/L	58.90	69.40						1080	584		500	500
Ion Ratio	none								***	1.04			
Langeliers Index 4° C	@ 4° C								***	0.63			
Saturation pH 4°C	pHs @ 4°C								***	7.12			
Temperature	°C					6	9.43	16.87		12.01	-	-	-
pH	pH Units								7.01	7.35	-	-	-
Conductivity	uS/cm					726	785	1502	1200	580	-	-	-
Oxidation Reduction Potential	mV								-105	-96	-	-	-
Dissolved Oxygen	mg/L								4.2	2.11	-	-	-

Notes:

ODWQS	Ontario Drinking Water Quality Sta<1ards - Ontario Regulation 169/03 "Ontario Drinking Water Quality Sta<1ards" u<1er the Safe Drinking Water Act", dated 2002, a<1 "Technical Support Document for Ontario Drinking Water Sta<1ards, Objectives a<1 Guidelines", dated June 2003.
BOLD	Exceeds ODWQS
Units	All Units in mg/L Unless Otherwise Noted.

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TABLE 7
Groundwater Quality Results - MW-11
Former Water Street Landfill Site
Town of Greater Napanee, Ontario

Parameter	Units	Sample Designation									ODWQS	O. Reg. 153/04	
		Sample Collection Date (dd/mm/yyyy)										Non-Potable (Table 3)	Non-Potable (Table 9)
		MW-11											
		29-04-2015	10-11-2015	25-08-2020	26-10-2020	13-04-2021	03-05-2022	12-10-2022	09-05-2025	08-10-2025			
Alkalinity	mg/L			429	353	366	Not Sampled	Not Sampled	378	464	30 - 500		
Ammonia	as N mg/L												
Ammonia+Ammonium (N)	as N mg/L								0.10	0.4			
Biochemical Oxygen Demand (BOD_5)	mg/L			9	< 3	< 3			6	6			
COD	mg/L			33	11	22			23	16			
Conductivity	mg/L	---	---						851	1010			
Hardness									**428**	**449**	80 - 100		
pH	mg/L	7.15	7.06						7.41	7.69	6.5 - 8.5		
DOC	mg/L								3.0	4	5.0		
Chloride	mg/L	57.9	51.8	34.0	35.0	75.0			74.0	62	250	2300	1800
Nitrate	mg/L								< 0.06	< 0.06	10		
Nitrite	mg/L										1.00		
Sulphate	mg/L	< 1	< 1	2.00	1.00	1.00			6.00	23	500		
TDS	mg/L								466	**537**	500		
Magnesium	mg/L	37.40	37.80	41.00	33.10	36.00			37.10	34.1			
Calcium	mg/L									124.0			
Sodium	mg/L			28.8	27.6	28.1			34.0	42.1	200		
iron	mg/L	**38.10**	**44.10**	**31.50**	**30.00**	**15.50**			**20.30**	**25.70**	0.3		
Acenaphthene	µg/L			0.3300	0.10	0.1200			0.41	0.22		(1700) 600	600
Acenaphthylene	µg/L			0.07	< 0.05	< 0.05			< 0.1	< 0.1		1.8	1.4
Anthracene	µg/L			0.22	< 0.05	0.12			0.48	0.13		2.4	1
Benzo(a)anthracene	µg/L			0.570	< 0.05	0.420			0.88	0.360		4.7	1.8
Benzo(a)pyrene	µg/L			**0.63**	< 0.01	**0.47**			**0.98**	**0.36**	0.01	0.81	0.81
Benzo(b+j)fluoranthene	µg/L								1.30	0.49			
Benzo(k)fluoranthene	µg/L			0.24	< 0.05	0.22			0.50	0.16			
Benzo(ghi)perylene	µg/L			0.35	< 0.05	0.30			0.66	0.23		0.2	0.2
Chrysene	µg/L			0.46	< 0.05	0.44			0.85	0.33		1.00	0.70
Dibenzo(a,h)anthracene	µg/L			0.0900	< 0.05	0.0800			0.16	< 0.1		0.52	0.4
Fluoranthene	µg/L			1.10	< 0.05	0.75			2.80	0.890		130	73
Fluorene	µg/L			0.29	0.06	0.08			0.52	0.16		400	290
Indeno(1,2,3-cd)pyrene	µg/L			0.400	< 0.05	0.320			0.57	0.210		0.2	0.2
1-Methylnaphthalene	µg/L			ND	< 0.05	< 0.05			< 0.5	< 0.5		1800	1500
2-Methylnaphthalene	µg/L			ND	< 0.05	< 0.05			< 0.5	< 0.5		1800	1500
Methylnaphthalene, 2-(1-)	µg/L			<1	<1	<1			< 0.5	< 0.5			
Naphthalene	µg/L			0.07	< 0.05	0.08			< 0.5	< 0.5		(6400) 1400	1400
Phenanthrene	µg/L			0.82	0.07	0.40			2.00	0.51		580	380
Pyrene	µg/L			0.9500	< 0.05	0.6900			1.90	0.73		68	5.7
F1 (C6-C10)	µg/L	---	---	< 50	< 50	< 50			< 25	< 25		750	420
F1-BTEX (C6-C10)	µg/L								< 25				
F2 (C10-C16)	µg/L	< 50	< 50	< 50	< 50	< 50			382	218		150	150
F3 (C16-C34)	µg/L	< 400	< 400	<500	<500	<500			1320	674		500	500
F4 (C34-C50)	µg/L	< 400	< 400	<500	<500	<500			1520	752		500	500
Ion Ratio	none								1.14	1.06			
Langeliers Index 4° C	@ 4° C								0.05	0.47			
Saturation pH 4°C	pHs @ 4°C								7.36	7.22			
Temperature	°C	10.90	6.60			6.40				13.88	-	-	-
pH	pH Units	---	---						7.57	7.1	-	-	-
Conductivity	uS/cm	848.00	1262.00			502.00			>1000	616	-	-	-
Oxidation Reduction Potential	mV	-111.00	-119.10						-90	-106	-	-	-
Dissolved Oxygen	mg/L								7.02	4.34	-	-	-

Notes:

ODWQS	Ontario Drinking Water Quality Standards - Ontario Regulation 169/03 "Ontario Drinking Water Quality Standards" under the Safe Drinking Water Act", dated 2002, and "Technical Support Document for Ontario Drinking Water Standards, Objectives and Guidelines", dated June 2003.
BOLD	Exceeds ODWQS
Units	All Units in mg/L Unless Otherwise Noted.

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TABLE 8
Groundwater Quality Results - MW-12
Former Water Street Landfill Site
Town of Greater Napanee, Ontario

Parameter	Units	Sample Designation									ODWQS	O. Reg. 153/04	
		Sample Collection Date (dd/mm/yyyy)										Non-Potable (Table 3)	Non-Potable (Table 9)
		MW-12											
		29-04-2015	10-11-2015	25-08-2020	26-10-2020	13-04-2021	03-05-2022	12-10-2022	09-05-2025	08-10-2025			
Alkalinity	mg/L	Obstructed		348	363	Not Sampled	Not Sampled	Not Sampled	Not Sampled	Not Sampled	30 - 500		
Ammonia	as N mg/L												
Ammonia+Ammonium (N)	as N mg/L												
Biochemical Oxygen Demand (BOD_5)	mg/L			5	< 3								
COD	mg/L			57	7								
Conductivity	mg/L												
Hardness											80 - 100		
pH	mg/L										6.5 - 8.5		
DOC	mg/L										5.0		
Chloride	mg/L		50.6	44.0	37.0						250	2300	1800
Nitrate	mg/L										10		
Nitrite	mg/L										1.00		
Sulphate	mg/L		< 1	< 1	3.00						500		
TDS	mg/L										500		
Magnesium	mg/L		34.90	30.90	30.10								
Calcium	mg/L			33.0									
Sodium	mg/L				32.7						200		
Iron	mg/L		**17.10**	**23.3**	**2.00**						0.3		
Acenaphthene	µg/L		< 5	0.5800	0.09							(1700) 600	600
Acenaphthylene	µg/L		< 5	<1	<1							1.8	1.4
Anthracene	µg/L		<5	**0.10**	<1							2.4	1
Benzo(a)anthracene	µg/L		<5	0.130	<1							4.7	1.8
Benzo(a)pyrene	µg/L		4.06	0.14	<1						0.0	0.81	0.81
Benzo(b+j)fluoranthene	µg/L												
Benzo(k)fluoranthene	µg/L		< 5	<1	<1								
Benzo(ghi)perylene	µg/L		< 5	0.10	<1							0.2	0.2
Chrysene	µg/L		< 5	0.12	<1							1.00	0.70
Dibenzo(a,h)anthracene	µg/L			<1	<1							0.52	0.4
Fluoranthene	µg/L		6.08	0.33	<1							130	73
Fluorene	µg/L		< 5	0.46	0.07							400	290
Indeno(1,2,3-cd)pyrene	µg/L		< 5	0.100	<1							0.2	0.2
1-Methylnaphthalene	µg/L		< 5	<1	<1							1800	1500
2-Methylnaphthalene	µg/L		< 5	<1	<1							1800	1500
Methylnaphthalene, 2-(1-)	µg/L			<1	<1								
Naphthalene	µg/L		< 5	<1	<1							(6400) 1400	1400
Phenanthrene	µg/L		5.07	0.67	0.06							580	380
Pyrene	µg/L		5.07	0.2700	<1							68	5.7
F1 (C6-C10)	µg/L											750	420
F1-BTEX (C6-C10)	µg/L												
F2 (C10-C16)	µg/L		160									150	150
F3 (C16-C34)	µg/L		1400									500	500
F4 (C34-C50)	µg/L		3700									500	500
Ion Ratio	none												
Langeliers Index 4° C	@ 4° C												
Saturation pH 4°C	pHs @ 4°C												
Temperature	°C		7.70								-	-	-
pH	pH Units		6.93								-	-	-
Conductivity	uS/cm		1125								-	-	-
Oxidation Reduction Potential	mV		41.00								-	-	-
Dissolved Oxygen	mg/L										-	-	-

Notes:

ODWQS	Ontario Drinking Water Quality Sta<1ards - Ontario Regulation 169/03 "Ontario Drinking Water Quality Sta<1ards" u<1er the Safe Drinking Water Act", dated 2002, a<1 "Technical Support Document for Ontario Drinking Water Sta<1ards, Objectives a<1 Guidelines", dated June 2003.
BOLD	Exceeds ODWQS
Units	All Units in mg/L Unless Otherwise Noted.

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TABLE 9
Groundwater Quality Results - MW-13
Former Water Street Landfill Site
Town of Greater Napanee, Ontario

Parameter	Units	Sample Designation / Sample Collection Date (dd/mm/yyyy) / MW-13									ODWQS	O. Reg. 153/04	
		29-04-2015	10-11-2015	25-08-2020	26-10-2020	13-04-2021	03-05-2022	12-10-2022	09-05-2025	08-10-2025		Non-Potable (Table 3)	Non-Potable (Table 9)
Alkalinity	mg/L			408	390	452	441	433	472	474	30 - 500		
Ammonia	as N mg/L												
Ammonia+Ammonium (N)	as N mg/L						0.90	0.16	3.00	0.50			
Biochemical Oxygen Demand (BOD_5)	mg/L			5	4.00	4.00	6	3.00	10.00	5.00			
COD	mg/L			77	523	146	90	67	43	43			
Conductivity	mg/L								1170.00	1240.00			
Hardness							**514**	**474**	**541**	**505**	80 - 100		
pH	mg/L						7.67	7.50	7.34	7.69	6.5 - 8.5		
DOC	mg/L						3.1	1.60	5.00	4.00	5.0		
Chloride	mg/L	98	88	46	54	39	115	64	170	130	250	2300	1800
Nitrate	mg/L						0.10	0.10	< 0.06	0.78	10		
Nitrite	mg/L										1.00		
Sulphate	mg/L			< 1	2.00	< 1	<1	<1	< 2	< 2	500		
TDS	mg/L						**649**	**535**	**674**	**657**	500		
Magnesium	mg/L	32.20	33.50	36.30	36.50	36.00	35.60	37.00	36.50	36.90			
Calcium	mg/L									141.00			
Sodium	mg/L			38.50	40.30	53.00	60.30	40.30	60.50	62.00	200		
Iron	mg/L	**18.20**	**48.80**	**33.40**	**25.10**	**26.60**	0.01	**45.20**	**35.30**	**47.40**	0.3		
Acenaphthene	µg/L	0.29	0.25	0.4200	0.25	0.38	0.0060	45.20	1.90	0.85		(1700) 600	600
Acenaphthylene	µg/L	< 0.2	0.08	<1	<1	0.14	0.26	0.38	0.46	0.13		1.8	1.4
Anthracene	µg/L	0.20	0.20	0.06	0.08	0.24	<0.05	<0.05	1.50	0.34		2.4	1
Benzo(a)anthracene	µg/L	0.2	0.74	0.140	<1	0.86	0.110	0.08	3.90	1.00		4.7	1.8
Benzo(a)pyrene	µg/L	**0.49**	**0.70**	**0.17**	<1	**0.91**	**0.28**	**0.25**	**4.50**	**1.10**	0.01	0.81	0.81
Benzo(b+j)fluoranthene	µg/L						0.28	0.22	6.10	1.40			
Benzo(k)fluoranthene	µg/L	< 0.2	0.29	0.07	<1	0.38			2.10	0.53			
Benzo(ghi)perylene	µg/L	0.45	0.26	0.11	<1	0.53	0.13	0.10	3.00	0.81		0.2	0.2
Chrysene	µg/L	0.22	0.52	0.13	<1	0.67	0.17	0.15	3.50	0.87		1.00	0.70
Dibenzo(a,h)anthracene	µg/L	< 0.2	0.09	<1	<1	0.14	0.2800	0.19	0.74	0.20		0.52	0.4
Fluoranthene	µg/L	0.78	1.10	0.27	0.11	1.34	<0.05	<0.05	9.30	2.10		130	73
Fluorene	µg/L	0.27	0.23	0.18	0.17	0.19	0.48	0.42	1.60	0.47		400	290
Indeno(1,2,3-cd)pyrene	µg/L	0.43	0.46	0.120	<1	0.62	0.110	0.10	2.70	0.70		0.2	0.2
1-Methylnaphthalene	µg/L	< 0.2	0.07	<1	<1	<1	0.19	0.15	< 0.5	< 0.5		1800	1500
2-Methylnaphthalene	µg/L	< 0.2	0.05	<1	<1	<1	<0.05	<0.05	< 0.5	< 0.5		1800	1500
Methylnaphthalene, 2-(1-)	µg/L			<1	<1	<1	<0.05	<0.05	< 0.5	< 0.5			
Naphthalene	µg/L	< 0.2	0.14	0.07	<1	<1	<1	<1	< 0.5	< 0.5		(6400) 1400	1400
Phenanthrene	µg/L	0.53	0.65	0.19	0.32	0.72	0.11	<0.06	5.30	1.10		580	380
Pyrene	µg/L	0.67	1.04	0.2300	0.09	1.25	0.2800	0.25	6.90	1.80		68	5.7
F1 (C6-C10)	µg/L	---	---	< 50	< 50	< 50	0.43	0.40	< 25	< 25		750	420
F1-BTEX (C6-C10)	µg/L								< 25				
F2 (C10-C16)	µg/L	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 100	< 100		150	150
F3 (C16-C34)	µg/L	<400	<400	<500	<500	<500	<500	<500	525	632		500	500
F4 (C34-C50)	µg/L	<400	<400	<500	<500	<500	<500	<500	1010	831		500	500
Ion Ratio	none								1.10	1.16			
Langeliers Index 4° C	@ 4° C								0.22	0.53			
Saturation pH 4°C	pHs @ 4°C								7.12	7.16			
Temperature	°C					8.60	12.81	13.80	12.80	14.00	-	-	-
pH	pH Units								7.22	7.49	-	-	-
Conductivity	uS/cm					718	471	1256	1000	821	-	-	-
Oxidation Reduction Potential	mV								-102	-125	-	-	-
Dissolved Oxygen	mg/L								6.64	7.72	-	-	-

Notes:

ODWQS	Ontario Drinking Water Quality Sta<1ards - Ontario Regulation 169/03 "Ontario Drinking Water Quality Sta<1ards" u<1er the Safe Drinking Water Act", dated 2002, a<1 "Technical Support Document for Ontario Drinking Water Sta<1ards, Objectives a<1 Guidelines", dated June 2003.
BOLD	Exceeds ODWQS
Units	All Units in mg/L Unless Otherwise Noted.

Pinchin Project No. 350221.003

TABLE 10
Groundwater Quality Results - MW-17
Former Water Street Landfill Site
Town of Greater Napanee, Ontario

Parameter	Units	Sample Designation / Sample Collection Date (dd/mm/yyyy) / MW-17									ODWQS	O. Reg. 153/04	
		29-04-2015	10-11-2015	25-08-2020	26-10-2020	13-04-2021	03-05-2022	12-10-2022	09-05-2025	08-10-2025		Non-Potable (Table 3)	Non-Potable (Table 9)
Alkalinity	mg/L			400	414	440	372	471	423	**527**	30 - 500		
Ammonia	as N mg/L												
Ammonia+Ammonium (N)	as N mg/L						3.46	6.61	4.90	8.50			
Biochemical Oxygen Demand (BOD_5)	mg/L			18	12	13	12	17	13	19.00			
COD	mg/L			111	189	99	68	153	40	38.00			
Conductivity	mg/L								1130	1290			
Hardness							**399**	**483**	**482**	**469**	80 - 100		
pH	mg/L	7.56					7.40	7.54	7.16	7.78	6.5 - 8.5		
DOC	mg/L						3	1.40	4.00	**6.00**	5.0		
Chloride	mg/L	129	127	143	128	145	126	131	180	120	250	2300	1800
Nitrate	mg/L						<0.1	0.30	< 0.06	1.08	10		
Nitrite	mg/L										1.00		
Sulphate	mg/L	< 1	< 1	1.0	14.0	< 1	<1	2.00	< 2	7.00	500		
TDS	mg/L						**604**	**687**	**617**	**697**	500		
Magnesium	mg/L	30.60	26.60	27.30	27.30	41.60	24.70	29.20	28.50	30.10			
Calcium	mg/L									138			
Sodium	mg/L			99.00	97.30	30.40	81.50	89.30	73.20	74.70	200		
Iron	mg/L	**33.90**	**31.20**	**23.40**	**20.70**	**18.30**	**0.02**	**32.40**	**36.20**	**36.60**	0.3		
Acenaphthene	µg/L	0.540	1.250	0.850	0.550	0.980	0.650	0.94	0.87	1.00		(1700) 600	600
Acenaphthylene	µg/L	<0.2	<0.4	0.67	< 0.05	0.39	0.23	0.44	< 0.1	0.12		1.8	1.4
Anthracene	µg/L	<0.2	**0.62**	0.5	0.06	0.59	0.28	0.53	0.18	0.27		2.4	1
Benzo(a)anthracene	µg/L	<0.2	2.49	1.4	< 0.05	1.56	0.800	1.47	0.44	0.49		4.7	1.8
Benzo(a)pyrene	µg/L	**0.55**	**3.12**	**1.92**	< 0.01	**1.69**	**0.88**	**1.81**	**0.59**	**0.67**	0.01	0.81	0.81
Benzo(b+j)fluoranthene	µg/L								0.78	0.88			
Benzo(k)fluoranthene	µg/L	0.29	1.25	0.74	< 0.05	0.68	0.42	0.87	0.29	0.26			
Benzo(ghi)perylene	µg/L	0.34	1.32	1.38	< 0.05	1.27	0.75	1.40	0.51	0.58		0.2	0.2
Chrysene	µg/L	0.39	2.41	1.51	< 0.05	1.37	0.89	1.62	0.47	0.50		1.00	0.70
Dibenzo(a,h)anthracene	µg/L	<0.2	0.389	0.280	< 0.05	0.200	0.140	0.26	0.11	0.12		0.52	0.4
Fluoranthene	µg/L	**0.75**	**4.05**	2.61	0.07	2.63	1.45	3.04	1.10	1.40		130	73
Fluorene	µg/L	**0.23**	**1.01**	0.58	0.23	0.49	0.23	0.31	0.22	0.26		400	290
Indeno(1,2,3-cd)pyrene	µg/L	0.39	1.87	1.4	< 0.05	1.46	0.750	1.58	0.40	0.45		0.2	0.2
1-Methylnaphthalene	µg/L	<0.2	<0.4	< 0.05	< 0.05	< 0.05	<0.07	0.06	< 0.5	< 0.5		1800	1500
2-Methylnaphthalene	µg/L	<0.2	<0.4	0.05	< 0.05	< 0.05	<0.07	0.06	< 0.5	< 0.5		1800	1500
Methylnaphthalene, 2-(1-)	µg/L			<1	<1	<1	<1	<1	< 0.5	< 0.5			
Naphthalene	µg/L	<0.2	<0.4	0.09	< 0.05	< 0.05	<0.1	0.09	< 0.5	< 0.5		(6400) 1400	1400
Phenanthrene	µg/L	0.61	3.50	1.84	0.36	2.34	1.26	2.25	0.98	1.20		580	380
Pyrene	µg/L	0.590	3.430	2.340	0.090	2.340	1.310	2.80	0.90	1.20		68	5.7
F1 (C6-C10)	µg/L	---	---	< 50	< 50	< 50	< 50		< 25	< 25		750	420
F1-BTEX (C6-C10)	µg/L								< 25				
F2 (C10-C16)	µg/L	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 100	< 100		150	150
F3 (C16-C34)	µg/L	<400	<400	<500	<500	<500	<500	<500	< 200	251		500	500
F4 (C34-C50)	µg/L	<400	<400	<500	<500	<500	<500	<500	< 200	264		500	500
Ion Ratio	none								1.12	1.07			
Langeliers Index 4° C	@ 4° C								-0.04	0.65			
Saturation pH 4°C	pHs @ 4°C								7.20	7.13			
Temperature	°C	-	-	-	-	7.00	9.87	14.81	14.15		-	-	-
pH	pH Units	-	-	-	-				7.54		-	-	-
Conductivity	uS/cm	-	-	-	-	823.00	959.00	1579.00	840.00		-	-	-
Oxidation Reduction Potential	mV	-	-	-	-	-			-100		-	-	-
Dissolved Oxygen	mg/L	-	-	-	-	-			3.62		-	-	-

Notes:

ODWQS	Ontario Drinking Water Quality Sta<1ards - Ontario Regulation 169/03 "Ontario Drinking Water Quality Sta<1ards" u<1er the Safe Drinking Water Act", dated 2002, a<1 "Technical Support Document for Ontario Drinking Water Sta<1ards, Objectives a<1 Guidelines", dated June 2003.
BOLD	Exceeds ODWQS
Units	All Units in mg/L Unless Otherwise Noted.

Pinchin Project No. 350221.003

TABLE 11
Trigger Assessment
Former Water Street Landfill, Ontario

Trigger Parameter	Units	Trigger Criteria			Trigger Well Locations							
					Sampling Event							
					MW-11		MW12		MW13		MW17	
		O. Reg. 153/04 Table 9	Average Background	Site Specific	Spring 2025	Fall 2025	Spring 2025	Fall 2025	Spring 2025	Fall 2025	Spring 2025	Fall 2025
Non-Health Related												
Chloride	mg/L	1800	61	-	74	62	Not Sampled	Not Sampled	170	130	180	120
Iron	mg/L	-	0.45	50	20	26			35	47	36	37
Total Dissolved Solids	mg/L	-	704	-	466	537			674	657	617	697
Health Related												
PHC F1	ug/L	420	13	-	< 25	< 25			< 25	< 25	< 25	< 25
PHC F2	ug/L	150	50	-	**382**	**218**			< 100	< 100	< 100	< 100
PHC F3	ug/L	500	259	-	**1320**	**674**			**525**	**632**	< 200	251
PHC F4	ug/L	500	100	-	**1520**	**752**			**1010**	**831**	< 200	264

Notes:

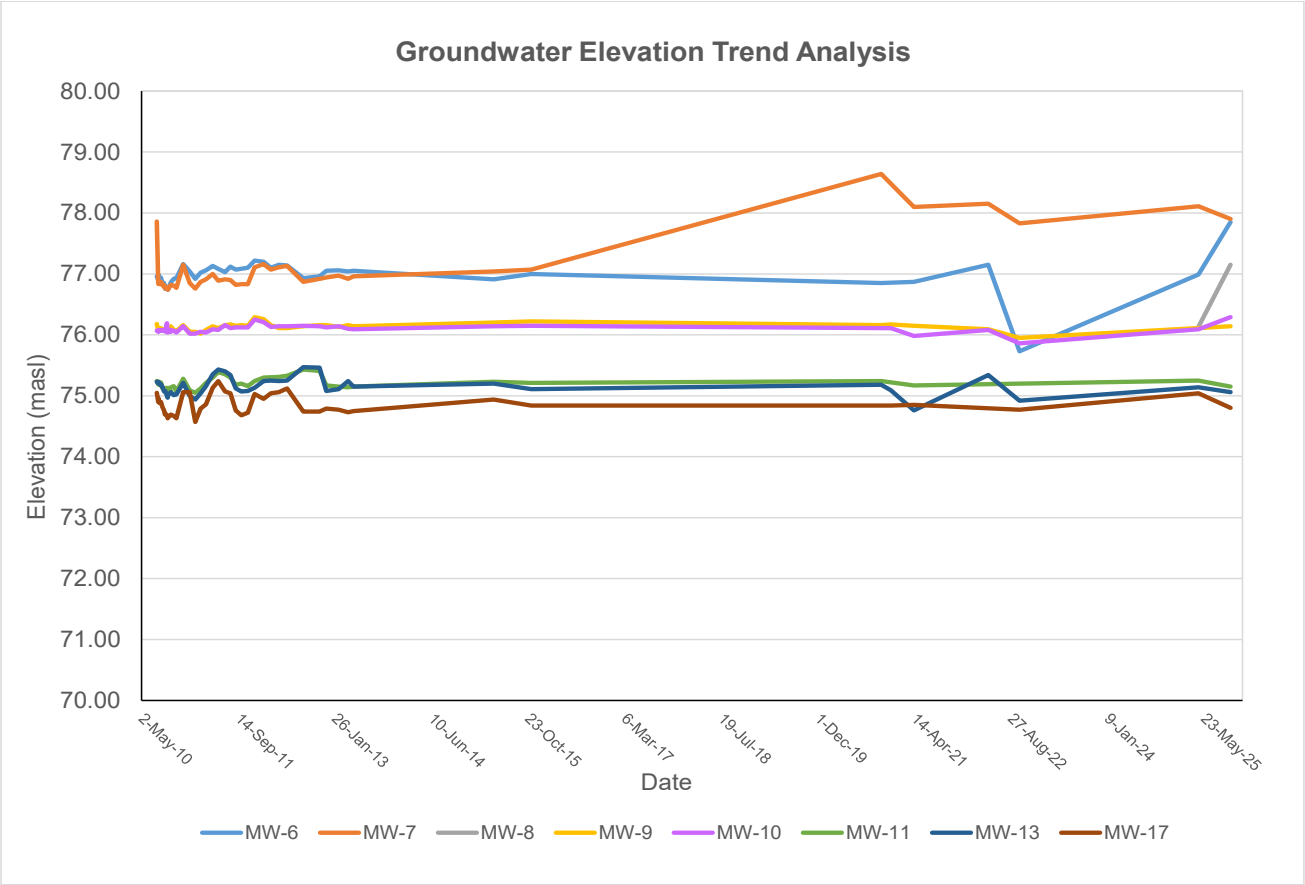
BOLD	Exceeds Trigger Level
mg/L	milligrams per litre
ug/L	micrograms per litre
O. Reg. 153/04	"Soil, Ground Water and Sediment Standards for Use Under Part XV.1 ff the Environmental Protection Act", Ministry of the Environment Ontario, April 15, 2011; as referenced from Ontario Regulation 153/04.
Average Background	Average background concentration between MW-6 and MW-7
Site Specific	Site Specific Criteria selected
"-"	indicates data not available or not applicable.

Pinchin File: 350221.003

APPENDIX VII

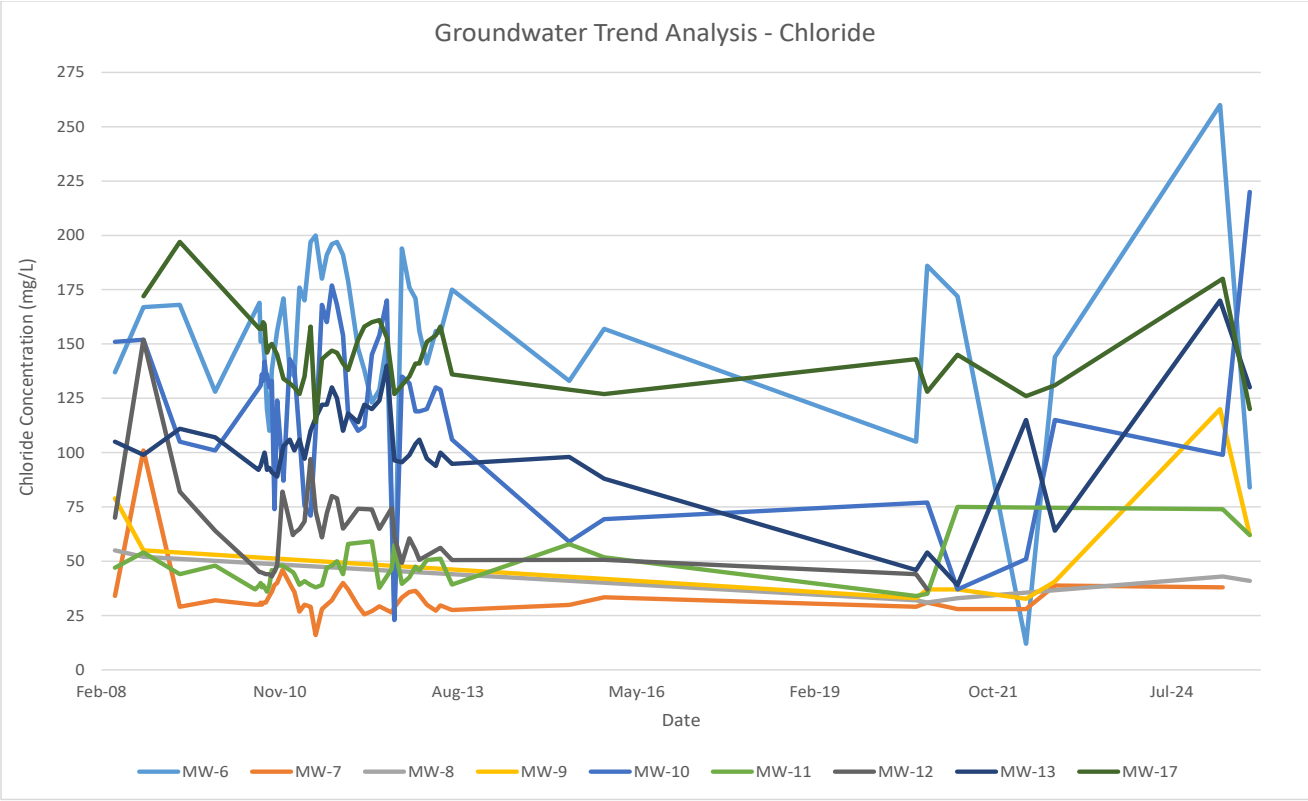
Time Versus Concentration Graphs

Town of Napanee, Ontario
Former Water Street Landfill Site
Napanee, Ontario
March 2026



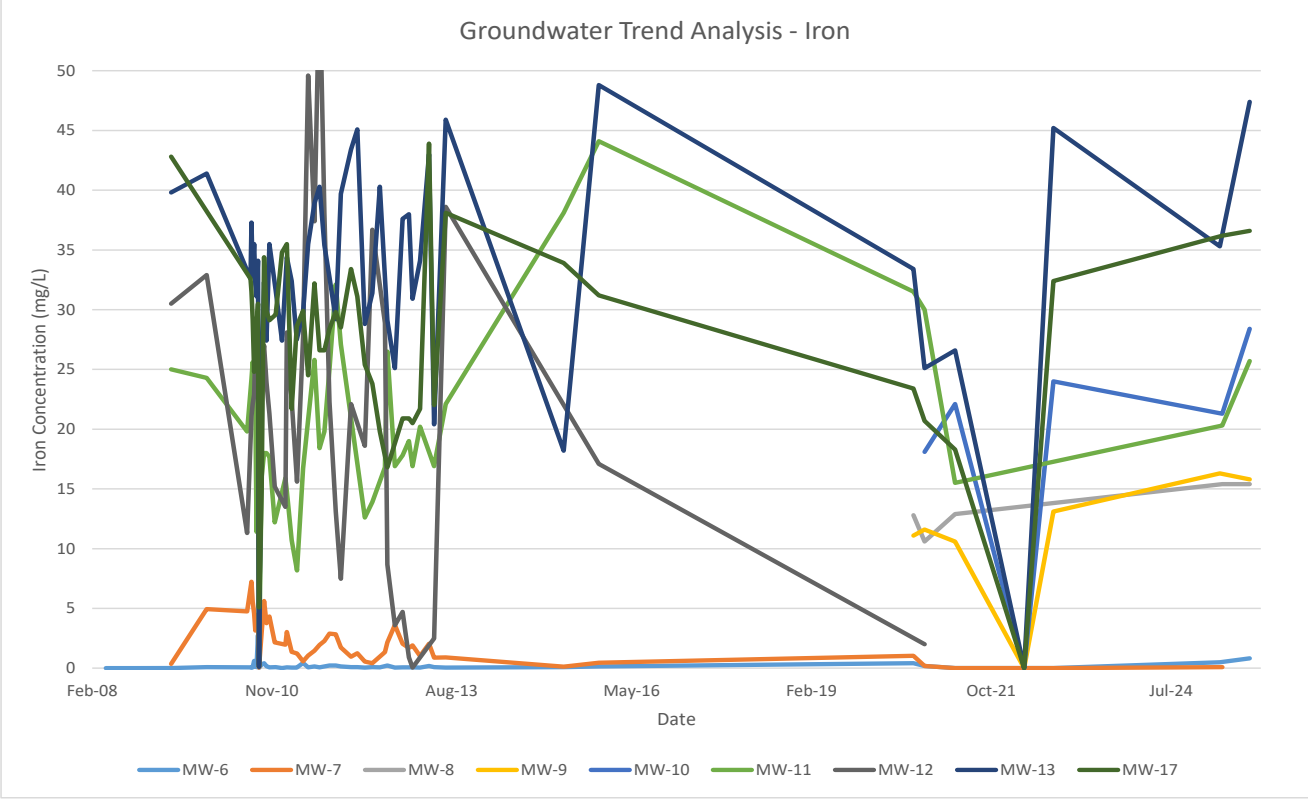
Pinchin Project No. **350221.003**

Town of Napanee, Ontario
Former Water Street Landfill Site
Napanee, Ontario
March 2026



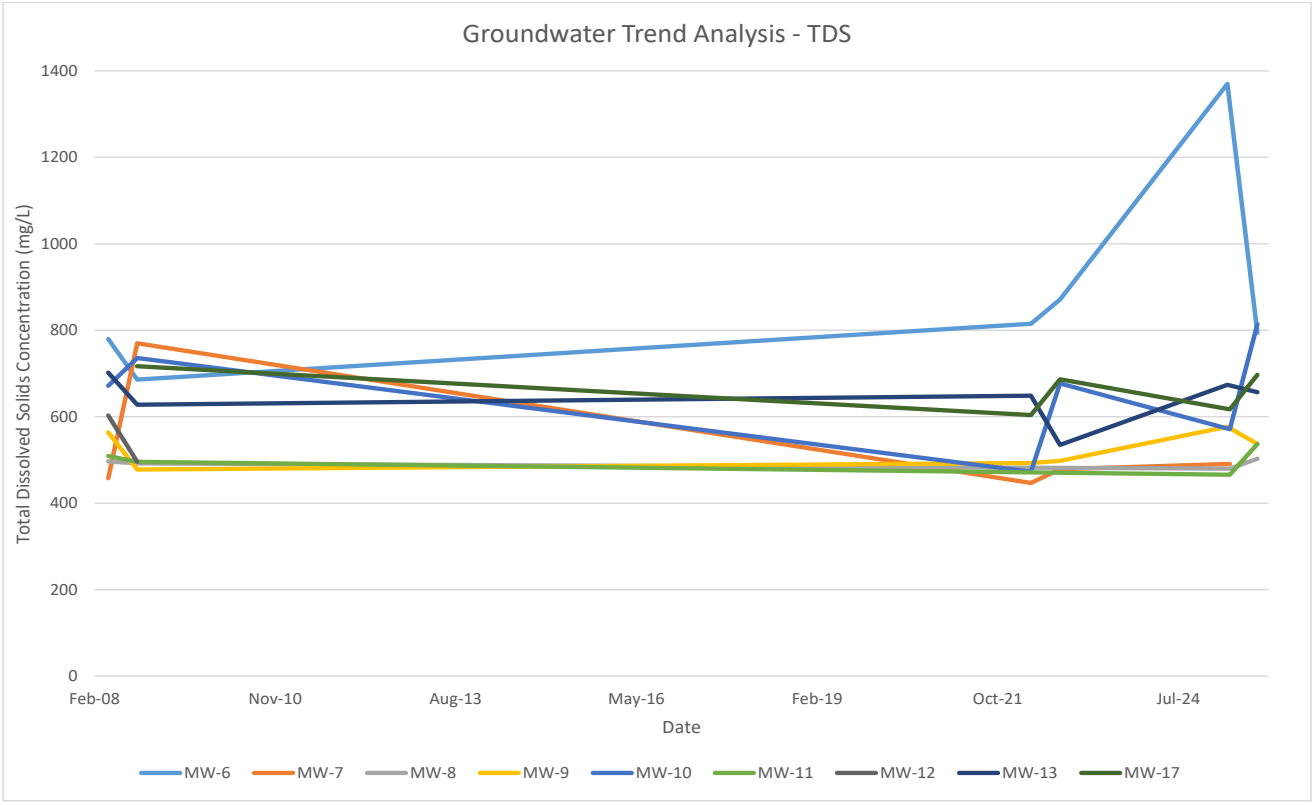
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Napanee, Ontario
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Town of Napanee, Ontario
Former Water Street Landfill Site
Napanee, Ontario
March 2026



Pinchin Project No. **350221.003**

APPENDIX VIII

Seepage Summary Table

TABLE 12
Seepage Quality Results
Former Water Street Landfill Site
Town of Greater Napanee, Ontario

Parameter	Units	SP1	SP2	SP3	SP4	PWQO
		03-07-2025	26-08-2025	19-11-2025	19-11-2025	
Alkalinity	mg/L	452	433	471	441	
Biochemical Oxygen Demand (BOD_5)	mg/L	28	13	< 12	22	
COD	mg/L	33	28	87	36	
Hardness	mg/L	521	528	922	444	
pH	mg/L	7.29	7.53	7.21	7.69	6.5 - 8.5
Chloride	mg/L	130	42	170	57	
Sulphate	mg/L	< 2	2.0	< 2	3.0	
Total Suspended Solids	mg/L	552	1350	3800	1270	
Magnesium (total)	mg/L	34.00	38.90	45.20	36.70	
Calcium (total)	mg/L	153	147	295	117	
Sodium (total)	mg/L	56.30	28.30	54.70	31.50	
Copper (total)	mg/L	0.002	< 0.1	**0.033**	0.00	0.005
Cobalt (total)	mg/L	0.00	< 0.1	0.00	0.00	
Iron (total)	mg/L	**56.8**	< 0.1	**550**	**38**	0.3
Lead (total)	mg/L	0.003	**0.02**	**0.06**	0.01	0.01
Zinc	mg/L	**0.07**	< 0.1	**0.27**	**0.19**	0.03
Acenaphthene	µg/L	0.340	< 0.1	0.200	0.410	
Acenaphthylene	µg/L	< 0.1	< 0.2	< 0.1	< 0.1	
Anthracene	µg/L	< 0.1	< 0.1	< 0.1	< 0.1	
Benzo(a)anthracene	µg/L	< 0.1	< 0.1	< 0.1	< 0.1	
Benzo(a)pyrene	µg/L	< 0.01	**0.23**	0.01	**0.02**	0.015
Benzo(b+j)fluoranthene	µg/L	< 0.1	0.34	< 0.1	< 0.1	
Benzo(k)fluoranthene	µg/L	< 0.1	< 0.2	< 0.1	< 0.1	0.0002
Benzo(ghi)perylene	µg/L	< 0.2	< 0.5	< 0.2	< 0.2	0.00002
Chrysene	µg/L	< 0.1	< 0.5	< 0.1	< 0.1	
Dibenzo(a,h)anthracene	µg/L	< 0.1	< 0.5	< 0.1	< 0.1	
Fluoranthene	µg/L	< 0.1	< 0.5	< 0.1	0.10	0.8
Fluorene	µg/L	< 0.1	0.16	0.12	**0.25**	0.2
Indeno(1,2,3-cd)pyrene	µg/L	< 0.2	0.16	< 0.2	< 0.2	
1-Methylnaphthalene	µg/L	< 0.5	< 25	< 0.5	< 0.5	2
2-Methylnaphthalene	µg/L	< 0.5	< 25	< 0.5	< 0.5	2
Methylnaphthalene, 2-(1-)	µg/L	< 0.5	< 100	< 0.5	< 0.5	
Naphthalene	µg/L	< 0.5	< 200	< 0.5	< 0.5	7
Phenanthrene	µg/L	< 0.1	< 200	< 0.1	**0.12**	0.03
Pyrene	µg/L	< 0.1	1.41	< 0.1	0.100	
F1 (C6-C10)	µg/L		0.36	< 25	< 25	
F1-BTEX (C6-C10)	µg/L	< 25	7.17	< 25	< 25	
F2 (C10-C16)	µg/L	< 100	< 50	< 100	< 100	
F3 (C16-C34)	µg/L	< 200	<400	< 200	< 200	
F4 (C34-C50)	µg/L	< 200	<400	< 200	< 200	
Temperature	°C	23.60	18.12	-	-	-
pH	pH Units	-	-	-	-	-
Conductivity	uS/cm	1810	930	-	-	-
Oxidation Reduction Potential	mV	-	-	-	-	-
Dissolved Oxygen	mg/L	-	-	-	-	-

Notes:

PWQO	Provincial Water Quality Objectives
BOLD	Exceeds PWQO
Units	All Units in mg/L Unless Otherwise Noted.

Pinchin Project No. 350221.003

APPENDIX IX

Quality Assurance Results

TABLE 13
Groundwater Duplicate Data - Spring 2025
Former Water Street Landfill Site
Town of Greater Napanee, Ontario

Parameter	Units	RDL	PQL	MW-7	DUP1	Relative Percent Difference (%)	MW-9	DUP2	Relative Percent Difference (%)
Alkalinity	mg/L	2	10	358	352	1.69	433	424	2.10
Ammonia	as N mg/L		0			NC			NC
Ammonia+Ammonium (N)	as N mg/L	0.1	0.5	< 0.1	< 0.1	NC	1.5	1.4	6.90
Biochemical Oxygen Demand (BOD_5)	mg/L	2	10	< 4	< 4	NC	13	18	32.26
COD	mg/L	8	40	< 8	< 8	NC	54	37	NC
Conductivity	mg/L	2	10	812	798	1.74	966	944	2.30
Hardness		0.05	0.25	459	452	1.54	490	482	1.65
pH	mg/L	0.05	0.25	7.36	7.64	3.73	7.48	7.56	1.06
DOC	mg/L	1	5	1	3	NC	2	2	NC
Chloride	mg/L	1	5	38	38	0.00	120	120	0.00
Nitrate	mg/L	0.06	0.3	0.86	0.79	8.48	<0.06	<0.06	NC
Nitrite	mg/L		0			NC			NC
Sulphate	mg/L	2	10	68	66	2.99	9	8	NC
TDS	mg/L	30	150	491	480	2.27	577	560	2.99
Magnesium	mg/L	0.001	0.005	43.8	42.8	2.31	40.3	39.2	2.77
Calcium	mg/L		0			NC			NC
Sodium	mg/L	0.01	0.05	21.1	21.2	0.47	46.8	45.7	2.38
Iron	mg/L	0.007	0.035	0.085	0.079	7.32	16.3	16.1	1.23
Acenaphthene	µg/L	0.1	0.5	< 0.1	< 0.1	NC	0.86	0.89	3.43
Acenaphthylene	µg/L	0.1	0.5	< 0.1	< 0.1	NC	< 0.1	< 0.1	NC
Anthracene	µg/L	0.1	0.5	< 0.1	< 0.1	NC	0.1	0.1	NC
Benzo(a)anthracene	µg/L	0.1	0.5	< 0.1	< 0.1	NC	< 0.1	< 0.1	NC
Benzo(a)pyrene	µg/L	0.01	0.05	0.05	0.06	NC	0.08	0.08	0.00
Benzo(b+j)fluoranthene	µg/L	0.1	0.5	< 0.1	< 0.1	NC	0.12	0.12	NC
Benzo(k)fluoranthene	µg/L	0.1	0.5	< 0.1	< 0.1	NC	< 0.1	< 0.1	NC
Benzo(ghi)perylene	µg/L	0.2	1	< 0.2	< 0.2	NC	< 0.2	< 0.2	NC
Chrysene	µg/L	0.1	0.5	< 0.1	< 0.1	NC	< 0.1	< 0.1	NC
Dibenzo(a,h)anthracene	µg/L	0.1	0.5	< 0.1	< 0.1	NC	< 0.1	< 0.1	NC
Fluoranthene	µg/L	0.1	0.5	0.15	0.19	NC	0.41	0.42	NC
Fluorene	µg/L	0.1	0.5	< 0.1	< 0.1	NC	0.3	0.3	NC
Indeno(1,2,3-cd)pyrene	µg/L	0.2	1	< 0.2	< 0.2	NC	< 0.2	< 0.2	NC
1-Methylnaphthalene	µg/L	0.5	2.5	< 0.5	< 0.5	NC	< 0.5	< 0.5	NC
2-Methylnaphthalene	µg/L	0.5	2.5	< 0.5	< 0.5	NC	< 0.5	< 0.5	NC
Methylnaphthalene, 2-(1-)	µg/L	0.5	2.5	< 0.5	< 0.5	NC	< 0.5	< 0.5	NC
Naphthalene	µg/L	0.5	2.5	< 0.5	< 0.5	NC	< 0.5	< 0.5	NC
Phenanthrene	µg/L	0.1	0.5	< 0.1	< 0.1	NC	0.38	0.38	NC
Pyrene	µg/L	0.1	0.5	0.12	0.11	NC	0.32	0.24	NC
F1 (C6-C10)	µg/L	25	125	< 25	< 25	NC	< 25	< 25	NC
F1-BTEX (C6-C10)	µg/L	25	125	< 25	< 25	NC	< 25	< 25	NC
F2 (C10-C16)	µg/L	100	500	< 100	< 100	NC	< 100	< 100	NC
F3 (C16-C34)	µg/L	200	1000	418	243	NC	229	224	NC
F4 (C34-C50)	µg/L	200	1000	< 200	< 200	NC	244	229	NC

RDL	laboratory reportable detection limit
PQL	practical quantification limit (PQL = 5 x RDL).
NC	not calculable due to one or more of the concentrations being quantified over the reasonable detection limit (RDL) or the practical quantification limit (PQL).
BOLD	bolded and shaded entries indicates that the relative percent difference (RPD) exceeds the industry standard of 50%.
BLANK CELLS	Bbank cells indicate no data available.

Pinchin Project No. 335248.000

TABLE 14
Groundwater Duplicate Data - Fall 2025
Former Water Street Landfill Site
Town of Greater Napanee, Ontario

Parameter	Units	RDL	PQL	MW-8	DUP1	Relative Percent Difference (%)
Alkalinity	mg/L	2	10	465	466	0.21
Ammonia	as N mg/L					
Ammonia+Ammonium (N)	as N mg/L	0.1	0.5	1.1	1.1	0.00
Biochemical Oxygen Demand (BOD_5)	mg/L	2	10	6	5	NC
COD	mg/L	8	40	14	< 8	NC
Conductivity	mg/L	2	10	921	924	0.33
Hardness		0.05	0.25	436	437	0.23
pH	mg/L	0.05	0.25	7.81	7.88	0.89
DOC	mg/L	1	5	2	2	NC
Chloride	mg/L	1	5	41	42	2.41
Nitrate	mg/L	0.06	0.3	< 0.06	< 0.06	NC
Nitrite	mg/L					
Sulphate	mg/L	2	10	3	4	NC
TDS	mg/L	30	150	503	494	1.81
Magnesium	mg/L	0.001	0.005	37.2	37.4	0.54
Calcium	mg/L		0	113	113	0.00
Sodium	mg/L	0.01	0.05	25.7	25.8	0.39
Iron	mg/L	0.007	0.035	15.4	15.2	1.31
Acenaphthene	µg/L	0.1	0.5	0.33	0.34	NC
Acenaphthylene	µg/L	0.1	0.5	< 0.1	< 0.1	NC
Anthracene	µg/L	0.1	0.5	< 0.1	< 0.1	NC
Benzo(a)anthracene	µg/L	0.1	0.5	< 0.1	< 0.1	NC
Benzo(a)pyrene	µg/L	0.01	0.05	0.01	< 0.01	NC
Benzo(b+j)fluoranthene	µg/L	0.1	0.5	< 0.1	< 0.1	NC
Benzo(k)fluoranthene	µg/L	0.1	0.5	< 0.1	< 0.1	NC
Benzo(ghi)perylene	µg/L	0.2	1	< 0.2	< 0.2	NC
Chrysene	µg/L	0.1	0.5	< 0.1	< 0.1	NC
Dibenzo(a,h)anthracene	µg/L	0.1	0.5	< 0.1	< 0.1	NC
Fluoranthene	µg/L	0.1	0.5	< 0.1	< 0.1	NC
Fluorene	µg/L	0.1	0.5	< 0.1	< 0.1	NC
Indeno(1,2,3-cd)pyrene	µg/L	0.2	1	< 0.2	< 0.2	NC
1-Methylnaphthalene	µg/L	0.5	2.5	< 0.5	< 0.5	NC
2-Methylnaphthalene	µg/L	0.5	2.5	< 0.5	< 0.5	NC
Methylnaphthalene, 2-(1-)	µg/L	0.5	2.5	< 0.5	< 0.5	NC
Naphthalene	µg/L	0.5	2.5	< 0.5	< 0.5	NC
Phenanthrene	µg/L	0.1	0.5	< 0.1	< 0.1	NC
Pyrene	µg/L	0.1	0.5	< 0.1	< 0.1	NC
F1 (C6-C10)	µg/L	25	125	< 25	< 25	NC
F1-BTEX (C6-C10)	µg/L	25	125			NC
F2 (C10-C16)	µg/L	100	500	< 100	< 100	NC
F3 (C16-C34)	µg/L	200	1000	319	358	NC
F4 (C34-C50)	µg/L	200	1000	< 200	< 200	NC

RDL	laboratory reportable detection limit
PQL	practical quantification limit (PQL = 5 x RDL).
NC	not calculable due to one or more of the concentrations being quantified over the reasonable detection limit (RDL) or the practical quantification limit (PQL).
BOLD	bolded and shaded entries indicates that the relative percent difference (RPD) exceeds the industry standard of 50%.
BLANK CELLS	Bbank cells indicate no data available.

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TABLE 15
Seepage Duplicate Data - 2025
Former Water Street Landfill Site
Town of Greater Napanee, Ontario

Parameter	Units	RDL	PQL	SP3	SP3-DUP	Relative Percent Difference (%)
Alkalinity	mg/L	2	10	471	3	NC
Biochemical Oxygen Demand (BOD_5)	mg/L	2	10	< 12	31	NC
COD	mg/L	8	40	87	106	19.69
Hardness		0.05	0.25	922	780	16.69
pH	mg/L	0.05	0.25	7.21	7.42	2.87
Chloride	mg/L	1	5	170	170	0.00
Sulphate	mg/L	2	10	< 2	< 2	NC
TSS	mg/L	30	150	3800	12800	**108.43**
Magnesium	mg/L	0.001	0.005	45.2	44.1	2.46
Calcium	mg/L	0.01	0.05	295	240	20.56
Sodium	mg/L	0.01	0.05	54.7	56	2.35
Copper	mg/L	0.001	0.005	0.033	0.023	35.71
Cobalt	mg/L	0.000004	0.00002	0.00489	0.00356	31.48
Iron	mg/L	0.007	0.035	550	403	30.85
Lead	mg/L	0.0009	0.0045	0.0584	0.0401	37.16
Zinc	mg/L	0.002	0.01	0.271	0.194	33.12
Acenaphthene	µg/L	0.1	0.5	0.2	0.19	NC
Acenaphthylene	µg/L	0.1	0.5	< 0.1	< 0.1	NC
Anthracene	µg/L	0.1	0.5	< 0.1	< 0.1	NC
Benzo(a)anthracene	µg/L	0.1	0.5	< 0.1	< 0.1	NC
Benzo(a)pyrene	µg/L	0.01	0.05	0.01	0.01	NC
Benzo(b+j)fluoranthene	µg/L	0.1	0.5	< 0.1	< 0.1	NC
Benzo(k)fluoranthene	µg/L	0.1	0.5	< 0.1	< 0.1	NC
Benzo(ghi)perylene	µg/L	0.2	1	< 0.2	< 0.2	NC
Chrysene	µg/L	0.1	0.5	< 0.1	< 0.1	NC
Dibenzo(a,h)anthracene	µg/L	0.1	0.5	< 0.1	< 0.1	NC
Fluoranthene	µg/L	0.1	0.5	< 0.1	< 0.1	NC
Fluorene	µg/L	0.1	0.5	0.12	0.12	NC
Indeno(1,2,3-cd)pyrene	µg/L	0.2	1	< 0.2	< 0.2	NC
1-Methylnaphthalene	µg/L	0.5	2.5	< 0.5	< 0.5	NC
2-Methylnaphthalene	µg/L	0.5	2.5	< 0.5	< 0.5	NC
Methylnaphthalene, 2-(1-)	µg/L	0.5	2.5	< 0.5	< 0.5	NC
Naphthalene	µg/L	0.5	2.5	< 0.5	< 0.5	NC
Phenanthrene	µg/L	0.1	0.5	< 0.1	< 0.1	NC
Pyrene	µg/L	0.1	0.5	< 0.1	< 0.1	NC
F1 (C6-C10)	µg/L	25	125	< 25	< 25	NC
F1-BTEX (C6-C10)	µg/L	25	125	< 25	< 25	NC
F2 (C10-C16)	µg/L	100	500	< 100	353	NC
F3 (C16-C34)	µg/L	200	1000	< 200	220	NC
F4 (C34-C50)	µg/L	200	1000	< 200	< 200	NC

RDL	laboratory reportable detection limit
PQL	practical quantification limit (PQL = 5 x RDL).
NC	not calculable due to one or more of the concentrations being quantified over the reasonable detection limit (RDL) or the practical quantification limit (PQL).
BOLD	bolded and shaded entries indicates that the relative percent difference (RPD) exceeds the industry standard of 50%.
BLANK CELLS	Bbank cells indicate no data available.

Pinchin Project No. 350221.003

APPENDIX X

Monitoring and Screening Checklist

Appendix D-Monitoring and Screening Checklist
General Information and Instructions

General Information: The checklist is to be completed, and submitted with the Monitoring Report.
Instructions: A complete checklist consists of:
(a) a completed and signed checklist, including any additional pages of information which can be attached as needed to provide further details where indicated.
(b) completed contact information for the Competent Environmental Practitioner (CEP)
(c) self-declaration that CEP(s) meet(s) the qualifications as set out below and in Section 1.2 of the Technical Guidance Document.

Definition of Groundwater CEP:
For groundwater, the CEP must have expertise in hydrogeology and meet one of the following:
(a) the person holds a licence, limited licence or temporary licence under the *Professional Engineers Act*; or
(b) the person holds a certificate of registration under the *Professional Geoscientists Act, 2000* and is a practicing member, temporary, member or limited member of the Association of Professional Geoscientists of Ontario. O. Reg. 66/08, s. 2..
Definition of Surface water CEP:
A CEP for surface water assessments is a scientist, professional engineer or professional geoscientist as described in (a) and (b) above with demonstrated experience and post-secondary education, either a diploma or degree, in hydrology, aquatic ecology, limnology, aquatic biology, physical geography with specialization in surface water, and/or water resource management.

The type of scientific work that a CEP performs must be consistent with that person's education and experience. If an individual has appropriate training and credentials in both groundwater and surface water and is responsible for both areas of expertise, the CEP may then complete and validate both sections of the checklist.

Monitoring Report and Site Information	
Waste Disposal Site Name	Former Water Street Landfill Site
Location (e.g. street address, lot, concession)	Lot 20, Concession I, in the Town of Greater Napanee, within the County of Lennox and Addington
GPS Location (taken within the property boundary at front gate/ front entry)	Universal Transverse Mercator (UTM) coordinates 343,558 metres (m) Easting and 4,900,390 m Northing, Zone 18T
Municipality	Napanee
Client and/or Site Owner	Town of Greater Napanee
Monitoring Period (Year)	2025
This Monitoring Report is being submitted under the following:	
Certificate of Approval No.:	1608-D6TLA4
Director's Order No.:	Type Here
Provincial Officer's Order No.:	Type Here
Other:	Type Here

Report Submission Frequency	○ **Annual** ◉ **Other**	Specify (Type Here): Biennial
The site is:	○ **Active** ○ **Inactive** ◉ **Closed**	
If closed, specify C of A, control or authorizing document closure date:		Unkown
Has the nature of the operations at the site changed during this monitoring period?	○ **Yes** ◉ **No**	
If yes, provide details:	Type Here	
Have any measurements been taken since the last reporting period that indicate landfill gas volumes have exceeded the MOE limits for subsurface or adjacent buildings? (i. e. exceeded the LEL for methane)	○ Yes ◉ No	

Groundwater WDS Verification:

Based on all available information about the site and site knowledge, it is my opinion that:

Sampling and Monitoring Program Status:

1) The monitoring program continues to effectively characterize site conditions and any groundwater discharges from the site. All monitoring wells are confirmed to be in good condition and are secure:	◉ **Yes** ○ **No**	If no, list exceptions (Type Here):
2) All groundwater, leachate and WDS gas sampling and monitoring for the monitoring period being reported on was successfully completed as required by Certificate(s) of Approval or other relevant authorizing/control document(s):	○ **Yes** ◉ **No** ○ **Not Applicable**	If no, list exceptions below or attach information.

Groundwater Sampling Location	Description/Explanation for change (change in name or location, additions, deletions)	Date
MW-12	Obstruction in well preventing sample acquisition	Spring and Fall event
Type Here	Type Here	Select Date
Type Here	Type Here	Select Date
Type Here	Type Here	Select Date

3) a) Some or all groundwater, leachate and WDS gas sampling and monitoring requirements have been established or defined outside of a ministry C of A, authorizing, or control document.	○ **Yes** ◉ **No** ○ **Not Applicable**	
b) If yes, the sampling and monitoring identified under 3(a) for the monitoring period being reported on was successfully completed in accordance with established protocols, frequencies, locations, and parameters developed as per the Technical Guidance Document:	○ **Yes** ○ **No** ○ **Not Applicable**	If no, list exceptions below or attach additional information.

Groundwater Sampling Location	**Description/Explanation for change (change in name or location, additions, deletions)**	**Date**
Type Here	Type Here	Select Date
Type Here	Type Here	Select Date
Type Here	Type Here	Select Date
Type Here	Type Here	Select Date

4) All field work for groundwater investigations was done in accordance with standard operating procedures as established/outlined per the Technical Guidance Document (including internal/external QA/QC requirements) (Note: A SOP can be from a published source, developed internally by the site owner's consultant, or adopted by the consultant from another organization):	◉ **Yes** ○ **No**	If no, specify (Type Here):

Sampling and Monitoring Program Results/WDS Conditions and Assessment:			
5) The site has an adequate buffer, Contaminant Attenuation Zone (CAZ) and/or contingency plan in place. Design and operational measures, including the size and configuration of any CAZ, are adequate to prevent potential human health impacts and impairment of the environment.	◉ **Yes** ○ **No**	If no, the potential design and operational concerns/exceptions are as follows (Type Here):	
6) The site meets compliance and assessment criteria.	○ **Yes** ◉ **No**	Several triggers exceedances observed within compliance well samples (as defined within the proposed Trigger Plan awaiting Ministry approval)	
7) The site continues to perform as anticipated. There have been no unusual trends/ changes in measured leachate and groundwater levels or concentrations.	◉ **Yes** ○ **No**	No significant changes,	
1) Is one or more of the following risk reduction practices in place at the site: ***(a)*** **There is minimal reliance on natural attenuation of leachate due to the presence of an effective waste liner and active leachate collection/treatment; or** ***(b)*** **There is a predictive monitoring program in-place (modeled indicator concentrations projected over time for key locations); or** ***(c)*** **The site meets the following two conditions (typically achieved after 15 years or longer of site operation):** ***i.*** **The site has developed stable leachate mound(s) and stable leachate plume geometry/concentrations; and** ***ii.*** **Seasonal and annual water levels and water quality fluctuations are well understood.**	◉ **Yes** ○ **No**	**Note which practice(s):**	☐ **(a)** ☒ **(b)** ☐ **(c)**
9) Have trigger values for contingency plans or site remedial actions been exceeded (where they exist):	◉ **Yes** ○ **No** ○ **Not Applicable**	· PHCs F2-F4 at MW-11 during the spring and fall event; and · PHC F3-F4 at MW-13 during the spring and fall event.	

Groundwater CEP Declaration:

I am a licensed professional Engineer or a registered professional geoscientist in Ontario with expertise in hydrogeology, as defined in Appendix D under Instructions. Where additional expertise was needed to evaluate the site monitoring data, I have relied on individuals who I believe to be experts in the relevant discipline, who have co-signed the compliance monitoring report or monitoring program status report, and who have provided evidence to me of their credentials.

I have examined the applicable Certificate of Approval and any other environmental authorizing or control documents that apply to the site. I have read and followed the Monitoring and Reporting for Waste Disposal Sites Groundwater and Surface Water Technical Guidance Document (MOE, 2010, or as amended), and associated monitoring and sampling guidance documents, as amended from time to time. I have reviewed all of the data collected for the above-referenced site for the monitoring period(s) identified in this checklist. Except as otherwise agreed with the ministry for certain parameters, all of the analytical work has been undertaken by a laboratory which is accredited for the parameters analysed to *ISO/IEC 17025:2005 (E)- General requirements for the competence of testing and calibration laboratories,* or as amended from time to time by the ministry.

If any exceptions or potential concerns have been noted in the questions in the checklist attached to this declaration, it is my opinion that these exceptions and concerns are minor in nature and will be rectified for the next monitoring/reporting period. Where this is not the case, the circumstances concerning the exception or potential concern and my client's proposed action have been documented in writing to the Ministry of the Environment District Manager in a letter from me dated:

Select Date

Recommendations:

Based on my technical review of the monitoring results for the waste disposal site:

◉ **No changes to the monitoring program are recommended** ○ **The following change(s) to the monitoring program is/are recommended:**	
◉ **No Changes to site design and operation are recommended** ○ **The following change(s) to the site design and operation is/ are recommended:**	Type Here

Name:	Tim McBride		
Seal:	Add Image		
Signature:		**Date:**	Select Date
CEP Contact Information:	Tim McBride		
Company:	Pinchin Ltd.		
Address:	662 Falconbridge Road, Unit 3 Sudbury, Ontario P3A 4S4		
Telephone No.:	705.521.0560	Fax No. :	Type Here
E-mail Address:	tmcbride@pinchin.com		
Co-signers for additional expertise provided:			
Signature:		**Date:**	Select Date
Signature:		**Date:**	Select Date

Surface Water WDS Verification:

Provide the name of surface water body/bodies potentially receiving the WDS effluent and the approximate distance to the waterbody (including the nearest surface water body/bodies to the site):

Name (s)	Napier River
Distance(s)	To the immediate south

Based on all available information and site knowledge, it is my opinion that:

Sampling and Monitoring Program Status:

1) The current surface water monitoring program continues to effectively characterize the surface water conditions, and includes data that relates upstream/background and downstream receiving water conditions:	(●) Yes ( ) No	Per existing trigger program, supplementary sampling to occur to characterize seepage impacts.
2) All surface water sampling for the monitoring period being reported was successfully completed in accordance with the Certificate(s) of Approval or relevant authorizing/control document(s) (if applicable):	(●) Yes ( ) No ( ) **Not applicable (No C of A, authorizing / control document applies)**	If no, specify below or provide details in an attachment.

Surface Water Sampling Location	Description/Explanation for change (change in name or location, additions, deletions)	Date
Type Here	Type Here	Select Date
Type Here	Type Here	Select Date
Type Here	Type Here	Select Date
Type Here	Type Here	Select Date

3) a) Some or all surface water sampling and monitoring program requirements for the monitoring period have been established outside of a ministry C of A or authorizing/control document.	◯ **Yes** ◯ **No** ◯ **Not Applicable**	
b) If yes, all surface water sampling and monitoring identified under 3 (a) was successfully completed in accordance with the established program from the site, including sampling protocols, frequencies, locations and parameters) as developed per the Technical Guidance Document:	◯ **Yes** ◯ **No** ◯ **Not Applicable**	If no, specify below or provide details in an attachment.

Surface Water Sampling Location	**Description/Explanation for change (change in name or location, additions, deletions)**	**Date**
Type Here	Type Here	Select Date
Type Here	Type Here	Select Date
Type Here	Type Here	Select Date
Type Here	Type Here	Select Date

4) All field work for surface water investigations was done in accordance with standard operating procedures, including internal/external QA/QC requirements, as established/ outlined as per the Technical Guidance Document, MOE 2010, or as amended. (Note: A SOP can be from a published source, developed internally by the site owner's consultant, or adopted by the consultant from another organization):	◉ **Yes** ◯ **No**	If no, specify (Type Here):

Sampling and Monitoring Program Results/WDS Conditions and Assessment:

5) The receiving water body meets surface water-related compliance criteria and assessment criteria: i.e., there are no exceedances of criteria, based on MOE legislation, regulations, Water Management Policies, Guidelines and Provincial Water Quality Objectives and other assessment criteria (e.g., CWQGs, APVs), as noted in Table A or Table B in the Technical Guidance Document (Section 4.6):	○ **Yes** ◉ **No**

If no, list parameters that exceed criteria outlined above and the amount/percentage of the exceedance as per the table below or provide details in an attachment:

Parameter	Compliance or Assessment Criteria or Background	Amount by which Compliance or Assessment Criteria or Background Exceeded
e.g. Nickel	e.g. C of A limit, PWQO, background	e.g. X% above PWQO
*Seep results not receiving water body		
Copper	PWQO: 0.005	SP3: 0.005 mg/L
Iron	PWQO: 0.3	SP1: 56.8 mg/L; SP3: 550 mg/L; SP4: 38 mg/L
Lead	PWQO: 0.01	SP2: 0.01 mg/L; SP3: 0.06 mg/L
Zinc	PWQO: 0.03	SP1: 56.8 mg/L; SP3: 550 mg/L; SP4: 38 mg/L
Benzo(a)pyrene	PWQO: 0.015	SP2: 0.23 mg/L; SP4: 0.02 mg/L
Fluorene	PWQO: 0.25	SP4: 0.25 mg/L
Phenanthrene	PWQO: 0.03	SP4: 0.12 mg/L
6) In my opinion, any exceedances listed in Question 5 are the result of non-WDS related influences (such as background, road salting, sampling site conditions)?	○ **Yes** ◉ **No**	Likely WDS derived, however, the limited sample volume

7) All monitoring program surface water parameter concentrations fall within a stable or decreasing trend. The site is not characterized by historical ranges of concentrations above assessment and compliance criteria.	(●) **Yes** ( ) **No**	Additional sampling needed to confirm.
8) For the monitoring program parameters, does the water quality in the groundwater zones adjacent to surface water receivers exceed assessment or compliance criteria (e.g. , PWQOs, CWQGs, or toxicity values for aquatic biota (APVs)):	( ) Yes ( ) No (●) Not Known ( ) Not Applicable	Unknown currently, no surface water sampling in Napier River completed in 2025
9) Have trigger values for contingency plans or site remedial actions been exceeded (where they exist):	( ) **Yes** ( ) **No** ( ) **Not Applicable**	If yes, list value(s) that are/have been exceeded and follow-up action taken (Type Here)

Surface Water CEP Declaration:

I, the undersigned hereby declare that I am a Competent Environmental Practitioner as defined in Appendix D under Instructions, holding the necessary level of experience and education to design surface water monitoring and sampling programs, conduct appropriate surface water investigations and interpret the related data as it pertains to the site for this monitoring period.

I have examined the applicable Certificate of Approval and any other environmental authorizing or control documents that apply to the site. I have read and followed the Monitoring and Reporting for Waste Disposal Sites Groundwater and Surface Water Technical Guidance Document (MOE, 2010, or as amended) and associated monitoring and sampling guidance documents, as amended from time to time. I have reviewed all of the data collected for the above-referenced site for the monitoring period(s) identified in this checklist. Except as otherwise agreed with the ministry for certain parameters, all of the analytical work has been undertaken by a laboratory which is accredited for the parameters analysed to *ISO/IEC 17025:2005 (E)- General requirements for the competence of testing and calibration laboratories,* or as amended from time to time by the ministry.

If any exceptions or potential concerns have been noted in the questions in the checklist attached to this declaration, it is my opinion that these exceptions and concerns are minor in nature or will be rectified for future monitoring events. Where this is not the case, the circumstances concerning the exception or potential concern and my client's proposed action have been documented in writing to the Ministry of the Environment District Manager in a letter from me dated:

Select Date

Recommendations:

Based on my technical review of the monitoring results for the waste disposal site:

◉ **No Changes to the monitoring program are recommended** ○ **The following change(s) to the monitoring program is/are recommended:**	Napier River surface water sampling to occur in 2026 per recommendations.
◉ **No changes to the site design and operation are recommended** ○ **The following change(s) to the site design and operation is/are recommended:**	Type Here

CEP Signature	
Relevant Discipline	Hydrogeologist (P.Geo)
Date:	Select Date
CEP Contact Information:	Tim McBride
Company:	Pinchin Ltd.
Address:	662 Falconbridge Road, Unit 3 Sudbury, Ontario P3A 4S4
Telephone No.:	705.521.0560
Fax No. :	Type Here
E-mail Address:	tmcbride@pinchin.com

Save As		**Print Form**

FINAL

2025 Water Quality Monitoring Report

Roblin Waste Disposal Site
Former Town of Richmond, Ontario

Prepared for:

Town of Greater Napanee
99a Advance Avenue
Napanee, Ontario K7R 3Y5

April 30, 2026

Pinchin File: 350221.002

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Environmental Scientist



Reviewer: Craig Kelly, B.Sc., P.Geo., QP_{ESA}
Senior Technical Manager

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1.0 INTRODUCTION

Pinchin Ltd. (Pinchin) was retained by the Town of Greater Napanee (the Town) to complete the 2025 water quality monitoring and reporting for the Roblin Waste Disposal Site (the Site) located in the Former Town of Richmond, Napanee, Ontario which is owned and operated by the Town. The Site location is presented on Figure 1 (all figures are provided in the attached Appendix I).

The purpose of completing the monitoring program was to assess the hydraulic media for contaminants of concern during the spring and fall of 2025 as a compliance requirement under Environmental Compliance Approval (ECA) Number A371202 for the Site prepared by the Ministry of the Environment, Conservation and Parks (MECP) and dated July 25, 2014. A copy of the ECA is provided in Appendix II.

The following report provides a detailed evaluation and summary of the 2025 monitoring data and was completed to constitute the 2025 Annual Monitoring Report (2025 AMR). This document includes, but is not limited to a summary of historical geochemical data, a review/evaluation of the historical and current geochemical data (as well as groundwater flow), a summary of geochemical trends and all Site inspections completed in 2025.

1.1 Location

The Site is located on Lot 19, Concession 8 in the former Township of Richmond roughly 1 kilometer (km) west of the village of Roblin. The formerly active waste disposal site is located approximately 1.18 km southwest of the intersection of County Road 41 and Roblin Road and encompasses an area of approximately 26 hectares (ha). The Site is located at Universal Transverse Mercator (UTM) coordinates 338,541 metres (m) Easting and 4,914,799 m Northing, Zone 18T relative to the North American Datum (NAD) 83.

The area surrounding the Site is primarily rural in nature consisting mainly of agricultural, woodlot and swamp land use with the Salmon River running along the southeastern portion of the site at the bottom of a steep embankment.

1.2 Description and Development of the Site

The Roblin Waste Disposal Site (Roblin WDS) is a capped and closed landfill that operated from 1976 until activities ceased in 2012. The Site currently functions as a waste transfer station (WTS) for municipal wastes from residents of Greater Napanee accepting domestic waste such as plastic, glass bottles and jars, aluminum and steel cans, and plastic bags, and paper products like boxboard and corrugated cardboard. The following materials are not accepted by the WTS:

- Medical, Hazardous, Contractor and Industrial wastes;

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- Animal or animal wastes and hay/straw or agricultural waste;
- Motor Vehicles or automotive parts, including tires; and
- Shingles, concrete/asphalt, paint.

The Certificate of Approval (CoA) No. A371202 for the Site was originally issued by the Ministry on August 1, 1976. Notice No. 1 was issued on July 25, 2014, and allowed the Site to operate as a transfer station; Notice No. 2 issued on December 19, 2016, provides for trigger mechanisms and contingency plans for groundwater and surface water monitoring on Site. Record forms indicated that in 2025 at least 119.04 tonnes of materials were collected at the WDS which was comprised of 111.80 tonnes of waste, 7.24 tonnes of scrap metal and 7 roll-off bins of e-waste. Pinchin notes that the total amount of waste material collected is not publicly available as the Town is no longer responsible for operating residential recycling programs as of 2025, and this responsibility has transitioned to Circular Materials Ontario.

1.3 Ownership and Key Personnel

The Site is owned and operated by the Town of Greater Napanee. The project was completed for the following representative on behalf of the Town:

Sarah McCallum
Town of Greater Napanee
99-A Advance Avenue
Napanee, Ontario K7R 3Y5

The Competent Environmental Practitioner (CEP) for the Site groundwater and surface water monitoring program was Mr. Tim McBride of Pinchin Ltd. Mr. McBride's contact information is provided below:

Tim McBride, B.Sc., P.Geo., QP_{ESA}
Pinchin Ltd.
662 Falconbridge Road, Unit 3
Sudbury, Ontario P3A 4S4

1.4 Background

Pinchin was provided with the following historical reports for the Site, and they are referenced within this document:

- Report entitled "Roblin Waste Disposal Site and Waste Transfer Station, 2024 Annual Monitoring Report" prepared by Egis Canada Ltd. (Egis), dated April 29, 2025 (the 2024 Monitoring Report);

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- Report entitled “Roblin Waste Disposal Site and Waste Transfer Station, 2023 Annual Monitoring Report” prepared by Egis Canada Ltd. (Egis), dated April 10, 2024 (the 2023 Monitoring Report); and
- Report entitled “Landfill Closure Plan and Transfer Station Design and Operation Plan, Roblin Waste Disposal Site, Certificate of Approval A371202” prepared AECOM Canada Ltd. (AECOM), dated August 2013 (the 2013 Closure Plan).

1.5 Monitoring and Reporting Program Objectives and Requirements

The reporting requirements must be completed in accordance with the Amended ECA No. A371202 and submitted to the MECP. The principal objectives of the 2025 monitoring program are as follows:

- To evaluate groundwater at the Site in relation to the Ontario Drinking Quality Water Standards (ODWQS) and to the Guideline B-7 (RUC) and PWQO based trigger concentrations, and assess the potential for impacts to nearby water resources as a result of the former landfill;
- To evaluate surface water along the shoreline of the Salmon River in relation to the Provincial Water Quality Objectives (PWQO) and trigger concentrations;
- To assess the adequacy of the existing monitoring program with respect to evaluating the potential for impacts at nearby water resources; and
- To determine whether remedial actions are required in consideration of the findings the monitoring program.

Additionally, each report shall include, as a minimum, the following information:

- A plan of the Site outlining monitoring locations;
- Conclusions of the monitoring data, a review of the adequacy of monitoring programs, recommendations for any changes to monitoring programs that may be necessary;
- A statement as to compliance with all Conditions of the ECA; and
- A summary of any public complaints received by the owner and the responses made.

The monitoring and reporting completed by Pinchin has been generally developed based on the MECP document entitled “*Monitoring and Reporting for Waste Disposal Sites Groundwater and Surface Water Technical Guidance Document*” dated November 2010, as well as the Town 2024 Request for Proposal (RFP) Document entitled “*Consulting Engineering Services to Support the Town of Greater Napanee’s Municipal Waste Disposal Sites*”, (RFP-ES-2024-01 and addendum No. 1 and 2).

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The ECA for the Site provides detailed monitoring and reporting program objectives and requirements. A copy of the ECA is provided in Appendix II.

1.6 Site Topography and Hydrogeology

The topography of the Cataraqui Region varies from rocky highlands of the Canadian Shield in the north to areas of flat, low relief along the shores of the Bay of Quinte in the south. The Site topography is typically flat on the upper plateau (with the exception of the on-Site mound) at 155 metres above sea level (masl) with a steep embankment of 25 metres (m) along the south/southeastern boundary. Surface water at the Site primarily drains to the south/southeast towards the Salmon River and/or into the surficial fractured bedrock matrix on-Site.

The Site is located within the Quinte watershed which extends southward to the Prince Edward Peninsula. As the groundwater system is strongly influenced by the local topography and geology, the highly fractured bedrock provides opportunities for groundwater to flow southeast towards the bedrock valley under the Salmon River and immediate vicinity.

1.7 Site Geology

The Site stratigraphy generally consists of a thin layer of overburden over Paleozoic bedrock. Regionally, the Site is underlain by Trenton–Black River limestone which makes up the bedrock along with dolostone, shale, arkose and sandstone associated with the Ottawa and Simcoe Groups of the Shadow Lake Formation (OGS, 2011). The landfill is located along above and immediately west of a deeply incised/faulted bedrock valley approximately 100 m from and 25 m above the Salmon River.

The closest significant water body to the Site is the Salmon River and is situated immediately adjacent to the south of the Site at the base of a steep 25 m embankment. A previous Site Reconnaissance conducted in 2023 by Egis (formerly known as McIntosh Perry) recorded exposed bedrock fractures with widths ranging between 5 to 15 cm wide acting as an additional receiver for surface drainage on the property.

The Site has been instrumented with two groundwater monitoring well installations to complete annual water quality monitoring activities. Static groundwater elevations are recorded at each of the groundwater monitoring wells and utilized to assess the hydrogeology of the Site.

Based on a review of the available groundwater elevation data (provided in Appendix III), the groundwater flow direction across the Site is inferred to follow the topographic surface sloping to the southeast towards the Salmon River. Figure 3 presents the inferred groundwater contour elevations generated via the data collected during the spring 2025 monitoring event; while Figure 4 presents the inferred groundwater contours from the fall 2025 monitoring event.

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2.0 SITE DEVELOPMENT & CLOSURE

The Roblin WDS operated as an open landfill between early 1976 and 2012. After which, the Site was transformed to serve as a transfer station for household wastes and other recyclable material from the residents of Greater Napanee.

2.1 Summary of Previous Investigations and Remediations

Site investigations date as far back as 2009, initiated by AECOM to conduct an environmental monitoring program. Although not required in the CoA at that time, the Town initiated monitoring at the request of Ministry abatement staff.

2.2 Waste Footprint and Final Cover

The waste volume within the 1.02-hectare Site was estimated at 35,800 m^3 at the time of closure in 2012. Before capping, the existing refuse was regraded to stable slopes in accordance with the area approved for waste disposal by the Site CoA. A thorough clean-up of litter and debris was picked up from the Site and adjoining properties and placed in the waste disposal site prior to applying the final cover. Any larger waste items such as tires and scrap metals that had been previously stockpiled in the active waste disposal area were removed from the Site. Approximately 6,120 m^3 of cover material was required to cover the landfill to a state of closure comprised of clay or silty clay applied in compacted layers of 150 mm. Following cover placement, approximately 10,400 m^2 of topsoil was applied in 150 mm thick layers and seeded to revegetate the surface to help reduce erosion, runoff, infiltration and promote evapotranspiration.

3.0 SITE FACILITIES

3.1 On-Site Access Roads

The Site is accessible via 232 Roblin Road and an unpaved gravel road which leads to the Site entry gate to the transfer station. Hours of operation for the Site are from 8:00 am to 3:00 pm on Saturdays.

3.2 Fencing and Gates

There is only one vehicle access gate on-Site located at 232 Roblin Road. All vehicles can enter the main gate during operating business hours; whereas the gate remains locked and closed during non-operating hours. There is additional steel fencing near other access points on-Site; however, they are not accessible by vehicles.

3.3 Signage

A sign specifying the days and hours of operation and contact and emergency information (name and phone numbers) for the Town is posted at entrance gate for the Site. Additional signage detailing fees for

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usage is posted by the attendant's shelter.

3.4 Site Inspection and Equipment

No ministerial inspections for compliance were reported in 2025 as per communications with the Town of Greater Napanee.

3.5 Public Complaints

No complaints were received regarding the Site during 2025.

4.0 ENVIRONMENTAL MONITORING PROGRAM

The Environmental Monitoring Program was established by AECOM in 2009. The Site ceased landfill activities in November 2012 and an amendment to the ECA (Notice 1) was issued on July 25, 2014, which granted approval for the Site Closure and conversion into a waste transfer station in 2013. An amendment to the ECA (Notice 2) was issued on December 19, 2016, which granted approval of the proposed trigger mechanism and contingency plan.

Various groundwater, surface water and environmental monitoring activities have taken place at the Site since 2009 in order to delineate potential environmental impacts originating from the former waste deposits and evaluate remedial options where required.

The primary objectives of monitoring are to assess groundwater quality and evaluate surface water quality in the Salmon River and ensure that any changes in environmental conditions are detected early. The ECA for the Site outlines the monitoring and reporting requirements under Condition 10.1 of Notice 2. The monitoring should also follow approved methods and protocols for sampling, analysis and recording as specified in the MECP document entitled "Monitoring and Reporting for Waste Disposal Sites Groundwater and Surface Water Technical Guidance Document", dated November 2010.

4.1 Groundwater Monitoring

4.1.1 Groundwater Locations

The current groundwater monitoring network consists of two (2) groundwater monitoring well locations as illustrated on Figure 2 and summarized in the following table.

Well ID	Location
MW-1	Downgradient
MW-2	Upgradient

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Groundwater monitoring occurs twice annually in April and October (spring and fall). As shown on Figure 2, MW-1 was constructed downgradient between the landfill and river while MW-2 was constructed upgradient of the landfill. Pinchin notes that comprehensive well records are not available; however, MW-1 and MW-2 extend 27.4 and 9.1 metres below ground surface (mbgs) with 51 mm diameter PVC pipes installed with 6.1 and 3.9 m long screens, respectively.

4.1.2 Groundwater Parameters and Sampling Frequency

Groundwater samples are analyzed for the general chemistry and metal parameters outlined in the table below. Static water levels are to be measured concurrently with each sampling event to document hydraulic gradients and assess groundwater-surface water interaction.

A summary of the current groundwater monitoring program for the Site is provided in the table below.

Sample Locations	Frequency	Parameters
MW-1 MW-2	Twice per Year (spring and fall)	**General Chemistry:** Alkalinity, Ammonia, Biological Oxygen Demand (BOD), Chloride, Chemical Oxygen Demand (COD), Conductivity, Dissolved Organic Carbon (DOC), Hardness, Nitrate, Nitrite, pH, Phenols, Sulphate, Total Phosphorus, Total Dissolved Solids (TDS), Total Suspended Solids (TSS), TKN, Major ions (chloride, sodium, calcium, magnesium, potassium) **Metals:** Arsenic, Boron, Barium, Cadmium, Chromium, Copper, Iron, Lead, Manganese, Mercury, Zinc **VOCs:** MW-1 annually in the spring (1,4-Dichlorobenzene, Benzene, Dichloromethane, Toluene, Vinyl Chloride)

Groundwater was sampled by Pinchin during the spring and fall on the following dates in 2025:

- May 7 and 13, 2025; and
- October 14, 2025.

Typical sampling dates attempt to capture periods with an elevated groundwater table found to occur during the spring freshet and during recurring or heavy rainstorm events typically found to occur late in the fall. Winter sampling with temperatures below freezing or early spring with frost impacting shallow groundwater deposits is also not preferable as sampling locations are frozen which does not facilitate the collection of representative samples.

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4.2 Surface Water Monitoring

4.2.1 Surface Water Locations

The current surface water monitoring network consists of three (3) surface water monitoring locations all located along the Salmon River as illustrated on Figure 2 and summarized in the following table.

Surface Water Station	Location	Relative to WDS
SW-1	Downgradient to northeast	Upstream
SW-2	Downgradient to south	Mid-stream
SW-3	Downgradient to southeast	Downstream

4.2.2 Surface Water Parameters and Sampling Frequency

Samples were collected from the identified surface water locations when conditions allowed.

A summary of the current surface water monitoring program for the Site is provided in the table below.

Sample Locations	Frequency	Parameters
SW-1 SW-2 SW-3	Twice Yearly (spring and fall)	**General Chemistry:** Alkalinity, BOD, COD, Conductivity, Chlorine, DOC, Hardness, Nitrate, Nitrite, Phenols, TDS, TKN, TSS, Sulphate, pH, Major ions (chloride, sodium, calcium, magnesium, potassium) **Metals:** Arsenic, Boron, Barium, Cadmium, Chromium, Copper, Iron, Lead, Manganese, Mercury, Zinc

Surface water samples were collected from three sample locations (SW-1, SW-2 and SW-3) along the Salmon River during the following monitoring events in 2025:

- May 8, 2025; and
- October 7, 2025.

A photographic log of the three surface water locations, SW-1 through SW-3, is provided in Appendix IV.

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5.0 METHODOLOGY

5.1 Scope of Work

The objectives of the monitoring program as requested by the client were provided in the Pinchin proposal entitled "*Request for Proposal (RFP-ES-2024-01) for Waste Management Environmental Consulting Services*", dated December 5, 2024. The objectives of the current monitoring program included the following scope of work:

- Mobilization to the Site during the spring and fall of 2025 and collection of groundwater samples from the existing well network;
- Completion of surface water monitoring and sampling along the Salmon River;
- Submission of representative spring and fall groundwater samples and surface water samples where applicable to an accredited analytical laboratory for analysis of the ECA listed parameters (refer to the tables in Sections 4.1.2 and 4.2.2, respectively); and
- Preparation of a report outlining the 2025 field work completed and the analytical results, an evaluation of the results and any subsequent recommendations.

The investigation methodology was also conducted in general accordance with and reference is made to the following regulatory and guidance documents:

- MECP document entitled "Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario", dated December 1996 (MECP Sampling Guideline);
- MECP document entitled "Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act", dated March 9, 2004, amended July 1, 2011 (Analytical Methods);
- Ontario Regulation 169/03 "*Ontario Drinking Water Quality Standards*" under the Safe Drinking Water Act, dated 2002 (ODWQS);
- MECP document entitled "Technical Support Document for Ontario Drinking Water Standards, Objectives and Guidelines", dated June 2003 (ODWQS Guideline);
- MECP document entitled "*Determination of Contaminant Limits and Attenuation Zones, Procedure B-7-1*", (formerly referenced by 15-08), dated 2018 and updated in 2021;
- Ontario Regulation 903 R.R.O. 1990 "*Wells*", under the Ontario Water Resources Act as amended in 2019; and
- MECP document entitled "*Water Management Policies Guidelines Provincial Water Quality Objectives*" (PWQO), dated July 1994, revised February 1999.

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5.2 Monitoring Procedures and Methods

5.2.1 Standard Operating Procedures

The following Pinchin Standard Operating Procedures (SOPs) were followed by Pinchin and Town field personnel for each portion of this project:

- Groundwater Sampling SOP; and
- Surface Water Sampling SOP.

All Pinchin monitoring SOPs have been developed in accordance with the MECP Sampling Document and are consistent with standard engineering practices.

5.2.2 Groundwater Monitoring Activities

To perform the groundwater monitoring activities, the following tasks were conducted:

- Pinchin notified the Client prior to field activities and subsequently mobilized staff from the Kingston office to the Site;
- Static groundwater levels were collected using a Solinst™ water level tape. Measurements were collected from the top of riser pipe;
- During the monitoring events, groundwater from each monitoring well was purged prior to the collection of the sample using a moderate-flow sample methodology via high-density polyethylene (HDPE) or low-density polyethylene (LDPE) 3/8" tubing and a Waterra™ inertial foot valve system. The inertial pump system was chosen as an approved method to minimize sediment/particulate within each sample and to minimize sample agitation and well trauma in accordance with the MECP Sampling Document. Pinchin purged a minimum of three well volumes to a maximum of six well volumes using the inertial pump system until the well volume column was representative of the surrounding formation. During purging activities, additional groundwater monitoring parameters were collected from each monitoring well using a YSI-556 water quality meter for measurement of field parameters. Sample residual was disposed of onto the ground surface, on-Site and upgradient within the landfill confines;
- Groundwater samples were collected using the inertial pump system in accordance with the MECP Sampling Document. Dissolved metals were field-filtered using a dedicated in-line 0.45-micron disposable filter. Upon completion of field sampling and monitoring activities, all samples collected were submitted to the project laboratory, SGS Canada Inc. (SGS) in Lakefield, Ontario. All parameters were analyzed by the project laboratory using MECP approved procedures and are consistent with the analytical methods prescribed in the Analytical Methods document; and

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- The groundwater samples collected were analyzed at the project laboratory for the parameters listed in Column 1 and 2 of Schedule 5 of the MECP Landfill Standards for the spring and fall events, respectively. Groundwater sample results were compared to the applicable ODWQS as applied in accordance with the ODWQS Guideline document. Groundwater sample results were also compared to the reasonable usage parameters and were assessed using Guideline B-7 and Site-specific trigger criteria to establish and determine levels of contaminant discharges to the groundwater formation which would be considered acceptable by the MECP from naturally attenuating landfill sites with respect to human consumption and potable considerations.

5.2.3 Surface Water Monitoring Activities

- All field activities at each monitoring location were initiated at downstream locations working upstream to avoid sediment disturbance and influencing sample integrity;
- Care was taken during collection of surface water samples to ensure that a representative sample was collected, and that underlying sediments were not disturbed. For the surface water samples only, no filtration was done (in accordance with MECP surface water sampling protocols);
- Surface water samples were collected during each sampling event using a direct grab sampling methodology in accordance with the MECP Sampling Document. Upon completion of field sampling and monitoring activities, all samples collected were submitted to SGS. All parameters were analyzed by the project laboratories using MECP approved procedures and are consistent with the analytical methods prescribed in the Analytical Methods document; and
- Surface water samples were analyzed during the monitoring event at the pre-determined monitoring locations for parameters listed in the previous monitoring reports. Sample results were compared to the applicable PWQO and Site-specific trigger criteria.

5.2.4 Groundwater and Surface Water Field Measurements

Prior to sampling groundwater in the wells, Pinchin monitored groundwater depth using a Solinst™ 100-metre electronic water level meter. The water level tape is calibrated in 1.0 mm increments. Reproducibility of the depth measurements is generally within 2.0 millimeters (mm) or less.

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Subsequent to groundwater depth measurement and during purging activities, additional groundwater monitoring parameters were collected from each monitoring well using a YSI-556 water quality meter for measurement of field parameters. The following field parameters were measured during the 2025 monitoring program:

- *Dissolved Oxygen* (DO) refers to the relative quantity of oxygen molecules which are dissolved or carried within a quantity of water. Oxygen enters water as rooted aquatic plants and algae undergo photosynthesis and as oxygen is transferred across an air and water interface. Oxygen's solubility in water is indirectly correlated with water's temperature, salinity and pressure. DO concentrations have a significant effect on groundwater quality by regulating the valence state of trace of metals and constraining the bacterial metabolism of dissolved organic species;
- *Conductivity* is the measurement of water's capacity to pass an electrical current. It is considered to be a reasonable indicator of ionic activity and dissolved solids concentration levels. It is affected by the presence of inorganic dissolved solids which carry a negative charge such as chloride, nitrate, sulphate and phosphate anions, or a positive charge such as sodium, magnesium, calcium, iron and aluminum cations. Organic compounds such as oil and phenol do not conduct an electrical current very well, and would therefore, have low conductivity in water. Conductivity is also directly correlated to the water temperature. Specific conductivity is a measurement of conductivity values which have been compensated to 25ºC;
- *pH* is a measure of water's acidic/basic properties on a logarithmic scale from 1 (strongly acidic) to 14 (strongly alkaline or basic). It determines the solubility and biological availability of chemical constituents such as nutrients and heavy metals. For example, in addition to affecting how much and what form of phosphorus is most abundant in the water, pH also determines whether aquatic life and use it. The degree to which heavy metals are soluble determines their toxicity. Metals tend to be more toxic at lower pH values because they are more soluble. Excessively high and low pHs can have serious environmental and health effects. A high pH may cause the release of iron, copper, or lead into potable water, corrosion on water pipes and water using appliances and reduces the effectiveness of water disinfection with chlorine. Low pH values corrode substances such as metals and plastics. Fluctuations in groundwater pH values may be indicative of groundwater contamination;

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- *Temperature* has a dramatic influence on water quality. The rate of chemical reactions is generally correlated to temperature which in turn affects the biological availability of nutrients within the water. As previously mentioned, oxygen's solubility in water is indirectly correlated with its temperature. Declining concentrations of oxygen within warming water is magnified by aquatic plants increasing metabolism as water temperature increases. Low concentrations of DO weaken aquatic plants resistance to disease, parasites and other pollutants; and
- *Oxidation-reduction potential* (ORP) characterizes the oxidation-reduction state of the water on a scale from approximately -300mV (strongly reducing) up to +500mV (strongly oxidizing). The primary application of ORP is recording significant changes in the redox potential which is observed when purging a stagnant water column in piezometer and replacing it with "fresh" groundwater.

5.2.5 Record Keeping and Field Notes

Field notes were collected during the spring and fall water quality monitoring events and recorded relevant observations, including, but not limited to:

- Dates and time of work being completed;
- Instrumentation and instrument condition;
- Calibration methods and results;
- Field parameter measurements;
- Field personnel conducting the investigations;
- Field methods used;
- Sampling location identifications;
- Sampling equipment and condition;
- Sample identification (i.e. type, media, number of containers, etc.);
- Sample preparation methods (i.e. preservatives, filtration, etc.);
- Field QA/QC measurements;
- Field and sample identifiers;
- Anomalous conditions (i.e. damage to monitoring wells);
- Photographs of monitoring wells and monitoring stations;
- Weather conditions at the time of the monitoring events; and
- Field conditions.

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5.3 Quality Assurance for Sampling and Analysis

Pinchin uses recognized industry standards, including the Canadian Council of Ministers of the Environment (CCME) *Subsurface Assessment Handbook for Contaminated Sites* and MECP's manual *Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario* for conducting environmental assessments. For quality assurance, all work is supervised and internally reviewed by senior staff members. As such, various QA/QC protocols were followed during the water quality sampling events to ensure that representative samples were obtained, and that representative analytical data were reported by the laboratory.

Field QA/QC protocols that were employed by Pinchin included the following:

- Clean, labelled and pre-preserved (when applicable) sample containers were provided by the laboratory;
- Water quality samples were placed in laboratory-supplied sample jars;
- The monitoring wells were purged to remove stagnant water prior to sample collection, so that representative groundwater samples could be obtained. Dedicated purging and sampling equipment was used for monitoring well development, purging and sampling to minimize the potential for cross-contamination;
- All water quality samples were placed in coolers on ice immediately upon collection with appropriate sample temperatures maintained prior submission to the laboratory;
- Dedicated and disposable Nitrile™ gloves were used for all sample handling;
- All non-dedicated monitoring and sampling equipment (i.e. water level meter and YSI-556) was cleaned before initial use and between uses to minimize the potential for cross-contamination by washing with an Alconox™/potable water mixture followed by a deionized water rinse;
- Field duplicate groundwater and surface water samples were collected during the spring and fall sampling event (1 in 10); and
- Sample collection and handling procedures were performed in general accordance with the MECP Sampling Guideline.

The SGS laboratory has an established QA/QC program and is a member of the Canadian Association for Laboratory Accreditation (CALA) and is accredited by the Standards Council of Canada (SCC) for specified environmental analyses.

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SGS's internal laboratory QA/QC consisted of the analysis of laboratory duplicate, method blank, matrix spike and spiked blank samples, an evaluation of relative percent difference calculations for laboratory duplicate samples and an evaluation of surrogate recoveries for the method blank, matrix spike and spiked blank samples.

5.4 Data Quality Evaluation

In order to provide confidence in the data obtained, a comprehensive QA/QC component was included in the monitoring program. The QA/QC procedures developed for this monitoring program are prepared in accordance with MECP Sampling Document and in most cases, exceed the minimum requirements.

Relative per cent difference (RPD) values (the absolute difference between two values divided by the average value and expressed as a per cent) were calculated between the parent sample and the field duplicate as part of the QA/QC program. RPD results of sample and duplicate analyses that are less than 50 percent indicate an acceptable level of analytical uncertainty. RPD values calculated for measured analyte concentrations for sample and duplicate pairs that exceed 50 per cent generally warrant discussion because they may indicate the presence of elevated analytical uncertainty and a potential for making interpretive errors based on the analysis results. Use of calculated RPD values to assess analytical uncertainty when using measured analyte concentrations for sample and sample duplicate pairs is not appropriate when either measured analyte concentration is within a multiple of 5 of the method detection limit (a value designated as the practical quantification limit (PQL)) where analytical uncertainty is typically elevated.

All field instrumentation calibration checks were completed by Pinchin field staff members prior to use on Site. All field operations conducted by Pinchin field staff members were completed using standard equipment decontamination and sampling procedures, and no deviations from the sampling plan were noted.

All field instrumentation calibration checks were completed by Pinchin staff prior to use at the Site. Field activities were conducted in accordance with standard equipment decontamination and sampling procedures.

6.0 ASSESSMENT, INTERPRETATION AND DISCUSSION

6.1 Groundwater Flow Interpretation

Typically, a minimum of three monitoring locations are required to accurately interpolate groundwater flow direction; however, the Site only has two groundwater monitoring locations. It is Pinchin's opinion that the Site's topography strongly influences groundwater flow in a southeastern direction. As such, the inferred groundwater contours flow pattern is to the southeast towards the Salmon River which extends along the

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southern boundary of the Site.

Static groundwater elevations are presented in Appendix III. The inferred groundwater elevation contours and groundwater flow directions in the overburden aquifer during the spring and fall 2025 monitoring events are presented on Figures 3 and 4.

6.2 Groundwater Quality Monitoring

6.2.1 Ontario Drinking Water Quality Standards (ODWQS)

Through the establishment of the ODWQS, the province of Ontario has determined legally enforceable standards on contaminants in drinking water. The standards are designed to protect public health by restricting the quality of specific contaminants in drinking water. Three categories of contaminants are regulated under the O. Reg. 169/03 Drinking Water Standards:

- Microbiological – Originating from human and animals waste, coliforms and bacteria are common in the environment. Most are harmless; however, their presence may be indicative of other harmful bacteria in the water; and,
- Chemical – ODWQS regulates maximum quantities of organic and inorganic chemicals allowed in drinking water. Industrial discharges or agricultural runoff are not necessarily removed by drinking water treatment. Consuming water exhibiting a greater concentration of these chemicals than the ODWQS may cause serious health problems.

The ODWQS Guideline Document is the MECP technical guidance document which provides guidance on the applicability of the ODWQS and also provides applicable interim guidelines where legal standards are absent. The ODWQS was used in assessing the groundwater results obtained during the 2025 monitoring program in conjunction with the Site-specific trigger program which also incorporates the Guideline B-7 and PWQO (as surface water was previously determined to be the most likely receptor) as per the amended ECA (Notice 2) Condition 10.1 and supporting AECOM letter (2015).

6.3 Groundwater Trigger Assessment

Guideline B-7, the “reasonable use concept” (RUC) approach, is the MECP’s groundwater management strategy for mitigating the effect of contamination on properties adjacent to its source. It establishes procedures for determining what constitutes the reasonable use of groundwater on a property adjacent to sources of contaminants and establishes limits on the discharge of contaminants from landfills which have a potential to migrate hydraulically downgradient and off-site and impair the current and future groundwater use at downgradient properties.

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The application of "reasonable use" is outlined in Procedure B-7-1 "*Determination of Contaminant Limits and Attenuation Zones*". The procedure determines the maximum concentration (C_m) of a particular contaminant that would be acceptable in the groundwater beneath an adjacent property and is calculated in accordance with the relationship:

$$C_m = C_b + x\ (C_r - C_b)$$

C_b – This is the background concentration of the particular groundwater contaminant in consideration before it has been affected by human activities. From this, it is possible to calculate the extent of human activities impact on contaminant levels.

Cr – In accordance with the Ontario Water Management Guideline, this is the maximum concentration of a particular contaminant that should be present in the groundwater. This value is dependent on property's use of the groundwater as outlined in B-7. It also allows for the total amount of contamination. Pinchin conservatively assumes that the reasonable use of the groundwater on-Site is potentially for potable drinking purposes for which the ODWQS have been established.

x – As determined by the MECP, this constant determines the extent which the contamination has on the groundwater's use. For drinking water, x is 0.5 for non-health related parameters or 0.25 for health-related parameters. For other reasonable uses, it is 0.5.

Contamination concentrations which exceed Cm may have an appreciable effect on the use of an adjacent property and as such, the Site should be managed in a manner to minimize environmental damage, or the operation should be modified. It is acceptable to modify the operation of the disposal site to meet the specified limits. However, if these limits are exceeded, all waste disposals except for that done in conjunction with a reasonable plan for closure or with remedial activities should be terminated until the specified limits have been met, or until monitoring data indicate that these limits will be met. Determination of the replacement of contaminated water supplies and the abatement of the contaminant plume must be made on a case-by-case basis in accordance with "*Resolution of Groundwater Quality Interference Problems*", Guideline B-9.

Monitoring well MW-2 was used as the Site-specific background well to calculate the Cm.

In addition, the recommended groundwater trigger parameters should include all those listed in Table B-2 of Schedule "B" of the ECA for which surface water standards exist. An exceedance for any listed chemical parameter would be defined as a numerical elevation of any analytical value above the PWQO (established from MW-2) at MW-1.

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Overall, the trigger assessment ensures that routine and historically understood conditions are differentiated from abnormal or escalating issues, that responses are proportional to risk and that the Site continues to be managed in stable and compliant conditions.

6.4 Contingency Plan

Where trigger monitoring results indicate confirmed and persistent impacts, the contingency response for the Site is focused on confirming the extent of impact, protecting the Salmon River and implementing appropriate control or treatment measures.

The contingency plan as outlined in the amended ECA (Notice 2) Condition 10.1 and supporting AECOM letter (2015) involves a three-tiered approach:

- Tier 1: Confirmatory Phase/Routine Monitoring
  - Scheduled groundwater and surface water monitoring;
  - Comparison of results against applicable regulatory criteria, historical ranges, established baseline conditions and trigger criteria; and
  - Identification of exceedances, trend changes or anomalous field observations
- Tier 2: Assessment/Confirmation Phase
  - Initiated when Tier I identifies a potential concern (i.e., trigger criteria exceedance);
  - Focused re-sampling during the next regularly scheduled seasonal event and/or increased monitoring frequency at affected locations;
  - Evaluation of seasonal effects (e.g., river stage, groundwater elevation, redox conditions) to distinguish natural variability from Site-related change; and
  - Determination of whether observed conditions are persistent, worsening or transient.
- Tier 3: Remediation/Mitigation Phase/Contingency and Compliance Response
  - Triggered when Tier II confirms sustained exceedances or conditions that may result in an adverse effect;
  - Implementation of appropriate contingency measures which may include expanded monitoring, targeted investigations or evaluation of remedial options;
  - Notification of the MECP and other agencies, where required; and
  - Documentation of actions taken and incorporation of findings into ongoing Site management.

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Contingency actions may include the installation of additional monitoring wells to further delineate groundwater conditions, expanded surface water investigations along the river margin and evaluation of engineered mitigation measures. Where localized source areas persist, additional targeted source removal may also be undertaken to physically remove buried waste or impacted soils contributing to observed exceedances. Potential engineered contingency measures include passive containment or treatment systems (such as physical cutoff or reactive barriers) and where warranted, active groundwater or leachate collection and treatment systems.

The selection and implementation of contingency measures are based on the nature and persistence of observed impacts and are undertaken in consultation with the MECP to ensure that responses are proportionate and protective of downgradient receptors. These measures would be considered only if monitoring identifies significant or persistent off-site impacts.

All contingency options would be selected, refined and implemented in consultation with MECP Technical Support staff following confirmation monitoring under Tier II and Tier III of the Site's Trigger Mechanism framework. The Town would assess feasibility, costs, regulatory requirements and environmental benefit to ensure that any implemented contingency measures are appropriate, effective and proportionate to the observed impacts.

6.5 Groundwater Results

Groundwater samples were collected from both groundwater monitoring wells during the spring and fall 2025 monitoring events.

All sampled wells were inspected and found to be in good condition in compliance with O. Reg. 903.

Pinchin reviewed the historical water quality data and reporting. The following discussion of parameters documents the groundwater quality in comparison to the Site-specific trigger criteria and the ODWQS. The analytical data for each well in comparison to the applicable regulatory criteria is provided in Tables 2 to 4 in Appendix V The raw analytical data presented via the Laboratory Certificate of Analyses (CoA) are provided in Appendix IX.

6.5.1 Background Water Quality Review (Upgradient – MW-2)

Groundwater monitoring well MW-2 is considered background due to its upgradient location relative to the Roblin WDS and the Salmon River and provides an important baseline for comparison with on-Site and downgradient conditions. Water quality data from this well has generally demonstrated relatively stable groundwater chemistry with limited and infrequent exceedances of the ODWQS. Detected parameters are typically consistent with natural background conditions for shallow overburden groundwater in the Napanee area, including elevated iron and hardness attributable to reducing geochemical conditions. The

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overall stability and compliance of MW-2 support the conclusion that Site-related impacts are not migrating upgradient, and that observed exceedances at other wells are attributable to localized landfill influences rather than regional groundwater quality.

Monitoring well location MW-2 met the ODWQS for all parameters analyzed with the exception of high hardness and iron across the 2025 monitoring events similar to the historical analytical results at this well.

6.5.2 Downgradient Groundwater Quality Review (MW-1)

Groundwater monitoring well MW-1 is located downgradient of the primary waste footprint and closer to the Salmon River, and therefore, represents the most hydraulically sensitive portion of the groundwater monitoring network. This well has historically exhibited the highest frequency of exceedances for hardness, barium, cadmium and mercury, as well as elevated iron concentrations. The observed water quality is strongly influenced by seasonal groundwater fluctuations, redox conditions and downgradient proximity to historic waste materials. While elevated concentrations of the aforementioned parameters have occurred periodically, the data do not indicate a worsening trend over time. Instead, several parameters have shown decreasing, stable, or otherwise random concentrations following remediation and natural attenuation processes. The persistence of localized impacts downgradient from the waste footprints is consistent with the conceptual site model and does not indicate uncontrolled plume expansion or off-site groundwater migration.

Furthermore, Pinchin notes that groundwater volumes for MW-1 have historically been low resulting in many sampling events not having sufficient water volumes to collect significant samples, including limited samples collected during the two 2025 sampling events.

In 2025, monitoring well location MW-1 met the ODWQS for all parameters analyzed with the exception of high hardness and TDS during the spring sampling event. In comparison to the available historic database, the quantified spring 2025 TDS and boron concentrations are interpreted to be potentially anomalous and would need to be confirmed through further monitoring efforts.

6.5.3 Groundwater Trend Analysis

A series of time versus concentration graphs were developed to evaluate the concentrations of a select number of landfill indicator parameters (including chloride, iron and TDS) at each monitoring well for the Site. Current and historical groundwater quality data was utilized to identify any apparent trends or inconsistencies in the water quality within the monitoring well network. It is important to note that groundwater monitoring has not been consistently completed at the Site since the beginning of the monitoring record in 2009 due to insufficient water levels, and there are several years with significant analytical data gaps, including in the fall of 2025 at MW-1. Low water levels in MW-1 resulted in insufficient water for sample collections during the fall 2025 sampling event. The time versus

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concentration graphs are provided in Appendix VI, and Raw data is presented in the Lab CoAs provided in Appendix IX.

Chloride trends are comparatively stable across both monitoring wells demonstrating an overall decline since 2009 from concentrations near 70 mg/L decreasing to approximately 20-30 mg/L by 2020 and remaining generally stable since. Aside from a significant drop in chloride concentrations in MW-1 between 2018 and 2019 from 42 mg/L to 14 mg/L (then back up to 42 mg/L the following year), concentrations typically remained within a narrow range over time with no consistent upward trend. Minor fluctuations correspond to seasonal variation, and the absence of a sustained increase indicates no ongoing chloride source or plume migration.

Elevated iron is interpreted to reflect naturally reducing conditions within the shallow overburden and landfill refuse rather than a discrete contaminant source. Trend plots generally do not indicate any increasing pattern with concentrations either stabilizing or gradually declining following remediation activities. Localized spikes are episodic and consistent with changes in redox conditions and groundwater levels. Iron concentrations at the Site appear generally stable with the exception of two localized spikes in MW-1 in fall 2018 and fall 2022; however, in both instances, the iron concentrations immediately returned back to baseline conditions during the following sampling event.

Total dissolved solids (TDS) concentrations indicate the greatest variability over time; particularly in MW-1 which demonstrated a significant drop in concentration from 782 mg/L in spring 2015 down to 29 mg/L in spring 2017 and remaining low until the most recent spring 2025 sampling event in which the TDS increased to 917 mg/L. As mentioned in Section 6.5.2, low water volumes in MW-1 resulted in many sampling events not having sufficient water volumes to collect significant samples which may influence the variability in concentrations over time (i.e. data gaps in trend graphs may appear as sudden spikes/drops in concentrations where in actuality the concentrations may have been gradually increasing/decreasing over time). TDS concentrations in MW-2 are generally stable or slightly declining with short-term variability attributed to changes in groundwater flow paths, recharge conditions and river influences.

6.5.4 Trigger Mechanism Assessment

Table 4 in Appendix V presents the groundwater trigger concentrations at MW-1 for the 2025 monitoring period.

The trigger parameter concentrations complied with their respective trigger concentrations during the 2025 monitoring period with the exception of:

- **Sulphate** (RUC) during the spring and fall event;
- **TDS** (RUC) during the spring event; and

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- **Boron** (RUC and PWQO) during the spring event.

Based on the aforementioned exceedances, only Sulphate would represent three consecutive exceedances of the Site-specific RUC value, but this parameter has not been established as a protective surface water trigger and as a result, does not necessitate the need to initiate the Tier II monitoring program.

6.6 Surface Water Monitoring

6.6.1 Provincial Water Quality Standards

The PWQO are numerical and narrative criteria which serve as chemical and physical indicators representing satisfactory levels for surface water and groundwater where it discharges to the surface. The PWQO are levels which are protective of the water quality for all forms of aquatic life during their indefinite exposures to the water. The PWQO levels include protection for anthropogenic recreational water uses where there is a high potential of exposure and are based on public health and aesthetic considerations.

In general, the PWQO stated that the surface water quality of a water body shall be “free from contaminating levels of substances and materials attributable to human activities which in themselves, or in combination with other factors can: settle to form objectionable deposits; float as debris or scum or oil or other matter to form nuisances; product objectionable colour, odour, taste, or turbidity; injure, are toxic to, or produce adverse physiological or behavioural responses in humans, animals, or plants; or enhance the production of undesirable aquatic life or result in the dominance of nuisance species”.

6.6.2 Surface Water Results

Surface water monitoring was conducted during the spring and fall of 2025 at surface water locations SW1, SW2 and SW3 along the Salmon River which correspond to their respective locations upstream, midstream and downstream of the Roblin WDS. The analytical data for each surface water sample taken in 2025 in comparison to the PWQO and ODWQS is provided in Tables 5 to 8 of Appendix VII. The Laboratory CoAs are provided in Appendix IX.

The results from the 2025 sampling program demonstrated exceedances of the ODWQS for hardness and DOC for all three surface water locations in addition to exceedances of manganese at SW1 (fall 2025 only) and SW3 (spring and fall 2025). These exceedances are consistent with historical sampling at the Site as hardness and DOC have consistently exceeded the ODWQS at all three locations, and manganese exceedances have been recorded intermittently throughout the sampling history of the Site.

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6.6.3 *Trigger Mechanism Assessment*

Despite low exceedances at the surface water locations on-Site, all three stations frequently exceeded trigger criteria during the 2025 sampling program. The trigger criteria are comprised of all chemical parameters listed in Table B-4 of Schedule B of the ECA compared to historical background concentrations at SW1. Table 8 in Appendix VII presents the surface water trigger concentrations for the 2025 monitoring period.

The trigger parameter concentrations complied with their respective trigger concentrations during the 2025 monitoring period with the exception of:

- **Conductivity** (Background) during the spring – SW1 and fall events – SW1, SW2, SW3;
- **Hardness** (Background and ODWQS) during the fall event – SW1, SW2, SW3;
- Alkalinity, pH, Chloride, Sodium, Calcium, Magnesium, Potassium, Manganese, Boron, Barium, (Background) during the fall event – SW1, SW2, SW3;
- **Sulphate** (Background) during the fall event – SW1;
- **DOC** (OWDQS) during the fall events – SW1, SW2, SW3, and spring event – SW2; and
- **Arsenic** (Background) during the fall event – SW1.

6.7 QA/QC Results

6.7.1 *Groundwater QA/QC Results*

The groundwater duplicate results from the 2025 monitoring events are provided in Tables 9 and 10 of Appendix IX. When compared to concentrations reported in the original samples, duplicate water quality data reported that all parameters, except for TSS during the fall event (RPD 66.67%), were within an acceptable range with respect to relative percent difference (i.e., the industry standard of less than 50%).

6.7.2 *Surface Water QA/QC Results*

The surface water results from the 2025 monitoring event are provided in Table 11 and 12 of Appendix VIII. When compared to concentrations reported in the original samples, duplicate water quality data reported that all parameters were within an acceptable range with respect to relative percent difference (i.e., the industry standard of less than 50%). Any inconsistency between the original and duplicate samples are attributed to sample inhomogeneity and possible sediment entrainment.

7.0 ADEQUACY OF THE MONITORING PROGRAM

Pinchin concludes that the current groundwater and surface water monitoring network is currently considered adequate for evaluating the Roblin WDS with the respect to the characterization of Site conditions, the evaluation of Site performance and the assessment of Site compliance.

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All ECA Conditions with respect to inspection and reporting requirements were met during the reporting period. Site inspections were completed by Pinchin personnel during each of the monitoring events. No recommendations are provided for remedial actions with regards to the overall Site conditions.

8.0 CONCLUSIONS

Based on the work completed, the following is a summary of the findings of the 2025 water quality monitoring program:

1. Groundwater flow is interpreted to be directed southeast towards the Salmon River;
2. Landfill derived impact was greatest within downgradient well MW-1 with elevated hardness and TDS concentrations observed during the spring 2025 sampling event. Low water levels in MW-1 resulted in insufficient water for sample collections during the fall 2025 sampling event in addition to frequent data gaps throughout the history of monitoring at this monitoring well.
3. The quantified spring 2025 groundwater TDS and boron concentrations at MW-1 are interpreted to be potentially anomalous and would need to be confirmed through further monitoring efforts.
4. Surface water sample results identified consistent exceedances of the ODWQS for hardness and DOC and intermittent exceedances of manganese. The 2025 surface water analytical results are consistent with historical sampling at the Site for all three locations.

9.0 RECOMMENDATIONS

Based on a review of the existing dataset and regulatory requirements to date, Pinchin recommends the following:

1. Continue with routine monitoring of groundwater and surface water annually; and
2. Laboratory analysis should continue to be compared to the ODWQS and PWQO for both groundwater and surface water samples, as well as the trigger criteria established within the ECA (Notice 2) Condition 10.1.

10.0 MONITORING AND SCREENING CHECKLIST

In accordance with the MECP Landfill Standards, the Monitoring and Screening Checklist for the Site completed by the Pinchin CEP is completed and provided in Appendix X.

11.0 REFERENCES

- Canadian Council of Ministers of the Environment. *Canadian Environmental Quality Guidelines*. https://ccme.ca/en/summary-table

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- Egis Canada Ltd. April 29, 2024. Roblin Waste Disposal and Waste Transfer Station, 2025 Annual Monitoring Report, Napanee, Ontario.
- AECOM Canada Ltd. August 2013. Landfill Closure Plan and Transfer Station, Design and Operation Plan, Roblin Waste Disposal Site, Certificate of Approval A371202. Town of Greater Napanee.
- Ministry of the Environment, Conservation and Parks. July 1994, revised February 1999 *Water management: policies, guidelines, provincial water quality objectives*. https://www.ontario.ca/page/water-management-policies-guidelines-provincial-water-quality-objectives
- Ministry of the Environment, Conservation and Parks. 2002. Ontario Regulation 169/03 *Ontario Drinking Water Quality Standards* under the *Safe Drinking Water Act* (ODWQS);
- Ministry of the Environment, Conservation and Parks. June 2003. Technical Support Document for Ontario Drinking Water Standards, Objectives and Guidelines (ODWQS Guideline);
- Ministry of the Environment, Conservation and Parks. April 15, 2011. *Soil, ground water and sediment standards for use under Part XV.1 of the Environmental Protection Act.* https://www.ontario.ca/page/soil-ground-water-and-sediment-standards-use-under-part-xv1-environmental-protection-act

12.0 TERMS AND LIMITATIONS

This work was performed subject to the Terms and Limitations presented or referenced in the proposal for this project.

Information provided by Pinchin is intended for Client use only. Pinchin will not provide results or information to any party unless disclosure by Pinchin is required by law. Any use by a third party of reports or documents authored by Pinchin or any reliance by a third party on or decisions made by a third party based on the findings described in said documents is the sole responsibility of such third parties. Pinchin accepts no responsibility for damages suffered by any third party as a result of decisions made or actions conducted. No other warranties are implied or expressed.

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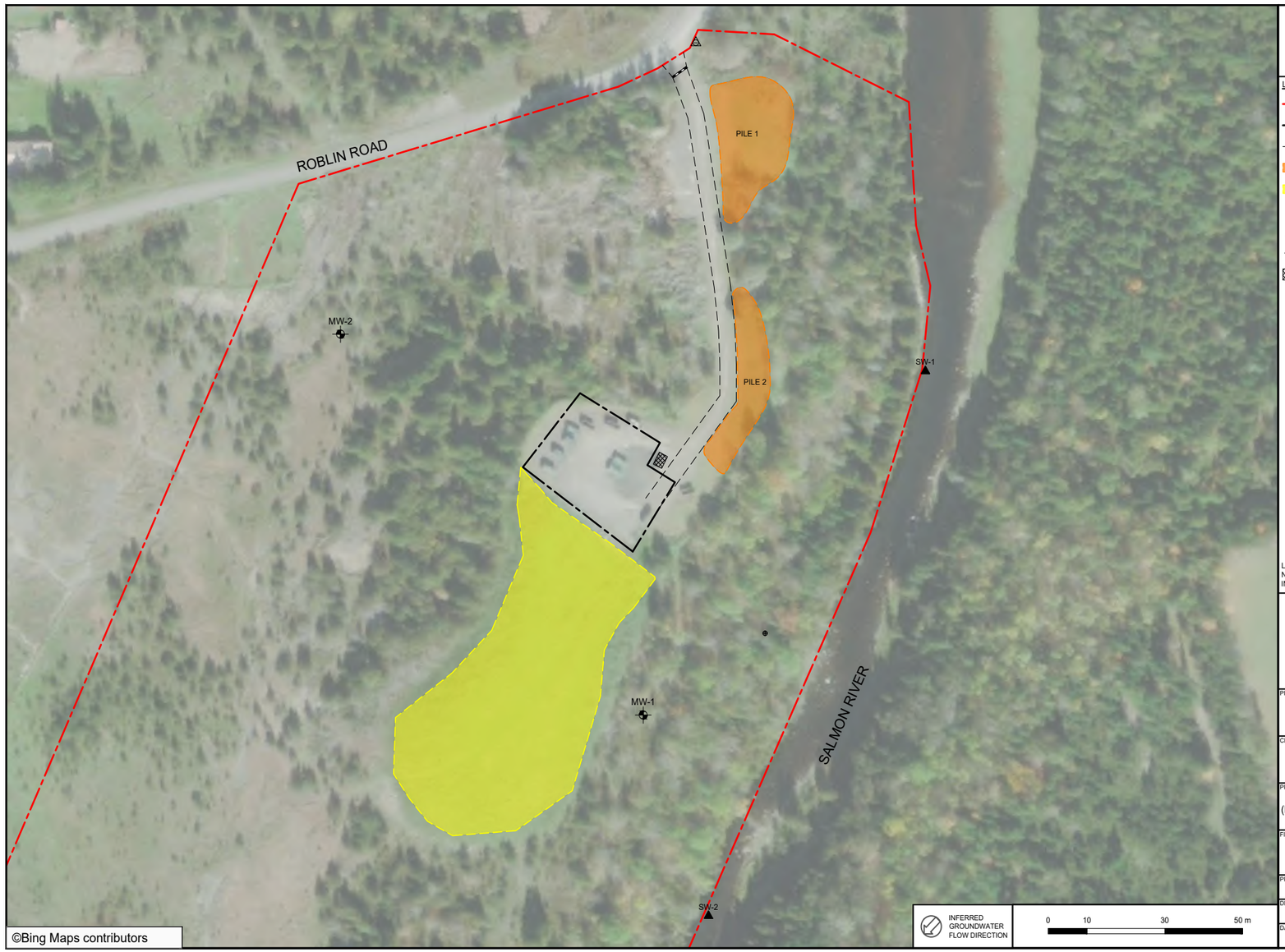
APPENDIX I

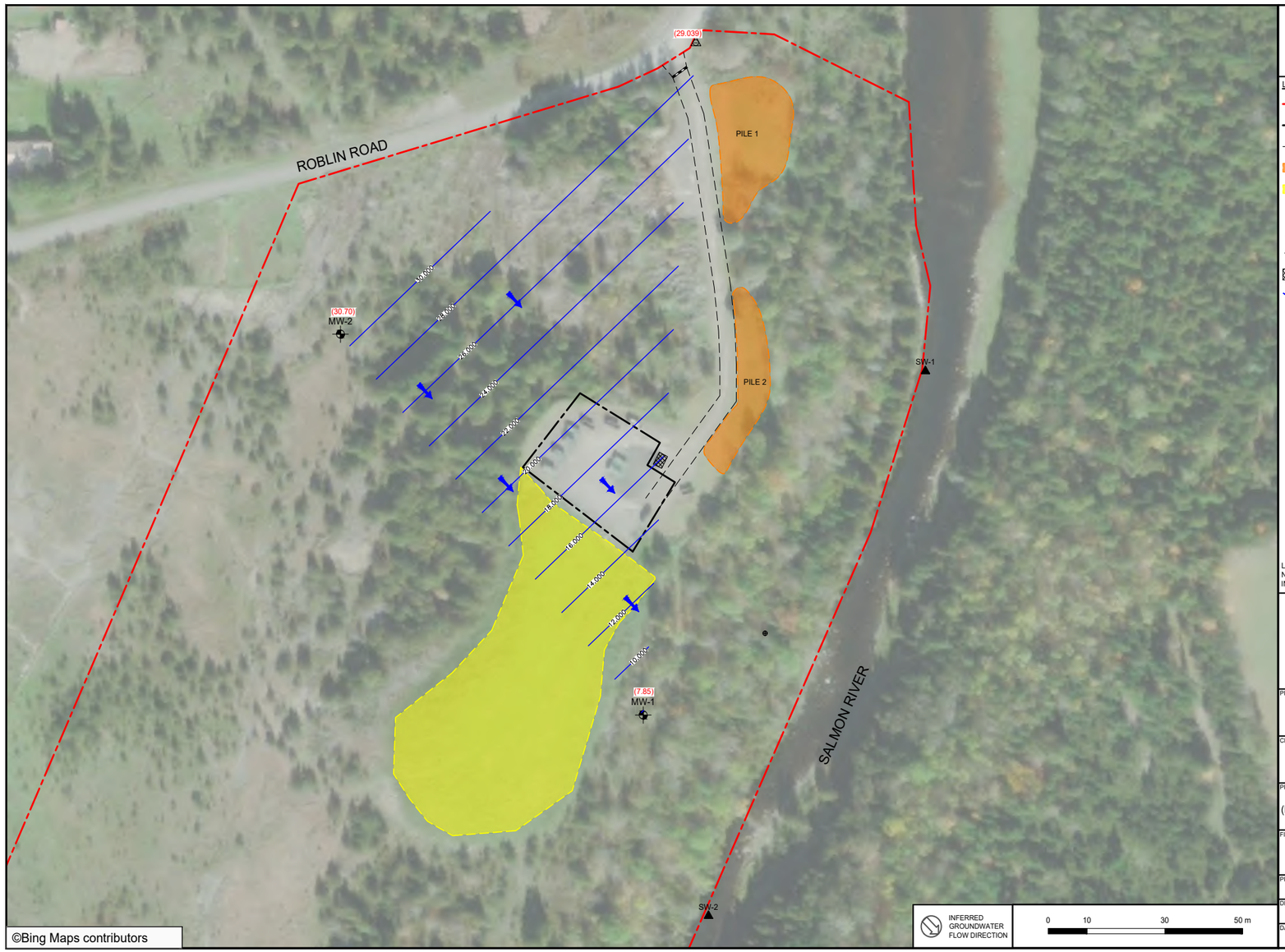
Figures

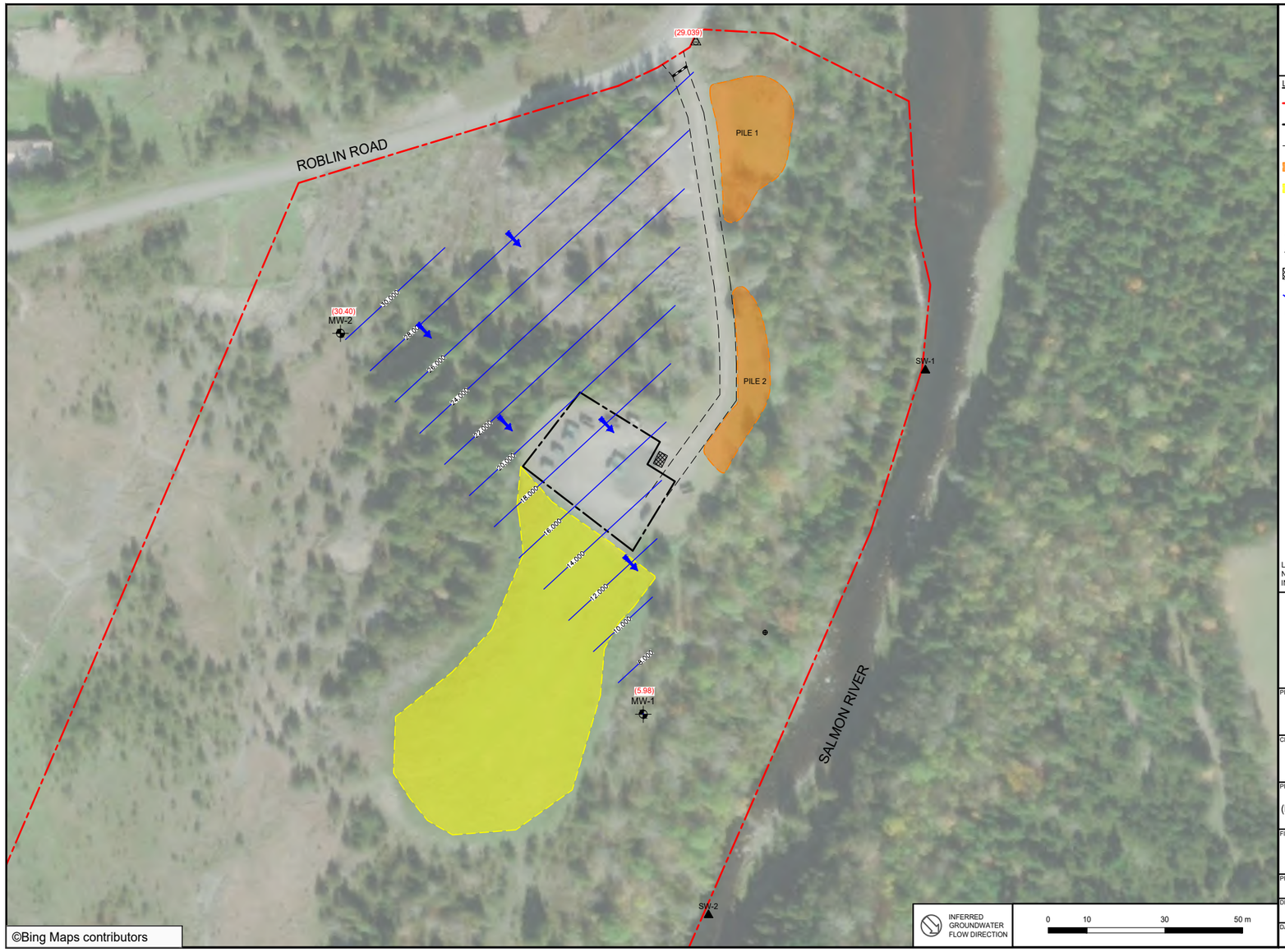


PINCHIN

PROJECT NAME: 2025 WATER QUALITY MONITORING REPORT					
CLIENT NAME: TOWN OF NAPANEE					
PROJECT LOCATION: ROBLIN WASTE DISPOSAL SITE (LOT 19, CONCESSION 8), DORMER TOWN OF RICHMOND, ONTARIO					
FIGURE NAME: KEY MAP					FIGURE NUMBER: 1
PROJECT NUMBER: 350221.002	SCALE: 1:10,000	DRAWN BY: KL	REVIEWED BY: SY	DATE: APRIL 2026	


ROBLIN ROAD
PILE 1
PILE 2
MW-2
MW-1
SW-1
SW-2
SALMON RIVER
©Bing Maps contributors
INFERRED GROUNDWATER FLOW DIRECTION
0 10 30 50 m
N
LEGEND
SITE BOUNDARY (APPROXIMATE)
BIN STORAGE FOR ACTIVE WASTE TRANSFER OPERATIONS
ACCESS ROAD
EIXSTING WASTE FOOTPRINT HISTORIC
EXISTING WASTE FOOTPRINT INACTIVE
SOIL VAPOUR PIN
BENCHMARK
MONITORING WELL
STORAGE BUILDING
LEGEND IS COLOUR DEPENDENT. NON-COLOUR COPIES MAY ALTER INTERPRETATION.
PINCHIN
PROJECT NAME: 2025 WATER QUALITY MONITORING REPORT
CLIENT NAME: TOWN OF NAPANEE
PROJECT LOCATION: ROBLIN WASTE DISPOSAL SITE (LOT 19, CONCESSION 8), FORMER TOWN OF RICHMOND, ONTARIO
FIGURE NAME: SITE PLAN
PROJECT NUMBER: 350221.002
SCALE: AS SHOWN
DRAWN BY: KL
REVIEWED BY: SY
DATE: APRIL 2026
FIGURE NUMBER: 2


(29.039)
ROBLIN ROAD
PILE 1
PILE 2
(30.70)
MW-2
SW-1
SW-2
(7.85)
MW-1
SALMON RIVER
20.000
18.000
16.000
14.000
12.000
10.000
©Bing Maps contributors
INFERRED GROUNDWATER FLOW DIRECTION
0 10 30 50 m
N
LEGEND
SITE BOUNDARY
BIN STORAGE FOR ACTIVE WASTE TRANSFER OPERATIONS
ACCESS ROAD
EIXSTING WASTE FOOTPRINT HISTORIC
EXISTING WASTE FOOTPRINT INACTIVE
SOIL VAPOUR PIN
BENCHMARK
MONITORING WELL
STORAGE BUILDING
GROUNDWATER CONTOUR LINES
GROUNDWATER FLOW DIRECTION
(xxx.xx) GROUNDWATER ELEVATION
LEGEND IS COLOUR DEPENDENT. NON-COLOUR COPIES MAY ALTER INTERPRETATION.
PINCHIN
PROJECT NAME: 2025 WATER QUALITY MONITORING REPORT
CLIENT NAME: TOWN OF NAPANEE
PROJECT LOCATION: ROBLIN WASTE DISPOSAL SITE (LOT 19, CONCESSION 8), FORMER TOWN OF RICHMOND, ONTARIO
FIGURE NAME: GROUNDWATER CONTOURS SPRING 2025
PROJECT NUMBER: 350221.002
SCALE: AS SHOWN
DRAWN BY: KL
REVIEWED BY: SY
DATE: APRIL 2026
FIGURE NUMBER: 3


ROBLIN ROAD
(29.039)
PILE 1
PILE 2
(30.40)
MW-2
(5.98)
MW-1
SW-1
SW-2
SALMON RIVER
30.000
28.000
26.000
24.000
22.000
20.000
18.000
16.000
14.000
12.000
10.000
8.000
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INFERRED GROUNDWATER FLOW DIRECTION
0 10 30 50 m
N
LEGEND
SITE BOUNDARY
BIN STORAGE FOR ACTIVE WASTE TRANSFER OPERATIONS
ACCESS ROAD
EIXSTING WASTE FOOTPRINT HISTORIC
EXISTING WASTE FOOTPRINT INACTIVE
SOIL VAPOUR PIN
BENCHMARK
MONITORING WELL
STORAGE BUILDING
GROUNDWATER CONTOUR LINES
GROUNDWATER FLOW DIRECTION
(xxx.xx) GROUNDWATER ELEVATION
LEGEND IS COLOUR DEPENDENT. NON-COLOUR COPIES MAY ALTER INTERPRETATION.
PINCHIN
PROJECT NAME: 2025 WATER QUALITY MONITORING REPORT
CLIENT NAME: TOWN OF NAPANEE
PROJECT LOCATION: ROBLIN WASTE DISPOSAL SITE (LOT 19, CONCESSION 8), FORMER TOWN OF RICHMOND, ONTARIO
FIGURE NAME: GROUNDWATER CONTOURS FALL 2025
PROJECT NUMBER: 350221.002
SCALE: AS SHOWN
DRAWN BY: KL
REVIEWED BY: SY
DATE: APRIL 2026
FIGURE NUMBER: 4

APPENDIX II

Environmental Compliance Approval No. A371202

Ontario

Ministry of the Environment and Climate Change
Ministère de l'Environnement et de l'Action en matière de changement climatique

AMENDMENT TO ENVIRONMENTAL COMPLIANCE APPROVAL
NUMBER A371202
Notice No. 2
Issue Date: December 19, 2016

The Corporation of the Town of Greater Napanee
Post Office Box, No. 97
Napanee, Ontario
K7R 3L4

Site Location: Roblin Waste Disposal Site (Richmond Twp. WDS)
237 Roblin Rd, east of County Road 41, Lot 19, Concession 8, former Township of Richmond
Town of Greater Napanee, County of Lennox and Addington

You are hereby notified that I have amended Approval No. A371202 issued on April 9, 1991 and amended on July 25, 2014 for post closure care and monitoring of a landfill site and operation of waste a transfer station , as follows:

Conditions 10.1 and 10.2 are hereby revoked and replaced with the following:

10.1 The trigger mechanism and contingency plan for groundwater and surface water monitoring is hereby approved in accordance with Item 7 in Schedule A.

The following item is added to Schedule A:

7. Letter report dated January 28, 2015 prepared by Guy Laporte, P.Eng. and Terry La Chapelle, B.Sc., P.Geo., AECOM, revised on December 1, 2016, by Terry La Chapelle.

The reason for this amendment is to accept the proposed trigger mechanism and contingency plan.

This Notice shall constitute part of the approval issued under Approval No. A371202 dated April 9, 1991 and subsequent amendments.

In accordance with Section 139 of the Environmental Protection Act, you may by written Notice served upon me and the Environmental Review Tribunal within 15 days after receipt of this Notice, require a hearing by the Tribunal. Section 142 of the Environmental Protection Act provides that the Notice requiring the hearing shall state:

1. The portions of the environmental compliance approval or each term or condition in the environmental compliance approval in respect of which the hearing is required, and;
2. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

Pursuant to subsection 139(3) of the Environmental Protection Act, a hearing may not be required with respect to any terms and conditions in this environmental compliance approval, if the terms and conditions are substantially the same as those contained in an approval that is amended or revoked by this environmental compliance approval.

The Notice should also include:

3. The name of the appellant;
4. The address of the appellant;
5. The environmental compliance approval number;
6. The date of the environmental compliance approval;
7. The name of the Director, and;
8. The municipality or municipalities within which the project is to be engaged in.

And the Notice should be signed and dated by the appellant.

This Notice must be served upon:

The Secretary*
Environmental Review Tribunal
655 Bay Street, Suite 1500
Toronto, Ontario
M5G 1E5

AND

The Director appointed for the purposes of Part II.1 of the Environmental Protection Act
Ministry of the Environment and Climate Change
135 St. Clair Avenue West, 1st Floor
Toronto, Ontario
M4V 1P5

*** Further information on the Environmental Review Tribunal's requirements for an appeal can be obtained directly from the Tribunal at: Tel: (416) 212-6349, Fax: (416) 326-5370 or www.ert.gov.on.ca**

The above noted activity is approved under s.20.3 of Part II.1 of the Environmental Protection Act.

DATED AT TORONTO this 19th day of December, 2016

Dale Gable, P.Eng.
Director
appointed for the purposes of Part II.1 of the
Environmental Protection Act

NP/
c: District Manager, MOECC Kingston - District
Carla Fernandes, AECOM

AECOM
654 Norris Court
Kingston, ON, Canada K7P 2R9
www.aecom.com

613 389 3703 tel
613 389 6729 fax

January 28, 2015

Tesfaye Gebrezghi, P.Eng.
Director
Ministry of the Environment
2 St. Clair Avenue West
Floor 12A
Toronto ON M4V 1L5

Dear Mr. Gebrezghi:

Project No: 60322573

Regarding: Certificate of Approval A371202
Condition 10 –Contingency Plan and Trigger Mechanism
Roblin Waste Disposal Site, Town of Greater Napanee

Condition 10 of the recently issued Amendment to Environmental Compliance Approval for Roblin Waste Disposal Site requires submission of contingency plans and trigger mechanisms to your attention for review and approval. The triggers and contingencies proposed in this letter are drawn from the 2013 Annual Report for Roblin Waste Disposal Site. Copies of that report have previously been provided to Ministry staff, a digital copy is available on request.

Monitoring Programs

The recently issued Amendment to Environmental Compliance Approval (ECA) prescribes groundwater and surface water monitoring program requirements. The location of groundwater monitoring wells and surface water sampling stations are indicated on Figure 3.1 (attached).

Groundwater

Groundwater monitoring requirements are detailed in Schedule “B” of the ECA. Monitoring wells MW1 and MW2 are to be sampled twice a year for the parameters listed in Table B-2. VOCs are to be tested once a year from monitor MW1.

Given that groundwater is interpreted to discharge directly to the Salmon River, groundwater results will be compared to PWQO. Lab analysis is to be conducted by methods that provide method detection limits below PWQO.

Surface Water

Surface water monitoring requirements are also outlined in Schedule “B” to the ECA. Surface water is to be sampled two times a year from three locations – SW1, SW2 and SW3 and tested for parameters listed in Table B-4.

Samples must be collected in a manner that does not capture bottom sediments/debris. Unfiltered samples are to be submitted for analysis. Lab analysis is to be conducted by methods that provide method detection limits below the PWQO.

Trigger Criteria

Groundwater

The recommended groundwater trigger parameters should include all those listed in Table B-2 of Schedule “B” of the ECA for which PWQO or CWQO exist. An exceedance for any listed chemical parameter would be defined as a numerical elevation of any analytical value above the PWQO or CWQO (established from MW-2) at MW-1.

Groundwater is sampled two times annually and results are assessed once per year in the annual report. If three consecutive exceedances for any trigger parameter are determined to be caused by the landfill, contingency measures as defined below would be implemented.

Surface Water

Surface-water trigger criteria should comprise all chemical parameters listed in Table B-4 of Schedule “B” of the recently issued ECA as measured at SW2 (adjacent to landfill) and SW3 (downstream of the landfill) within the Salmon River. An exceedance for any listed parameter at SW2 or SW3 is defined as the numerical elevation of an analytical value above PWQO or CWQO, or above historical background concentrations at SW1 if higher than PWQO or CWQO, or above historical background concentrations at SW1 where there is no PWQO or CWQO for the listed parameter.

The historical background concentration is defined as the 75^{th} percentile of concentrations observed in the previous ten samplings.

Surface water is sampled two times annually and results are assessed once per year in the annual report. Three consecutive exceedances for any sampled chemical parameter at SW2 or SW3 would trigger the contingency plan.

Contingency Plan

This contingency plan involves a tiered approach:

- Tier 1 is a confirmatory phase
- Tier 2 is an assessment phase
- Tier 3 involves remediation or mitigation

Tier 1 would involve a detailed analysis of historical monitoring results by a qualified professional. The objective of this analysis would be to determine if the observed impact can be attributed to the landfill. Possible outcomes of Tier 1 include:

- A determination that the observed exceedances are not due to landfill impacts. In this instance the professional might recommend changes to the trigger mechanism to avoid repeating the triggering event.
- Detailed recommendations for further study to determine the impact of the exceedance. This might include a recommendation for more frequent or more extensive sampling or for a detailed surface water/biological study to determine if the PWQO exceedance is having an unacceptable quality/biological impact on the receiving watercourse
- A recommendation to proceed with Tier 3 remedial action.

Recommendations for further study should include time frames for initiation and completion. The Tier 1 report should be completed and submitted to MOE's District Manager within 120 days of submission of the Annual Report in which the Tier 1 trigger is deemed to be occurring. Implementation of Tier 2 or Tier 3 contingency measures would commence following the District Manager's approval.

Tier 2 would involve implementation of the study phase recommended by the Tier 1 report. Possible outcomes of Tier 2 include:

- A determination that the observed exceedances are not having an adverse impact on the receiving watercourse. In this instance the professional might recommend changes to the trigger mechanism to avoid repeating the triggering event.
- A recommendation to proceed with Tier 3 remedial action.

Tier 3 is remedial action. Further study may be required to determine the most appropriate action(s). Remedial actions that may be considered include:

- Drainage improvements
- Installation of additional low permeability soil or geotextile capping
- Installation of a leachate collection and treatment system

Any recommendation for remedial action should include a time frame for completion of studies and implementation as well as recommended changes to the monitoring program to confirm the effectiveness of the action taken. District Manager approval will be required prior to implementation of any Tier 3 remedial actions.

Changes to Trigger Mechanism

As prescribed by Condition 10.5 of the ECA, the owner shall ensure that any changes to the trigger mechanisms or contingency plans are approved by the Director in advance via an amendment to the ECA.

Summary

Your approval of proposed trigger criteria and contingency planning is requested.

Sincerely,
AECOM Canada Ltd.

Prepared by:



Guy Laporte, P.Eng.
Manager, Kingston Office
guy.laporte@aecom.com

Reviewed by:



Terry La Chapelle, B.Sc., P.Geo.
Senior Geologist
terry.lachapelle@aecom.com

GL:gl
Encl.
cc (email): Kristie Clement, Town of Greater Napanee
Trevor Dagilis, District Manager, MOE Kingston
Chris Raffaele, MOE Kingston

Ontario

RECEIVED
AUG 11 2014
AECOM

Ministry of the Environment
Ministère de l'Environnement

AMENDMENT TO ENVIRONMENTAL COMPLIANCE APPROVAL
NUMBER A371202
Notice No. 1
Issue Date: July 25, 2014

The Corporation of the Town of Greater Napanee
124 John St P.O. Box 97
Greater Napanee, Ontario
K7R 3L4

Site Location: Roblin Waste Disposal Site (aka Richmond Twp. WDS)
237 Roblin Rd just east of County Road 41, Lot 19, Concession 8, former Township of Richmond
Greater Napanee Town, County of Lennox and Addington

You are hereby notified that I have amended Approval No. A371202 issued on April 9, 1991 for the use and operation of a 6.10 ha landfill site within a total site area of 26 ha for bulky, solid non hazardous waste, non petrescible waste and a separate waste transfer station facility for domestic and commercial waste , as follows:

The following Definition are hereby added to the Environmental Compliance Approval:

"Environmental Compliance Approval" or "ECA" means this entire provisional Environmental Compliance Approval document, issued in accordance with Section 20.2 of the *EPA* , and includes any schedules to it, the application and the supporting documentation listed in Schedule "A";

Condition No. 5 is hereby amended as follows:

5. Only waste generated from within the Township of Greater Napanee shall be received at the *Site* .

The following Conditions are hereby added to the ECA:

9.0 Landfill Closure

9.1 (1) The *Site* shall no longer accept waste for final disposal (landfilling) at the *Site* .

(2) The *Owner* shall ensure the final cover, final grading and post-closure activities for the landfill are completed in accordance with Items No. 4, 5 and 6 in Schedule "A".

9.2 Monitoring programs shall be carried out for groundwater, leachate and surface water in accordance with Schedules "B" attached to this *ECA*.

10.0 Contingency Plans and Trigger Mechanisms

10.1 By **February 1, 2015**, the *Owner* shall submit to the *Director,* for approval, and copies to the *District Manager* , details of a trigger mechanism plan for surface water and groundwater quality monitoring for the purpose of initiating investigative activities into the cause of increased contaminant concentrations at the site's point of compliance.

10.2 By **February 1, 2015**, the *Owner* shall submit to the *Director* for approval, and copies to the *District Manager* , details of a contingency plan to be implemented in the event that the surface water or groundwater quality exceeds the trigger mechanism at the *Site* 's point of compliance.

10.3 In the event of a confirmed exceedance of a site-specific trigger level relating to leachate mounding or groundwater or surface water impacts due to leachate at the site's point of compliance, the *Owner* shall immediately notify the *District Manager* , and an investigation into the cause and the need for implementation of remedial or contingency actions shall be carried out by the *Owner* in accordance with the approved trigger mechanisms and associated contingency plans.

10.4 If monitoring results, investigative activities and/or trigger mechanisms indicate the need to implement contingency measures, the *Owner* shall ensure that the following steps are taken:

a.) The *Owner* shall notify the *District Manager* , in writing of the need to implement contingency measures, no later than 30 days after confirmation of the exceedances;
b.) Detailed plans, specifications and descriptions for the design, operation and maintenance of the contingency measures shall be prepared and submitted by the *Owner* to the *District Manager* for approval; and
c.) The contingency measures shall be implemented by the *Owner* upon approval by the *District Manager.*

10.5 The *Owner* shall ensure that any proposed changes to the site-specific trigger levels for leachate impacts to the surface water or groundwater, shall be approved in advance by the *Director* via an amendment to this *ECA* .

11.0 WASTE TRANSFER STATION

Waste Transfer Facility

11.1 Except as otherwise provided by these Conditions, the Waste Transfer Station shall be designed, developed, used, maintained and operated, and all facilities, equipment and fixtures shall be built and/or installed in accordance with Item No. 4, 5 and 6, and the supporting documentation, plans and specifications listed in Schedule "A".

11.2 The *Owner* shall ensure that all waste accepted for transfer shall be segregated either into bins with lids or doors, or in designated areas as defined by barriers. All bins and designated waste storage areas shall be clearly labelled.

11.3 The *Owner* shall ensure that each day on which the *Site* is open to accept waste for transfer, the *Site* is inspected and litter is picked up in the waste transfer area.

Waste Quantity

11.4 (1) The maximum storage capacity for the *Waste Transfer Facility* and for each type of material is as follows:

Material	Total Volume (m^3)
Domestic Waste	183.5 (6 - 40 cubic yard bins)
Mixed Fibres	40
Plastics	40
Glass	40
Metals	60
Tires	1000 tires units
White Goods	40
Propane Tanks (with valve assembly removed)	20
WEEE	40

(2) The domestic waste listed in Condition 11.4 (1) shall be removed from the *Site* within fourteen (14) days of receipt.

Operations

11.5 Recycling activities shall be completed as per *Ontario Regulation 101/94* .

11.6 Recyclable materials shall be properly separated and each area properly identified. The areas shall be kept in a neat and tidy manner.

11.7 All storage containers/bins used to store waste and/or recyclable materials shall be maintained in good condition to prevent leakage. The *Owner* shall immediately remove from service any leaking container. Containers/bins used to store clean scrap metal may be equipped with drainage holes to permit the drainage of rainwater.

11.8 (1) The operating hours of the Waste Transfer Facility are as follows:

i. Saturday from 8:00 am to 3:00 pm.

(2) Amendment to the hours of operation require approval by the *Director* prior to implementation.

(3) Notwithstanding Condition 11.8 (2), with prior written approval of the *District Manager* , the time periods may be extended to accommodate seasonal or unusual quantities of waste, construction activities or such factors as determined to be reasonable to the *District Manager* .

11.9 The *Owner* shall ensure that all white goods received at the *Waste Transfer Facility* have been drained of any refrigerants, and have the appropriate paperwork (current ODP card) demonstrating that the refrigerants have been removed. In the event the *Owner* accepts white goods that have not been drained, the *Owner* shall retain a certified technician to properly drain and tag the appliances on a quarterly basis.

11.10 No waste shall be received at the Waste Transfer Station except during operating hours when the Waste Transfer Station is under the supervision of the trained personnel.

11.11 The *Owner* shall remove all scrap metal and appliances from the Waste Transfer Facility at an interval not to exceed six (6) months.

11.12 The *Owner* shall remove *waste* received at the transfer station once the on-*Site* compaction equipment reaches capacity and/or as required.

The following Items are hereby added to Schedule "A":

4. Report entitled "Landfill Closure Plan and Transfer Station Design and Operations Plan - Roblin Waste Disposal Site" prepared by AECOM (Project No. 60286193) dated September 2013.

5. Letter dated February 6, 2014 addressed to Meaghan Davey, Town of Greater Napanee from Dale Gable, Ministry of the Environment requesting additional information on landfill closure and waste transfer operation.

6. Letter dated March 6, 2014 addressed to Dale Gable, Ministry of the Environment from Guy Laporte, AECOM providing additional information on final cover material, vegetation type and waste transfer station volumes.

Schedule "B"

This Schedule forms part of the *ECA* . It describes the groundwater and surface water monitoring program referred to in Condition 9.2.

B.1. Groundwater

B.1.1 Groundwater Monitoring Program Objectives

The overall goal of the groundwater monitoring program is to detect and assess effects of the landfill on local water resources. The following objectives have been identified to achieve this goal:

a) to monitor groundwater quality in the groundwater system;
b) to identify and characterize movement of leachate related contaminants in the systems;
c) to evaluate the effectiveness of the attenuation zone; and
d) to determine the need for implementation of contingency plans.

B.1.2 Monitoring Plan

The groundwater monitoring plan shall be carried out by the Owner to address the stated objectives and will include:

B.1.2.1 Landfill Monitoring Frequency

The groundwater monitoring program shall be conducted twice per year during the spring and fall.

B.1.2.2 Groundwater Monitor Sampling Locations

Table B-1 identifies the groundwater monitors sampling locations. If a monitoring well is dry or damaged then that well does not have to be sampled that sampling event. Static water levels shall be collected in all the groundwater monitors prior to purging and sampling:

Table B-1: Groundwater Sampling Location

MW1	MW 2

B.1.2.3 Analytical Parameters

The parameters which shall be measured in the field, along with the chemical and physical laboratory analyses which shall be collected on the groundwater samples from the groundwater monitors, shall include the following:

Table B-2: Analytical Parameters

pH (field)	manganese
pH (lab)	TKN

Temperature(field)	Potassium
Conductivity (field)	Barium
Conductivity (lab)	Boron
Anion sum	Iron
Cation Sum	VOCs
Ion Ratio	BOD
% Differences	COD
Hardness	TDS
Ammonia	Magnesium
Nitrate	Sulphate

Notes: (1) - VOCs samples shall be collected at MW1 (annually).

B.1.2.4 Groundwater Monitor Inspections

Any groundwater monitoring well found to be damaged, not functioning or otherwise improperly maintained, shall within a reasonable time be properly repaired or replaced. The District Manager shall be notified prior to any well being replaced.

B.1.2.5 Groundwater Monitoring Protocols

Standard and/or generally accepted groundwater sampling (including well development, sample collection, storage and transport) and analytical protocols shall be adhered to during all groundwater monitoring sessions. Groundwater elevation measurements shall be of the static groundwater elevation within the groundwater monitoring well measured prior to well development.

B.1.2.6 Method Detection Limits

All laboratory analyses on groundwater samples shall be performed by an accredited analytical laboratory and the detection limits (MDLs) for the specific analyses should commensurate with the standards established in the current Ontario Drinking Water Standards.

B.2. Surface Water

B.2.1 Surface Water Monitoring Program Objectives

The primary goal of the Surface Water Monitoring Program is to monitor for any landfill-related impairment of surface water above Provincial Water Quality Objectives (PWQOs). Where the concentration of a specific parameter already exceeds the PWQO in background surface waters, the aim is to allow no further deterioration of surface water quality.

B.2.2 Monitoring Plan

The surface water monitoring plan shall be carried out by the Owner to address the stated objectives and will include:

B.2.2.1 Landfill Monitoring Frequency

The surface water monitoring program shall be conducted twice per year during the spring and late summer/early fall.

B.2.2.2 Surface Water Sampling Locations

Table B-3: Surface Water Sampling Locations

SW1	SW2	SW3

B.2.2.3 Analytical Parameters

The parameters which shall be measured in the field, along with the chemical and physical laboratory analyses which shall be collected on the surface water samples, shall include the following:

Table B-4: Surface Water Analytical Parameters

pH (field)	Phenolics
pH (lab)	Total Phosphorous
Temperature(field)	Alkalinity
Conductivity (field)	Chloride
Conductivity (lab)	Sodium
Dissolved Oxygen	Calcium
Flow Rate (Field)	Potassium
Anion Sum	Magnesium
Cation Sum	Sulphate
Ion Ratio	Barium
% Differences	Boron
Hardness	Chromium
Ammonia	Copper
TKN	Iron
Nitrate	Manganese
BOD	Iron
COD	Nickel
TSS	Mercury
DOC	Zinc
Cadmium	

B.2.2.4 Surface Water Monitoring Protocols

Standard and/or generally accepted surface water sampling (sample collection, storage and transport) and analytical protocols shall be adhered to during all surface water sampling sessions.

B.1.2.5 Method Detection Limits

All laboratory analyses on surface water samples shall be performed by an accredited analytical laboratory and the detection limits (MDLs) for the specific analyses should commensurate with the standards established in the current Provincial Water Quality Objectives.

The reason(s) for this amendment to the Approval is (are) as follows:

1. *The reason for Condition 9.1 is to ensure that final closure of the Site is completed in an aesthetically pleasing manner and to ensure the long-term protection of the natural environment.*

2. *The reason for Conditions 9.2 is to demonstrate that the landfill site is performing as designed and the impacts on the natural environment are acceptable. Regular monitoring allows for the analysis of trends over time and ensures that there is an early warning of potential problems so that any necessary remedial/contingency action can be taken.*

3. *The reason for Conditions 10.1 through 10.5 is to ensure the Owner has a plan with an organized set of procedures for identifying and responding to potential issues relating to groundwater and surface water contamination near or at the site's compliance point.*

4. *The reasons for Conditions 11.1 through 11.12 are to ensure the waste transfer is completed in accordance with Ministry standards, and to ensure long-term protection of the health and safety of the public and the environment.*

This Notice shall constitute part of the approval issued under Approval No. A371202 dated April 9, 1991

In accordance with Section 139 of the Environmental Protection Act, you may by written Notice served upon me and the Environmental Review Tribunal within 15 days after receipt of this Notice, require a hearing by the Tribunal. Section 142 of the Environmental Protection Act provides that the Notice requiring the hearing shall state:

1. The portions of the environmental compliance approval or each term or condition in the environmental compliance approval in respect of which the hearing is required, and;
2. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

Pursuant to subsection 139(3) of the Environmental Protection Act, a hearing may not be required with respect to any terms and conditions in this environmental compliance approval, if the terms and conditions are substantially the same as those contained in an approval that is amended or revoked by this environmental compliance approval.

The Notice should also include:

3. The name of the appellant;
4. The address of the appellant;
5. The environmental compliance approval number;
6. The date of the environmental compliance approval;
7. The name of the Director, and;
8. The municipality or municipalities within which the project is to be engaged in.

And the Notice should be signed and dated by the appellant.

This Notice must be served upon:

The Secretary*
Environmental Review Tribunal
655 Bay Street, Suite 1500
Toronto, Ontario
M5G 1E5

AND

The Director appointed for the purposes of
Part II.1 of the Environmental Protection Act
Ministry of the Environment
2 St. Clair Avenue West, Floor 12A
Toronto, Ontario
M4V 1L5

*** Further information on the Environmental Review Tribunal's requirements for an appeal can be obtained directly from the Tribunal at: Tel: (416) 212-6349, Fax: (416) 314-3717 or www.ert.gov.on.ca**

The above noted activity is approved under s.20.3 of Part II.1 of the Environmental Protection Act.

DATED AT TORONTO this 25th day of July, 2014

THIS NOTICE WAS MAILED
ON Aug. 7, 2014
gc
(Signed)

Tesfaye Gebrezghi, P.Eng.
Director
appointed for the purposes of Part II.1 of the
Environmental Protection Act

DG/
c: District Manager, MOE Kingston - District
Guy Laporte, AECOM ✓

Ontario

Ministry of the Environment / *Ministère de l'Environnement*

Provisional Certificate of Approval for a Waste Disposal Site

Certificat d'autorisation provisoire de décharge

Provisional Certificate of Approval No. / *Certificat d'autorisation provisoire nº* **A371202**

Page / *page* 1 of / *de* 4

Under the Environmental Protection Act and the regulations and subject to the limitations thereof, this Provisional Certificate of Approval is issued to:

Aux termes de la Loi sur la protection de l'environnement et des règlements y afférents et sous réserve des restrictions qui s'y appliquent, ce Certificat provisoire d'autorisation est délivré à:

THIS IS A TRUE COPY OF THE ORIGINAL CERTIFICATE MAILED ON APR 09 1991

D.M.
(Signed)

Township of Richmond
Selby, Ontario
K0K 2Z0

For the use and operation of a 26 hectare landfilling site for bulky, non-hazardous solid, non-putrescible wastes and a separate transfer facility for domestic and commercial wastes.

All in accordance with the following plans and specifications:

1) **The "Application for a Certificate of Approval for a Waste Disposal Site" dated November 8, 1973 and the supporting information for the said application.**

2) **The letter from J. Tooley, Ministry of the Environment, to J.M. Kimmett, Clerk-Treasurer, Township of Richmond, dated June 17, 1974.**

3) **The "Application for a Certificate of Approval for a Waste Disposal Site (Transfer)" dated February 5, 1987 and the supporting information for the said application.**

This approval is subject to the following definitions and conditions:

Definitions:

"Certificate" means the entire within Certificate of Approval including its schedules, if any, issued in accordance with Section 27, Part V of the Environmental Protection Act;

Dated this / Fait le 9TH *day of / jour de* APRIL 19 91

Director, Section 38 / Environmental Protection Act
Directeur, Section 38 / Loi sur la protection de l'environnement

1408 (07/86)

Ontario

Ministry of the Environment / *Ministère de l'Environnement*

Provisional Certificate of Approval for a Waste Disposal Site

Certificat d'autorisation provisoire de décharge

The following conditions are additional to the conditions shown on Provisional Certificate
Les conditions ci-dessous s'ajoutent à celles indiquées dans le Certificat d'autorisation
of Approval Number / *provisoire n°* A371202 dated / *fait le*

"Director" means the Director of the Southeastern Region of the Ministry or his appointee;

"District Officer" means the District Officer of Kingston District Office, Southeastern Region of the Ministry;

"Ministry" means the Ontario Ministry of the Environment;

"Owner" means the Corporation of the Township of Richmond;

"Operator" means the Township of Richmond; its officers, employees, agents or contractors;

"Site" means the 26 hectare landfilling site described in this Certificate.

"Facility" means the separate transfer operation located on the landfilling site.

General Conditions:

1. The requirements of this Certificate are imposed pursuant to Part V of the Environmental Protection Act. The issuance of this Certificate in no way abrogates the owner/operator's legal obligations to take all reasonable steps to avoid violating other applicable provisions of this legislation and the other legislation and regulations.

2. (1) The requirements of this Certificate are severable. If any requirement of this Certificate, or the application of any requirement of this Certificate to any circumstances, is held invalid, the application of such requirement to other circumstances and the remainder of this Certificate shall not be affected thereby.

(2) In all matters requiring the interpretation and implementation of this Certificate, the conditions of the Certificate shall take precedence, followed in descending order by the owner/operator's application and the documentation, referred to in this Certificate.

Ontario

Ministry of the Environment / *Ministère de l'Environnement*

Provisional Certificate of Approval for a Waste Disposal Site

Certificat d'autorisation provisoire de décharge

The following conditions are additional to the conditions shown on Provisional Certificate
Les conditions ci-dessous s'ajoutent à celles indiquées dans le Certificat d'autorisation
of Approval Number / *provisoire n°* A371202 dated / *fait le*

3. No wastes other than clean, dry brush and lumber will be burned at this site. Such burning will be carried out in accordance with the Ministry of the Environment's "Guidelines for Burning at Landfill Sites in Ontario".

4. (1) The owner/operator shall notify the District Officer in writing of any change in ownership, the operation or both within 30 days of the change occurring and;

(2) The owner/operator shall ensure that all communications made pursuant to this condition will refer to this Certificate's number.

5. The operation of a separate transfer facility is approved under this Certificate. The operation and use of the transfer facility is limited to the collection and transfer of domestic and commercial wastes from households and businesses in the Township of Richmond.

6. All site personnel shall have practical knowledge of the waste material to be handled under this Certificate and shall be fully and knowledgeable about requirements under this Certificate.

7. (1) The owner/operator shall establish a safe storage capacity for the site consistent with the application for this Certificate and shall ensure that this capacity is not exceeded by:

(i) providing regular movement of the wastes to approved waste disposal sites;
(ii) limiting the storage time of any waste type at the facility to a maximum of 30 days.

(2) All waste collected shall be transported from the site by an approved waste management system.

Ontario

Ministry of the Environment / *Ministère de l'Environnement*

Provisional Certificate of Approval for a Waste Disposal Site

Certificat d'autorisation provisoire de décharge

The following conditions are additional to the conditions shown on Provisional Certificate
Les conditions ci-dessous s'ajoutent à celles indiquées dans le Certificat d'autorisation
of Approval Number / *provisoire n°* A371202 dated / *fait le*

8. The owner/operator shall ensure that adequate fire fighting equipment is available at the site and that personnel are familiar with the use of such equipment.

1408 (07/88) Continuation Page

Ministry of the Environment / Ministère de l'Environnement

Ontario

Notice Avis

To:
Destinataire: The Township of Richmond
Selby, Ontario
K0K 2Z0

You are hereby notified that Provisional Certificate of Approval No. A371202 has been issued to you, subject to the conditions outlined therein.

1. The reason for Conditions 1 and 3 is to clarify the legal rights and obligations of this Provisional Certificate of Approval.

2. The reasons for Conditions 2, 4 and 5 are to ensure that the waste disposal site is operated in accordance with the application for this Certificate and supporting information and not under any name or in any way which the Director has not been asked to consider.

3. The reasons for Conditions 6, 7 and 8 are to ensure that the waste recycling site is properly managed in an organized manner by adequately trained persons, in order to prevent environmental detriment and to ensure the safety of the general public and site personnel.

You may, by written notice served upon me and the Environmental Appeal Board within 15 days after receipt of this Notice, require a hearing by the Board. Section 122a of the Environmental Protection Act, as amended in 1983, provides that the Notice requiring the hearing shall state the portion of each Term or Condition and the approval in respect of which the hearing is required and the grounds on which you intend to rely at the hearing.

This Notice should be served upon:

The Secretary
Environmental Appeal Board
112 St. Clair Ave. West
5th Floor
Toronto, Ontario
M4V 1N3

The Director
Section 38, EPA
Ministry of the Environment
133 Dalton Avenue, Box 820
Kingston, Ontario
K7L 4X6

Dated at Kingston this 9TH day of APRIL, 1991.

B R Ward

Director
Section 38, E.P.A.
Ministry of the Environment

THIS IS A TRUE COPY OF THE ORIGINAL NOTICE MAILED ON
APR 09 1991
D. M.
(Signed)

17718 (08/90)

Ontario

Ministry of the Environment and Climate Change
Ministère de l'Environnement et de l'Action en matière de changement climatique

AMENDMENT TO ENVIRONMENTAL COMPLIANCE APPROVAL
NUMBER A371202
Notice No. 2
Issue Date: December 19, 2016

The Corporation of the Town of Greater Napanee
Post Office Box, No. 97
Napanee, Ontario
K7R 3L4

Site Location: Roblin Waste Disposal Site (Richmond Twp. WDS)
237 Roblin Rd, east of County Road 41, Lot 19, Concession 8, former Township of Richmond
Town of Greater Napanee, County of Lennox and Addington

You are hereby notified that I have amended Approval No. A371202 issued on April 9, 1991 and amended on July 25, 2014 for post closure care and monitoring of a landfill site and operation of waste a transfer station , as follows:

Conditions 10.1 and 10.2 are hereby revoked and replaced with the following:

10.1 The trigger mechanism and contingency plan for groundwater and surface water monitoring is hereby approved in accordance with Item 7 in Schedule A.

The following item is added to Schedule A:

7. Letter report dated January 28, 2015 prepared by Guy Laporte, P.Eng. and Terry La Chapelle, B.Sc., P.Geo., AECOM, revised on December 1, 2016, by Terry La Chapelle.

The reason for this amendment is to accept the proposed trigger mechanism and contingency plan.

This Notice shall constitute part of the approval issued under Approval No. A371202 dated April 9, 1991 and subsequent amendments.

In accordance with Section 139 of the Environmental Protection Act, you may by written Notice served upon me and the Environmental Review Tribunal within 15 days after receipt of this Notice, require a hearing by the Tribunal. Section 142 of the Environmental Protection Act provides that the Notice requiring the hearing shall state:

1. The portions of the environmental compliance approval or each term or condition in the environmental compliance approval in respect of which the hearing is required, and;
2. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

Pursuant to subsection 139(3) of the Environmental Protection Act, a hearing may not be required with respect to any terms and conditions in this environmental compliance approval, if the terms and conditions are substantially the same as those contained in an approval that is amended or revoked by this environmental compliance approval.

The Notice should also include:

3. The name of the appellant;
4. The address of the appellant;
5. The environmental compliance approval number;
6. The date of the environmental compliance approval;
7. The name of the Director, and;
8. The municipality or municipalities within which the project is to be engaged in.

And the Notice should be signed and dated by the appellant.

This Notice must be served upon:

The Secretary*
Environmental Review Tribunal
655 Bay Street, Suite 1500
Toronto, Ontario
M5G 1E5

AND

The Director appointed for the purposes of Part II.1 of the Environmental Protection Act
Ministry of the Environment and Climate Change
135 St. Clair Avenue West, 1st Floor
Toronto, Ontario
M4V 1P5

*** Further information on the Environmental Review Tribunal's requirements for an appeal can be obtained directly from the Tribunal at: Tel: (416) 212-6349, Fax: (416) 326-5370 or www.ert.gov.on.ca**

The above noted activity is approved under s.20.3 of Part II.1 of the Environmental Protection Act.

DATED AT TORONTO this 19th day of December, 2016

Dale Gable, P.Eng.
Director
appointed for the purposes of Part II.1 of the
Environmental Protection Act

NP/
c: District Manager, MOECC Kingston - District
Carla Fernandes, AECOM

Ontario

RECEIVED
AUG 11 2014
AECOM

Ministry of the Environment
Ministère de l'Environnement

AMENDMENT TO ENVIRONMENTAL COMPLIANCE APPROVAL
NUMBER A371202
Notice No. 1
Issue Date: July 25, 2014

The Corporation of the Town of Greater Napanee
124 John St P.O. Box 97
Greater Napanee, Ontario
K7R 3L4

Site Location: Roblin Waste Disposal Site (aka Richmond Twp. WDS)
237 Roblin Rd just east of County Road 41, Lot 19, Concession 8, former Township of Richmond
Greater Napanee Town, County of Lennox and Addington

You are hereby notified that I have amended Approval No. A371202 issued on April 9, 1991 for the use and operation of a 6.10 ha landfill site within a total site area of 26 ha for bulky, solid non hazardous waste, non petrescible waste and a separate waste transfer station facility for domestic and commercial waste , as follows:

The following Definition are hereby added to the Environmental Compliance Approval:

"Environmental Compliance Approval" or "ECA" means this entire provisional Environmental Compliance Approval document, issued in accordance with Section 20.2 of the *EPA* , and includes any schedules to it, the application and the supporting documentation listed in Schedule "A";

Condition No. 5 is hereby amended as follows:

5. Only waste generated from within the Township of Greater Napanee shall be received at the *Site* .

The following Conditions are hereby added to the ECA:

9.0 Landfill Closure

9.1 (1) The *Site* shall no longer accept waste for final disposal (landfilling) at the *Site* .

(2) The *Owner* shall ensure the final cover, final grading and post-closure activities for the landfill are completed in accordance with Items No. 4, 5 and 6 in Schedule "A".

9.2 Monitoring programs shall be carried out for groundwater, leachate and surface water in accordance with Schedules "B" attached to this *ECA*.

10.0 Contingency Plans and Trigger Mechanisms

10.1 By **February 1, 2015**, the *Owner* shall submit to the *Director,* for approval, and copies to the *District Manager* , details of a trigger mechanism plan for surface water and groundwater quality monitoring for the purpose of initiating investigative activities into the cause of increased contaminant concentrations at the site's point of compliance.

10.2 By **February 1, 2015**, the *Owner* shall submit to the *Director* for approval, and copies to the *District Manager* , details of a contingency plan to be implemented in the event that the surface water or groundwater quality exceeds the trigger mechanism at the *Site* 's point of compliance.

10.3 In the event of a confirmed exceedance of a site-specific trigger level relating to leachate mounding or groundwater or surface water impacts due to leachate at the site's point of compliance, the *Owner* shall immediately notify the *District Manager* , and an investigation into the cause and the need for implementation of remedial or contingency actions shall be carried out by the *Owner* in accordance with the approved trigger mechanisms and associated contingency plans.

10.4 If monitoring results, investigative activities and/or trigger mechanisms indicate the need to implement contingency measures, the *Owner* shall ensure that the following steps are taken:

a.) The *Owner* shall notify the *District Manager* , in writing of the need to implement contingency measures, no later than 30 days after confirmation of the exceedances;
b.) Detailed plans, specifications and descriptions for the design, operation and maintenance of the contingency measures shall be prepared and submitted by the *Owner* to the *District Manager* for approval; and
c.) The contingency measures shall be implemented by the *Owner* upon approval by the *District Manager.*

10.5 The *Owner* shall ensure that any proposed changes to the site-specific trigger levels for leachate impacts to the surface water or groundwater, shall be approved in advance by the *Director* via an amendment to this *ECA* .

11.0 WASTE TRANSFER STATION

Waste Transfer Facility

11.1 Except as otherwise provided by these Conditions, the Waste Transfer Station shall be designed, developed, used, maintained and operated, and all facilities, equipment and fixtures shall be built and/or installed in accordance with Item No. 4, 5 and 6, and the supporting documentation, plans and specifications listed in Schedule "A".

11.2 The *Owner* shall ensure that all waste accepted for transfer shall be segregated either into bins with lids or doors, or in designated areas as defined by barriers. All bins and designated waste storage areas shall be clearly labelled.

11.3 The *Owner* shall ensure that each day on which the *Site* is open to accept waste for transfer, the *Site* is inspected and litter is picked up in the waste transfer area.

Waste Quantity

11.4 (1) The maximum storage capacity for the *Waste Transfer Facility* and for each type of material is as follows:

Material	Total Volume (m^3)
Domestic Waste	183.5 (6 - 40 cubic yard bins)
Mixed Fibres	40
Plastics	40
Glass	40
Metals	60
Tires	1000 tires units
White Goods	40
Propane Tanks (with valve assembly removed)	20
WEEE	40

(2) The domestic waste listed in Condition 11.4 (1) shall be removed from the *Site* within fourteen (14) days of receipt.

Operations

11.5 Recycling activities shall be completed as per *Ontario Regulation 101/94* .

11.6 Recyclable materials shall be properly separated and each area properly identified. The areas shall be kept in a neat and tidy manner.

11.7 All storage containers/bins used to store waste and/or recyclable materials shall be maintained in good condition to prevent leakage. The *Owner* shall immediately remove from service any leaking container. Containers/bins used to store clean scrap metal may be equipped with drainage holes to permit the drainage of rainwater.

11.8 (1) The operating hours of the Waste Transfer Facility are as follows:

i. Saturday from 8:00 am to 3:00 pm.

(2) Amendment to the hours of operation require approval by the *Director* prior to implementation.

(3) Notwithstanding Condition 11.8 (2), with prior written approval of the *District Manager* , the time periods may be extended to accommodate seasonal or unusual quantities of waste, construction activities or such factors as determined to be reasonable to the *District Manager* .

11.9 The *Owner* shall ensure that all white goods received at the *Waste Transfer Facility* have been drained of any refrigerants, and have the appropriate paperwork (current ODP card) demonstrating that the refrigerants have been removed. In the event the *Owner* accepts white goods that have not been drained, the *Owner* shall retain a certified technician to properly drain and tag the appliances on a quarterly basis.

11.10 No waste shall be received at the Waste Transfer Station except during operating hours when the Waste Transfer Station is under the supervision of the trained personnel.

11.11 The *Owner* shall remove all scrap metal and appliances from the Waste Transfer Facility at an interval not to exceed six (6) months.

11.12 The *Owner* shall remove *waste* received at the transfer station once the on-*Site* compaction equipment reaches capacity and/or as required.

The following Items are hereby added to Schedule "A":

4. Report entitled "Landfill Closure Plan and Transfer Station Design and Operations Plan - Roblin Waste Disposal Site" prepared by AECOM (Project No. 60286193) dated September 2013.

5. Letter dated February 6, 2014 addressed to Meaghan Davey, Town of Greater Napanee from Dale Gable, Ministry of the Environment requesting additional information on landfill closure and waste transfer operation.

6. Letter dated March 6, 2014 addressed to Dale Gable, Ministry of the Environment from Guy Laporte, AECOM providing additional information on final cover material, vegetation type and waste transfer station volumes.

Schedule "B"

This Schedule forms part of the *ECA* . It describes the groundwater and surface water monitoring program referred to in Condition 9.2.

B.1. Groundwater

B.1.1 Groundwater Monitoring Program Objectives

The overall goal of the groundwater monitoring program is to detect and assess effects of the landfill on local water resources. The following objectives have been identified to achieve this goal:

a) to monitor groundwater quality in the groundwater system;
b) to identify and characterize movement of leachate related contaminants in the systems;
c) to evaluate the effectiveness of the attenuation zone; and
d) to determine the need for implementation of contingency plans.

B.1.2 Monitoring Plan

The groundwater monitoring plan shall be carried out by the Owner to address the stated objectives and will include:

B.1.2.1 Landfill Monitoring Frequency

The groundwater monitoring program shall be conducted twice per year during the spring and fall.

B.1.2.2 Groundwater Monitor Sampling Locations

Table B-1 identifies the groundwater monitors sampling locations. If a monitoring well is dry or damaged then that well does not have to be sampled that sampling event. Static water levels shall be collected in all the groundwater monitors prior to purging and sampling:

Table B-1: Groundwater Sampling Location

MW1	MW 2

B.1.2.3 Analytical Parameters

The parameters which shall be measured in the field, along with the chemical and physical laboratory analyses which shall be collected on the groundwater samples from the groundwater monitors, shall include the following:

Table B-2: Analytical Parameters

pH (field)	manganese
pH (lab)	TKN

Temperature(field)	Potassium
Conductivity (field)	Barium
Conductivity (lab)	Boron
Anion sum	Iron
Cation Sum	VOCs
Ion Ratio	BOD
% Differences	COD
Hardness	TDS
Ammonia	Magnesium
Nitrate	Sulphate

Notes: (1) - VOCs samples shall be collected at MW1 (annually).

B.1.2.4 Groundwater Monitor Inspections

Any groundwater monitoring well found to be damaged, not functioning or otherwise improperly maintained, shall within a reasonable time be properly repaired or replaced. The District Manager shall be notified prior to any well being replaced.

B.1.2.5 Groundwater Monitoring Protocols

Standard and/or generally accepted groundwater sampling (including well development, sample collection, storage and transport) and analytical protocols shall be adhered to during all groundwater monitoring sessions. Groundwater elevation measurements shall be of the static groundwater elevation within the groundwater monitoring well measured prior to well development.

B.1.2.6 Method Detection Limits

All laboratory analyses on groundwater samples shall be performed by an accredited analytical laboratory and the detection limits (MDLs) for the specific analyses should commensurate with the standards established in the current Ontario Drinking Water Standards.

B.2. Surface Water

B.2.1 Surface Water Monitoring Program Objectives

The primary goal of the Surface Water Monitoring Program is to monitor for any landfill-related impairment of surface water above Provincial Water Quality Objectives (PWQOs). Where the concentration of a specific parameter already exceeds the PWQO in background surface waters, the aim is to allow no further deterioration of surface water quality.

B.2.2 Monitoring Plan

The surface water monitoring plan shall be carried out by the Owner to address the stated objectives and will include:

B.2.2.1 Landfill Monitoring Frequency

The surface water monitoring program shall be conducted twice per year during the spring and late summer/early fall.

B.2.2.2 Surface Water Sampling Locations

Table B-3: Surface Water Sampling Locations

SW1	SW2	SW3

B.2.2.3 Analytical Parameters

The parameters which shall be measured in the field, along with the chemical and physical laboratory analyses which shall be collected on the surface water samples, shall include the following:

Table B-4: Surface Water Analytical Parameters

pH (field)	Phenolics
pH (lab)	Total Phosphorous
Temperature(field)	Alkalinity
Conductivity (field)	Chloride
Conductivity (lab)	Sodium
Dissolved Oxygen	Calcium
Flow Rate (Field)	Potassium
Anion Sum	Magnesium
Cation Sum	Sulphate
Ion Ratio	Barium
% Differences	Boron
Hardness	Chromium
Ammonia	Copper
TKN	Iron
Nitrate	Manganese
BOD	Iron
COD	Nickel
TSS	Mercury
DOC	Zinc
Cadmium	

B.2.2.4 Surface Water Monitoring Protocols

Standard and/or generally accepted surface water sampling (sample collection, storage and transport) and analytical protocols shall be adhered to during all surface water sampling sessions.

B.1.2.5 Method Detection Limits

All laboratory analyses on surface water samples shall be performed by an accredited analytical laboratory and the detection limits (MDLs) for the specific analyses should commensurate with the standards established in the current Provincial Water Quality Objectives.

The reason(s) for this amendment to the Approval is (are) as follows:

1. *The reason for Condition 9.1 is to ensure that final closure of the Site is completed in an aesthetically pleasing manner and to ensure the long-term protection of the natural environment.*

2. *The reason for Conditions 9.2 is to demonstrate that the landfill site is performing as designed and the impacts on the natural environment are acceptable. Regular monitoring allows for the analysis of trends over time and ensures that there is an early warning of potential problems so that any necessary remedial/contingency action can be taken.*

3. *The reason for Conditions 10.1 through 10.5 is to ensure the Owner has a plan with an organized set of procedures for identifying and responding to potential issues relating to groundwater and surface water contamination near or at the site's compliance point.*

4. *The reasons for Conditions 11.1 through 11.12 are to ensure the waste transfer is completed in accordance with Ministry standards, and to ensure long-term protection of the health and safety of the public and the environment.*

This Notice shall constitute part of the approval issued under Approval No. A371202 dated April 9, 1991

In accordance with Section 139 of the Environmental Protection Act, you may by written Notice served upon me and the Environmental Review Tribunal within 15 days after receipt of this Notice, require a hearing by the Tribunal. Section 142 of the Environmental Protection Act provides that the Notice requiring the hearing shall state:

1. The portions of the environmental compliance approval or each term or condition in the environmental compliance approval in respect of which the hearing is required, and;
2. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

Pursuant to subsection 139(3) of the Environmental Protection Act, a hearing may not be required with respect to any terms and conditions in this environmental compliance approval, if the terms and conditions are substantially the same as those contained in an approval that is amended or revoked by this environmental compliance approval.

The Notice should also include:

3. The name of the appellant;
4. The address of the appellant;
5. The environmental compliance approval number;
6. The date of the environmental compliance approval;
7. The name of the Director, and;
8. The municipality or municipalities within which the project is to be engaged in.

And the Notice should be signed and dated by the appellant.

This Notice must be served upon:

The Secretary*
Environmental Review Tribunal
655 Bay Street, Suite 1500
Toronto, Ontario
M5G 1E5

AND

The Director appointed for the purposes of
Part II.1 of the Environmental Protection Act
Ministry of the Environment
2 St. Clair Avenue West, Floor 12A
Toronto, Ontario
M4V 1L5

*** Further information on the Environmental Review Tribunal's requirements for an appeal can be obtained directly from the Tribunal at: Tel: (416) 212-6349, Fax: (416) 314-3717 or www.ert.gov.on.ca**

The above noted activity is approved under s.20.3 of Part II.1 of the Environmental Protection Act.

DATED AT TORONTO this 25th day of July, 2014

THIS NOTICE WAS MAILED
ON Aug. 7, 2014
gc
(Signed)

Tesfaye Gebrezghi, P.Eng.
Director
appointed for the purposes of Part II.1 of the
Environmental Protection Act

DG/
c: District Manager, MOE Kingston - District
Guy Laporte, AECOM ✓

Ontario

Ministry of the Environment / *Ministère de l'Environnement*

Provisional Certificate of Approval for a Waste Disposal Site

Certificat d'autorisation provisoire de décharge

Provisional Certificate of Approval No. / *Certificat d'autorisation provisoire nº* **A371202**

Under the Environmental Protection Act and the regulations and subject to the limitations thereof, this Provisional Certificate of Approval is issued to:

Aux termes de la Loi sur la protection de l'environnement et des règlements y afférents et sous réserve des restrictions qui s'y appliquent, ce Certificat provisoire d'autorisation est délivré à:

Township of Richmond
Selby, Ontario
K0K 2Z0

THIS IS A TRUE COPY OF THE ORIGINAL CERTIFICATE MAILED ON APR 09 1991

D.M.
(Signed)

For the use and operation of a 26 hectare landfilling site for bulky, non-hazardous solid, non-putrescible wastes and a separate transfer facility for domestic and commercial wastes.

All in accordance with the following plans and specifications:

1) **The "Application for a Certificate of Approval for a Waste Disposal Site" dated November 8, 1973 and the supporting information for the said application.**

2) **The letter from J. Tooley, Ministry of the Environment, to J.M. Kimmett, Clerk-Treasurer, Township of Richmond, dated June 17, 1974.**

3) **The "Application for a Certificate of Approval for a Waste Disposal Site (Transfer)" dated February 5, 1987 and the supporting information for the said application.**

This approval is subject to the following definitions and conditions:

Definitions:

"Certificate" means the entire within Certificate of Approval including its schedules, if any, issued in accordance with Section 27, Part V of the Environmental Protection Act;

Dated this / Fait le 9TH *day of / jour de* APRIL 19 91

Director, Section 38
Environmental Protection Act
Directeur, Section 38
Loi sur la protection de l'environnement

1408 (07/86)

Ontario

Ministry of the Environment / *Ministère de l'Environnement*

Provisional Certificate of Approval for a Waste Disposal Site

Certificat d'autorisation provisoire de décharge

The following conditions are additional to the conditions shown on Provisional Certificate
Les conditions ci-dessous s'ajoutent à celles indiquées dans le Certificat d'autorisation
of Approval Number / *provisoire n°* A371202 dated / *fait le*

"Director" means the Director of the Southeastern Region of the Ministry or his appointee;

"District Officer" means the District Officer of Kingston District Office, Southeastern Region of the Ministry;

"Ministry" means the Ontario Ministry of the Environment;

"Owner" means the Corporation of the Township of Richmond;

"Operator" means the Township of Richmond; its officers, employees, agents or contractors;

"Site" means the 26 hectare landfilling site described in this Certificate.

"Facility" means the separate transfer operation located on the landfilling site.

General Conditions:

1. The requirements of this Certificate are imposed pursuant to Part V of the Environmental Protection Act. The issuance of this Certificate in no way abrogates the owner/operator's legal obligations to take all reasonable steps to avoid violating other applicable provisions of this legislation and the other legislation and regulations.

2. (1) The requirements of this Certificate are severable. If any requirement of this Certificate, or the application of any requirement of this Certificate to any circumstances, is held invalid, the application of such requirement to other circumstances and the remainder of this Certificate shall not be affected thereby.

(2) In all matters requiring the interpretation and implementation of this Certificate, the conditions of the Certificate shall take precedence, followed in descending order by the owner/operator's application and the documentation, referred to in this Certificate.

Ontario

Ministry of the Environment / *Ministère de l'Environnement*

Provisional Certificate of Approval for a Waste Disposal Site

Certificat d'autorisation provisoire de décharge

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of Approval Number *provisoire n°* A371202 dated *fait le*

3. No wastes other than clean, dry brush and lumber will be burned at this site. Such burning will be carried out in accordance with the Ministry of the Environment's "Guidelines for Burning at Landfill Sites in Ontario".

4. (1) The owner/operator shall notify the District Officer in writing of any change in ownership, the operation or both within 30 days of the change occurring and;

(2) The owner/operator shall ensure that all communications made pursuant to this condition will refer to this Certificate's number.

5. The operation of a separate transfer facility is approved under this Certificate. The operation and use of the transfer facility is limited to the collection and transfer of domestic and commercial wastes from households and businesses in the Township of Richmond.

6. All site personnel shall have practical knowledge of the waste material to be handled under this Certificate and shall be fully and knowledgeable about requirements under this Certificate.

7. (1) The owner/operator shall establish a safe storage capacity for the site consistent with the application for this Certificate and shall ensure that this capacity is not exceeded by:

(i) providing regular movement of the wastes to approved waste disposal sites;
(ii) limiting the storage time of any waste type at the facility to a maximum of 30 days.

(2) All waste collected shall be transported from the site by an approved waste management system.

Ontario

Ministry of the Environment / *Ministère de l'Environnement*

Provisional Certificate of Approval for a Waste Disposal Site

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of Approval Number / *provisoire n°* A371202 dated / *fait le*

8. The owner/operator shall ensure that adequate fire fighting equipment is available at the site and that personnel are familiar with the use of such equipment.

1408 (07/88) Continuation Page

Ministry of the Environment / Ministère de l'Environnement

Ontario

Notice Avis

To:
Destinataire: The Township of Richmond
Selby, Ontario
K0K 2Z0

You are hereby notified that Provisional Certificate of Approval No. A371202 has been issued to you, subject to the conditions outlined therein.

1. The reason for Conditions 1 and 3 is to clarify the legal rights and obligations of this Provisional Certificate of Approval.

2. The reasons for Conditions 2, 4 and 5 are to ensure that the waste disposal site is operated in accordance with the application for this Certificate and supporting information and not under any name or in any way which the Director has not been asked to consider.

3. The reasons for Conditions 6, 7 and 8 are to ensure that the waste recycling site is properly managed in an organized manner by adequately trained persons, in order to prevent environmental detriment and to ensure the safety of the general public and site personnel.

You may, by written notice served upon me and the Environmental Appeal Board within 15 days after receipt of this Notice, require a hearing by the Board. Section 122a of the Environmental Protection Act, as amended in 1983, provides that the Notice requiring the hearing shall state the portion of each Term or Condition and the approval in respect of which the hearing is required and the grounds on which you intend to rely at the hearing.

This Notice should be served upon:

The Secretary
Environmental Appeal Board
112 St. Clair Ave. West
5th Floor
Toronto, Ontario
M4V 1N3

The Director
Section 38, EPA
Ministry of the Environment
133 Dalton Avenue, Box 820
Kingston, Ontario
K7L 4X6

Dated at Kingston this 9TH day of APRIL, 1991.

B R Ward

Director
Section 38, E.P.A.
Ministry of the Environment

THIS IS A TRUE COPY OF THE ORIGINAL NOTICE MAILED ON
APR 09 1991
D. M.
(Signed)

17718 (08/90)

Ontario

Ministry of the Environment
Ministère de l'Environnement

AMENDMENT TO ENVIRONMENTAL COMPLIANCE APPROVAL
NUMBER A371202
Notice No. 1
Issue Date: July 25, 2014

RECEIVED AUG 1 1 2014

The Corporation of the Town of Greater Napanee
124 John St P.O. Box 97
Greater Napanee, Ontario
K7R 3L4

Site Location: Roblin Waste Disposal Site (aka Richmond Twp. WDS)
237 Roblin Rd just east of County Road 41, Lot 19, Concession 8, former Township of Richmond
Greater Napanee Town, County of Lennox and Addington

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5. Only waste generated from within the Township of Greater Napanee shall be received at the *Site* .

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9.0 Landfill Closure

9.1 (1) The *Site* shall no longer accept waste for final disposal (landfilling) at the *Site* .

(2) The *Owner* shall ensure the final cover, final grading and post-closure activities for the landfill are completed in accordance with Items No. 4, 5 and 6 in Schedule "A".

9.2 Monitoring programs shall be carried out for groundwater, leachate and surface water in accordance with Schedules "B" attached to this *ECA*.

10.0 Contingency Plans and Trigger Mechanisms

10.1 By **February 1, 2015**, the *Owner* shall submit to the *Director,* for approval, and copies to the *District Manager* , details of a trigger mechanism plan for surface water and groundwater quality monitoring for the purpose of initiating investigative activities into the cause of increased contaminant concentrations at the site's point of compliance.

10.2 By **February 1, 2015**, the *Owner* shall submit to the *Director* for approval, and copies to the *District Manager* , details of a contingency plan to be implemented in the event that the surface water or groundwater quality exceeds the trigger mechanism at the *Site* 's point of compliance.

10.3 In the event of a confirmed exceedance of a site-specific trigger level relating to leachate mounding or groundwater or surface water impacts due to leachate at the site's point of compliance, the *Owner* shall immediately notify the *District Manager* , and an investigation into the cause and the need for implementation of remedial or contingency actions shall be carried out by the *Owner* in accordance with the approved trigger mechanisms and associated contingency plans.

10.4 If monitoring results, investigative activities and/or trigger mechanisms indicate the need to implement contingency measures, the *Owner* shall ensure that the following steps are taken:

a.) The *Owner* shall notify the *District Manager* , in writing of the need to implement contingency measures, no later than 30 days after confirmation of the exceedances;
b.) Detailed plans, specifications and descriptions for the design, operation and maintenance of the contingency measures shall be prepared and submitted by the *Owner* to the *District Manager* for approval; and
c.) The contingency measures shall be implemented by the *Owner* upon approval by the *District Manager.*

10.5 The *Owner* shall ensure that any proposed changes to the site-specific trigger levels for leachate impacts to the surface water or groundwater, shall be approved in advance by the *Director* via an amendment to this *ECA* .

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Waste Transfer Facility

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i. Saturday from 8:00 am to 3:00 pm.

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(3) Notwithstanding Condition 11.8 (2), with prior written approval of the *District Manager* , the time periods may be extended to accommodate seasonal or unusual quantities of waste, construction activities or such factors as determined to be reasonable to the *District Manager* .

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The following Items are hereby added to Schedule "A":

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Schedule "B"

This Schedule forms part of the *ECA* . It describes the groundwater and surface water monitoring program referred to in Condition 9.2.

B.1. Groundwater

B.1.1 Groundwater Monitoring Program Objectives

The overall goal of the groundwater monitoring program is to detect and assess effects of the landfill on local water resources. The following objectives have been identified to achieve this goal:

a) to monitor groundwater quality in the groundwater system;
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B.1.2 Monitoring Plan

The groundwater monitoring plan shall be carried out by the Owner to address the stated objectives and will include:

B.1.2.1 Landfill Monitoring Frequency

The groundwater monitoring program shall be conducted twice per year during the spring and fall.

B.1.2.2 Groundwater Monitor Sampling Locations

Table B-1 identifies the groundwater monitors sampling locations. If a monitoring well is dry or damaged then that well does not have to be sampled that sampling event. Static water levels shall be collected in all the groundwater monitors prior to purging and sampling:

Table B-1: Groundwater Sampling Location

MW1	MW 2

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The parameters which shall be measured in the field, along with the chemical and physical laboratory analyses which shall be collected on the groundwater samples from the groundwater monitors, shall include the following:

Table B-2: Analytical Parameters

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pH (lab)	TKN

Temperature(field)	Potassium
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Conductivity (lab)	Boron
Anion sum	Iron
Cation Sum	VOCs
Ion Ratio	BOD
% Differences	COD
Hardness	TDS
Ammonia	Magnesium
Nitrate	Sulphate

Notes: (1) - VOCs samples shall be collected at MW1 (annually).

B.1.2.4 Groundwater Monitor Inspections

Any groundwater monitoring well found to be damaged, not functioning or otherwise improperly maintained, shall within a reasonable time be properly repaired or replaced. The District Manager shall be notified prior to any well being replaced.

B.1.2.5 Groundwater Monitoring Protocols

Standard and/or generally accepted groundwater sampling (including well development, sample collection, storage and transport) and analytical protocols shall be adhered to during all groundwater monitoring sessions. Groundwater elevation measurements shall be of the static groundwater elevation within the groundwater monitoring well measured prior to well development.

B.1.2.6 Method Detection Limits

All laboratory analyses on groundwater samples shall be performed by an accredited analytical laboratory and the detection limits (MDLs) for the specific analyses should commensurate with the standards established in the current Ontario Drinking Water Standards.

B.2. Surface Water

B.2.1 Surface Water Monitoring Program Objectives

The primary goal of the Surface Water Monitoring Program is to monitor for any landfill-related impairment of surface water above Provincial Water Quality Objectives (PWQOs). Where the concentration of a specific parameter already exceeds the PWQO in background surface waters, the aim is to allow no further deterioration of surface water quality.

B.2.2 Monitoring Plan

The surface water monitoring plan shall be carried out by the Owner to address the stated objectives and will include:

B.2.2.1 Landfill Monitoring Frequency

The surface water monitoring program shall be conducted twice per year during the spring and late summer/early fall.

B.2.2.2 Surface Water Sampling Locations

Table B-3: Surface Water Sampling Locations

SW1	SW2	SW3

B.2.2.3 Analytical Parameters

The parameters which shall be measured in the field, along with the chemical and physical laboratory analyses which shall be collected on the surface water samples, shall include the following:

Table B-4: Surface Water Analytical Parameters

pH (field)	Phenolics
pH (lab)	Total Phosphorous
Temperature(field)	Alkalinity
Conductivity (field)	Chloride
Conductivity (lab)	Sodium
Dissolved Oxygen	Calcium
Flow Rate (Field)	Potassium
Anion Sum	Magnesium
Cation Sum	Sulphate
Ion Ratio	Barium
% Differences	Boron
Hardness	Chromium
Ammonia	Copper
TKN	Iron
Nitrate	Manganese
BOD	Iron
COD	Nickel
TSS	Mercury
DOC	Zinc
Cadmium	

B.2.2.4 Surface Water Monitoring Protocols

Standard and/or generally accepted surface water sampling (sample collection, storage and transport) and analytical protocols shall be adhered to during all surface water sampling sessions.

B.1.2.5 Method Detection Limits

All laboratory analyses on surface water samples shall be performed by an accredited analytical laboratory and the detection limits (MDLs) for the specific analyses should commensurate with the standards established in the current Provincial Water Quality Objectives.

The reason(s) for this amendment to the Approval is (are) as follows:

1. *The reason for Condition 9.1 is to ensure that final closure of the Site is completed in an aesthetically pleasing manner and to ensure the long-term protection of the natural environment.*

2. *The reason for Conditions 9.2 is to demonstrate that the landfill site is performing as designed and the impacts on the natural environment are acceptable. Regular monitoring allows for the analysis of trends over time and ensures that there is an early warning of potential problems so that any necessary remedial/contingency action can be taken.*

3. *The reason for Conditions 10.1 through 10.5 is to ensure the Owner has a plan with an organized set of procedures for identifying and responding to potential issues relating to groundwater and surface water contamination near or at the site's compliance point.*

4. *The reasons for Conditions 11.1 through 11.12 are to ensure the waste transfer is completed in accordance with Ministry standards, and to ensure long-term protection of the health and safety of the public and the environment.*

This Notice shall constitute part of the approval issued under Approval No. A371202 dated April 9, 1991

In accordance with Section 139 of the Environmental Protection Act, you may by written Notice served upon me and the Environmental Review Tribunal within 15 days after receipt of this Notice, require a hearing by the Tribunal. Section 142 of the Environmental Protection Act provides that the Notice requiring the hearing shall state:

1. The portions of the environmental compliance approval or each term or condition in the environmental compliance approval in respect of which the hearing is required, and;
2. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

Pursuant to subsection 139(3) of the Environmental Protection Act, a hearing may not be required with respect to any terms and conditions in this environmental compliance approval, if the terms and conditions are substantially the same as those contained in an approval that is amended or revoked by this environmental compliance approval.

The Notice should also include:

3. The name of the appellant;
4. The address of the appellant;
5. The environmental compliance approval number;
6. The date of the environmental compliance approval;
7. The name of the Director, and;
8. The municipality or municipalities within which the project is to be engaged in.

And the Notice should be signed and dated by the appellant.

This Notice must be served upon:

The Secretary*
Environmental Review Tribunal
655 Bay Street, Suite 1500
Toronto, Ontario
M5G 1E5

AND

The Director appointed for the purposes of
Part II.1 of the Environmental Protection Act
Ministry of the Environment
2 St. Clair Avenue West, Floor 12A
Toronto, Ontario
M4V 1L5

*** Further information on the Environmental Review Tribunal's requirements for an appeal can be obtained directly from the Tribunal at: Tel: (416) 212-6349, Fax: (416) 314-3717 or www.ert.gov.on.ca**

The above noted activity is approved under s.20.3 of Part II.1 of the Environmental Protection Act.

DATED AT TORONTO this 25th day of July, 2014

Tesfaye Gebrezghi, P.Eng.
Director
appointed for the purposes of Part II.1 of the
Environmental Protection Act

DG/
c: District Manager, MOE Kingston - District
Guy Laporte, AECOM

APPENDIX III

Monitoring Elevations and Details

PINCHIN

TABLE 1
Groundwater Elevation Data
Roblin Waste Disposal Site and Waste Transfer Station
Town of Napanee, Ontario

Well ID Number	Date (dd/mm/yyyy)	Ground Surface Elevation (masl)	TOC Elevation (masl)	Height of TOC from Ground Surface (m)	Water Level Measurement from TOC (m)	Total Well Depth from TOC (m)	Depth to Groundwater (mbgs)	Calculated Water Level Elevation (masl)	Comments
MW1	12/8/2009	33.09	33.99	0.90	ND	ND	ND	ND	
	4/27/2010			0.90	ND	ND	ND	ND	
	10/13/2010			0.90	ND	ND	ND	ND	
	5/5/2011			0.90	ND	ND	ND	ND	
	11/4/2011			0.90	ND	ND	ND	ND	
	6/18/2012			0.90	ND	ND	ND	ND	
	11/13/2012			0.90	ND	ND	ND	ND	
	6/4/2013			0.90	ND	ND	ND	ND	
	11/29/2013			0.90	ND	ND	ND	ND	
	5/27/2014			0.90	ND	ND	ND	ND	
	10/30/2014			0.90	ND	ND	ND	ND	
	5/11/2015			0.90	ND	ND	ND	ND	
	11/4/2015			0.90	ND	ND	ND	ND	
	6/6/2016			0.90	ND	ND	ND	ND	
	10/14/2016			0.90	ND	ND	ND	ND	
	6/12/2017			0.90	ND	ND	ND	ND	
	11/3/2017			0.90	ND	ND	ND	ND	
	5/30/2018			0.90	ND	ND	ND	ND	
	10/30/2018			0.90	ND	ND	ND	ND	
	11/2/2018			0.90	ND	ND	ND	ND	
	11/7/2018			0.90	ND	ND	ND	ND	
	4/16/2019			0.90	ND	ND	ND	ND	
	10/7/2019			0.90	ND	ND	ND	ND	
	4/21/2020			0.90	ND	ND	ND	ND	
	4/24/2020			0.90	ND	ND	ND	ND	
	10/28/2020			0.90	ND	ND	ND	ND	
	5/26/2021			0.90	ND	ND	ND	ND	
	10/19/2021			0.90	ND	ND	ND	ND	
	4/20/2022			0.90	ND	ND	ND	ND	
	11/22/2022			0.90	ND	ND	ND	ND	
	5/8/2023			0.90	ND	ND	ND	ND	
	10/12/2023			0.90	ND	ND	ND	ND	
	5/15/2024			0.90	25.62	ND	24.72	8.37	
	11/14/2024			0.90	26.88	ND	25.98	7.11	
	2025/05/07			0.90	26.14	28.50	25.24	7.85	
	2025/10/07			0.90	28.01	28.73	27.11	5.98	
MW2	2009/12/08	32.41	33.41	1.00	ND	ND	ND	ND	
	2010/04/27			1.00	ND	ND	ND	ND	
	2010/10/13			1.00	ND	ND	ND	ND	
	2011/05/05			1.00	ND	ND	ND	ND	
	2011/11/04			1.00	ND	ND	ND	ND	
	2012/06/18			1.00	ND	ND	ND	ND	
	2012/11/13			1.00	ND	ND	ND	ND	
	2013/04/06			1.00	ND	ND	ND	ND	
	2013/06/04			1.00	ND	ND	ND	ND	
	2013/11/29			1.00	ND	ND	ND	ND	
	2014/05/27			1.00	ND	ND	ND	ND	
	2014/10/30			1.00	ND	ND	ND	ND	
	2015/05/11			1.00	ND	ND	ND	ND	
	2015/11/04			1.00	ND	ND	ND	ND	
	2016/06/06			1.00	ND	ND	ND	ND	
	2016/10/14			1.00	ND	ND	ND	ND	
	2017/06/12			1.00	ND	ND	ND	ND	
	2017/11/03			1.00	ND	ND	ND	ND	
	2018/05/30			1.00	ND	ND	ND	ND	
	2018/10/30			1.00	ND	ND	ND	ND	
	2019/04/16			1.00	ND	ND	ND	ND	
	2019/10/07			1.00	ND	ND	ND	ND	
	2020/04/21			1.00	ND	ND	ND	ND	
	2020/10/28			1.00	ND	ND	ND	ND	
	2021/05/26			1.00	ND	ND	ND	ND	
	2021/10/19			1.00	ND	ND	ND	ND	
	2022/04/20			1.00	ND	ND	ND	ND	
	2022/11/22			1.00	ND	ND	ND	ND	
	2023/05/08			1.00	ND	ND	ND	ND	
	2023/10/12			1.00	ND	ND	ND	ND	
	2024/05/15			1.00	ND	ND	ND	ND	
	11/14/2024			1.00	2.66	ND	1.66	30.75	
	5/7/2025			1.00	2.54	ND	1.54	30.87	
	10/7/2025			1.00	2.71	10.37	1.71	30.70	
				1.00	3.21	10.37	2.21	30.20	

Notes:

mbgs	Meters below ground surface
masl	Meters above sea level
m	Meters
TOC	Top of casing
ND	No data available

APPENDIX IV

Photographic Log



MW-1

(May 07, 2025)



MW-2

(May 07, 2025)

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MW-1

(October 07, 2025)



MW-1

(October 07, 2025)

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SW-1

(May 08, 2025)



SW-2

(May 08, 2025)

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SP-3

(May 08, 2025)

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APPENDIX V

Groundwater Summary Tables

PINCHIN

TABLE 2
Groundwater Quality Results - MW1
Roblin Waste Disposal Site and Waste Transfer Station
Town of Greater Napanee, Ontario

Parameter	Units	Sample Designation																							ODWQS	PWQO
		Sample Collection Date (dd/mm/yyyy)																								
		MW1																								
		6-6-16	*14-10-16*	*12-6-17*	*3-11-17*	*3/11/17 Lab Duplicate*	*30-5-18*	*30-10-18*	*2-11-18*	*7-11-18*	*16-4-19*	*7-10-19*	*21-4-20*	*24-4-20*	*28-10-20*	*26-5-21*	*19-10-21*	*20-4-22*	*22-11-22*	*8-5-23*	*12-10-23*	*5-5-24*	*15-5-24*	*14-11-24*	*13-5-25*	*14-10-25*		
Alkalinity	mg/L	DRY	DRY	308.00	307.00	310.00	318.00	329.00	281.00	-	82.00	318.00	325.00	-	DRY	DRY	DRY	345.00	355.00	361.00	DRY	DRY	328.00	DRY	314	264	30 - 500	-
Ammonia	mg/L	-	-	0.0200	0.0200	0.0100	0.1100	0.1900	0.2300	-	0.0200	0.0500	<0.010	-	-	-	-	<0.010	0.0370	0.0260	-	-	<0.020	-	-	-	-	-
Ammonia+Ammonium (N)	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	< 0.1	-	-
Biochemical Oxygen Demand (BOD_5)	mg/L	-	-	2.00	3.00		<1	2.00	2.00	-	3.00	6.00	<1	-	-	-	-	<1	1.00	3.00	-	-	3.00	-	5	-	-	-
COD	mg/L	-	-	22.0	12.0	21.0	<5	12.0	29.0	-	12.0	46.0	11.0	-	-	-	-	<5	45.00	<5	-	-	7.00	-	12	< 8	-	-
Conductivity	uS/cm	-	-	1320.00	1440.00	1450.00	1290.00	1440.00	604.00	-	204.00	1420.00	1380.00	-	-	-	-	1450.00	1370.00	1340.00	-	-	1290.00	-	1280	1410	-	-
Hardness	mg/L	-	-	**717.00**	**788.00**	**781.00**	**703.00**	**781.00**	**298.00**	-	91.00	**779.00**	**734.00**	-	-	-	-	**801.00**	**794.00**	**768.00**	-	-	**730.00**	-	**788**	-	80 - 100	-
pH	pH Units	-	-	7.76	8.04	8.07	7.78	7.91	8.07	-	7.76	7.74	7.72	-	-	-	-	7.81	7.42	7.60	-	-	7.83	-	7.91	7.98	6.5 - 8.5	-
DOC	mg/L	-	-	**8.20**	4.10	**5.80**	2.80	2.00	3.70	-	**5.70**	1.60	1.10	-	-	-	-	2.00	2.30	1.50	-	-	1.10	-	2.00	-	5.00	-
Chloride	mg/L	-	-	28.70	29.20	29.30	36.00	42.00	20.00	-	14.00	42.00	34.00	-	-	-	-	32.00	33.00	31.00	-	-	30.00	-	35	39	250.00	-
Nitrate	mg/L	-	-	1.16	0.39	0.48	1.39	1.33	0.15	-	0.35	1.06	1.42	-	-	-	-	0.64	0.14	<0.10	-	-	0.37	-	0.46	0.10	10.00	-
Nitrite	mg/L	-	-	-	-	-	< 0.1	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.00	-
Sulphate	mg/L	-	-	302.00	336.00	340.00	384.00	487.00	21.00	-	8.00	446.00	443.00	-	-	-	-	468.00	446.00	426.00	-	-	391.00	-	450.0	500.0	500.00	-
TDS	mg/L	-	-	28.70	29.20	29.30	36.00	42.00	20.00	-	14.00	42.00	34.00	-	-	-	-	32.00	33.00	31.00	-	-	30.00	-	**917**	-	500.00	-
Magnesium	mg/L	-	-	69.30	81.10	80.60	64.00	78.00	25.00	-	4.00	74.00	66.00	-	-	-	-	78.00	77.00	75.00	-	-	73.00	-	69.10	-	-	-
Calcium	mg/L	-	-	173.00	182.00	180.00	176.00	184.00	78.00	-	30.00	190.00	185.00	-	-	-	-	192.00	191.00	184.00	-	-	172.00	-	201.00	-	-	-
Sodium	mg/L	-	-	12.50	24.80	24.70	17.00	23.00	7.00	-	6.00	22.00	18.00	-	-	-	-	22.00	20.00	20.00	-	-	17.00	-	17.30	-	200.00	-
Iron	mg/L	-	-	0.01	***0.13***	***0.26***	***0.74***	***6.60***	***2.09***	-	***0.39***	<0.03	0.03	-	-	-	-	0.10	***15.10***	***3.05***	-	-	***0.81***	-	0.01	-	0.30	0.30
Potassium	mg/L	-	-	-	-	-	8.00	7.00	6.00	-	1.00	8.00	7.00	-	-	-	-	7.00	7.00	6.00	-	-	7.00	-	5.93	-	-	-
Manganese	mg/L	-	-	0.00	0.03	0.03	0.03	**0.11**	0.04	-	0.04	<0.01	<0.01	-	-	-	-	0.02	**0.30**	**0.08**	-	-	**0.06**	-	0.02	-	0.05	-
Arsenic	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0004	-	0.03	0.10
Boron	mg/L	-	-	-	-	-	0.00	0.01	0.00	-	<0.001	<0.001	<0.001	-	-	-	-	<0.001	0.02	0.002	-	-	<0.001	-	1.09	-	5.00	0.20
Barium	mg/L	-	-	**1.03**	**1.35**	**1.35**	**1.20**	**1.10**	0.34	-	0.02	**1.20**	**1.35**	-	-	-	-	**1.30**	**1.41**	**1.33**	-	-	**1.31**	-	0.02	-	1.00	-
Cadmium	mg/L	-	-	**0.02**	**0.02**	**0.02**	**0.02**	**0.04**	**2.30**	-	**0.04**	**0.02**	**0.02**	-	-	-	-	**0.03**	**0.08**	**0.02**	-	-	**0.02**	-	0.00001	-	0.01	0.0002
Chromium	mg/L	-	-	0.00	0.00	0.00	0.00	0.00	0.00	-	<0.0001	<0.0001	<0.0001	-	-	-	-	<0.0001	0.0003	<0.0001	-	-	<0.0001	-	0.00011	-	0.05	0.01
Copper	mg/L	-	-	0.00	0.00	0.00	<0.001	0.00	0.00	-	<0.001	<0.001	<0.001	-	-	-	-	<0.001	0.0040	<0.001	-	-	<0.001	-	< 0.001	-	1.00	0.01
Mercury	mg/L	-	-	**0.00180**	0.00050	0.00100	**0.00400**	**0.02100**	**0.01100**	-	0.00100	<0.001	<0.001	-	-	-	-	<0.001	**0.03300**	**0.00700**	-	-	<0.001	-	< 0.0001	-	0.001	0.0002
Lead	mg/L	-	-	0.00	0.00	0.00	<0.0001	<0.0001	<0.0001	-	<0.0001	<0.0001	<0.0001	-	-	-	-	<0.0001	<0.0001	<0.0001	-	-	<0.0001	-	< 0.00009	-	0.01	0.01
Zinc	mg/L	-	-	0.00	0.00	0.00	0.00	0.03	0.01	-	<0.001	<0.001	<0.001	-	-	-	-	<0.001	0.063	0.008	-	-	<0.001	-	< 0.002	-	5.00	0.02
Total Suspended Solids	mg/L	-	-	2400.00	1860.00		138.00	<2	266.00	-	3.00	1330.00	205.00	-	-	-	-	82.00	494.00	129.00	-	-	15.00	-	-	-	-	-
Total Kjedhal Nitrogen	mg/L	-	-	-	-	-	<0.8	4.10	1.20	-	0.40	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phenols	mg/L	-	-	0.001	0.001	0.001	<0.001	<0.001	NT	-	<0.001	0.001	<0.001	-	-	-	-	<0.001	<0.001	<0.001	-	-	<0.001	-	< 0.002	v	-	0.001
Total Phosphorus	mg/L	-	-	***2.43***	***0.08***	***0.12***	***0.08***	***0.09***	***0.06***	-	***0.03***	***0.19***	***0.04***	-	-	-	-	0.02	***0.21***	***0.03***	-	-	**0.37**	-	< 0.03	< 0.03	-	0.02
Anion Sum	meq/L	-	-	13.20	14.00	14.10	15.50	18.00	6.63	-	2.23	16.90	16.80	-	-	-	-	17.60	17.30	16.40	-	-	15.60	-	16.57	-	-	-
Cation Sum	meq/L	-	-	15.00	17.00	16.90	15.00	16.80	6.42	-	2.11	16.70	15.60	-	-	-	-	17.10	16.90	17.00	-	-	15.50	-	16.64	-	-	-
Ion Ratio	AS/CS	-	-	0.88	0.82	0.84	0.97	0.93	0.97	-	0.95	0.99	0.93	-	-	-	-	0.97	0.98	0.96	-	-	1.00	-	1.00	-	-	-
Anion-Cation Balance	%	-	-	6.37	9.87	8.90	1.54	3.47	1.60	-	2.59	0.51	3.58	-	-	-	-	1.32	1.20	1.76	-	-	0.21	-	0.22	-	-	-
Langeliers Index 4° C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.49	-	-	-
Saturation pH 4°C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.20	-	-	-
1,1,1,2-tetrachloroethane	ug/L	-	-	-	-	-	-	-	-	<0.4	-	<0.4	-	<0.5	-	-	-	-	<0.4	-	-	-	-	-	-	-	-	20.00
1,1,1-trichloroethane	ug/L	-	-	-	-	-	-	-	-	<0.5	-	<0.5	-	<0.5	-	-	-	-	<0.5	-	-	-	-	-	-	-	-	10.00
1,1,2,2-tetrachloroethane	ug/L	-	-	-	-	-	-	-	-	<0.4	-	<0.4	-	<0.5	-	-	-	-	<0.4	-	-	-	-	-	-	-	-	70.00
1,1,2-trichloroethane	ug/L	-	-	-	-	-	-	-	-	<0.4	-	<0.4	-	<0.5	-	-	-	-	<0.4	-	-	-	-	-	-	-	-	800.00
1,1-dichloroethane	ug/L	-	-	-	-	-	-	-	-	<0.5	-	<0.5	-	<0.5	-	-	-	-	<0.5	-	-	-	-	-	-	-	-	100.00
1,1-dichloroethylene	ug/L	-	-	-	-	-	-	-	-	<0.2	-	<0.2	-		-	-	-	-	<0.5	-	-	-	-	-	-	-	14.00	40.00
1,2-dibromoethane	ug/L	-	-	-	-	-	-	-	-	<0.4	-	<0.4	-	<0.5	-	-	-	-	<0.4	-	-	-	-	-	-	-	-	-
1,2-dichlorobenzene	ug/L	-	-	-	-	-	-	-	-	<0.2	-	<0.2	-	<0.5	-	-	-	-	<0.5	-	-	-	-	-	-	-	200.00	2.50
1,2-dichloroethane	ug/L	-	-	-	-	-	-	-	-	<0.5	-	<0.5	-	<0.05	-	-	-	-	<0.5	-	-	-	-	-	-	-	5.00	-
1,2-dichloropropane	ug/L	-	-	-	-	-	-	-	-	<0.3	-	<0.3	-		-	-	-	-	<0.3	-	-	-	-	-	-	-	-	0.70
1,3,5-trimethylbenzene	ug/L	-	-	-	-	-	-	-	-	<0.4	-	<0.4	-	<0.05	-	-	-	-	<0.4	-	-	-	-	-	-	-	-	-
1,3-dichlorobenzene	ug/L	-	-	<0.2	<0.2		-	-	-	<0.4	-	<0.4	-	<0.05	-	-	-	-	<0.4	-	-	-	-	-	-	-	-	2.50
1,4-dichlorobenzene	ug/L	-	-	-	-	-	-	-	-	<0.5	-	<0.5	-	<0.02	-	-	-	-	<0.5	-	-	-	-	-	< 0.5	-	5.00	4.00
Benzene	ug/L	-	-	-	-	-	-	-	-	<0.3	-	<0.3	-	<0.05	-	-	-	-	<0.3	-	-	-	-	-	< 0.5	-	1.00	100.00
Bromodichloromethane	ug/L	-	-	-	-	-	-	-	-	<0.4	-	<0.4	-	<0.05	-	-	-	-	<0.4	-	-	-	-	-	-	-	-	200.00
Bromoform	ug/L	-	-	-	-	-	-	-	-	<0.5	-	<0.5	-	<0.05	-	-	-	-	<0.5	-	-	-	-	-	-	-	-	60.00
Bromomethane	ug/L	-	-	-	-	-	-	-	-	<0.4	-	<0.4	-	<0.05	-	-	-	-	<0.4	-	-	-	-	-	-	-	-	0.90
c-1,2-Dichloroethylene	ug/L	-	-	-	-	-	-	-	-	<0.2	-	<0.2	-	<0.05	-	-	-	-	<0.5	-	-	-	-	-	-	-	-	200.00
c-1,3-Dichloropropylene	ug/L	-	-	-	-	-	-	-	-	<0.2	-	<0.2	-	<0.05	-	-	-	-	<0.2	-	-	-	-	-	-	-	-	7.00
Carbon Tetrachloride	ug/L	-	-	-	-	-	-	-	-	<0.2	-	<0.2	-		-	-	-	-	<0.5	-	-	-	-	-	-	-	2.00	-
Chloroethane	ug/L	-	-	-	-	-	-	-	-	<0.5	-	<0.5	-	<0.05	-	-	-	-	<0.5	-	-	-	-	-	-	-	-	-
Chloroform	ug/L	-	-	-	-	-	-	-	-	<0.2	-	<0.2	-		-	-	-	-	<0.2	-	-	-	-	-	-	-	-	-
Chloromethane	ug/L	-	-	-	-	-	-	-	-	<0.3	-	<0.3	-	<0.05	-	-	-	-	<0.3	-	-	-	-	-	-	-	-	700.00
Dibromochloromethane	ug/L	-	-	-	-	-	-	-	-	<0.5	-	<0.5	-	<0.05	-	-	-	-	<0.5	-	-	-	-	-	-	-	-	-
Dichlorodifluoromethane	ug/L	-	-	< 0.3	< 0.3	-	-	-	-	<4.0	-	<4.0	-	<0.05	-	-	-	-	<4.0	-	-	-	-	-	-	-	-	-
Dichloromethane	ug/L	-	-	-	-	-	-	-	-	<0.5	-	<0.5	-	<0.05	-	-	-	-	<0.5	-	-	-	-	-	< 0.5	-	50.00	0.10
Ethylbenzene	ug/L	-	-	-	-	-	-	-	-	<0.4	-	<0.4	-	<0.05	-	-	-	-	<0.4	-	-	-	-	-	-	-	140.00	8.00
m/p-xylene	ug/L	-	-	-	-	-	-	-	-	<0.5	-	<0.5	-	<0.05	-	-	-	-	<0.5	-	-	-	-	-	-	-	-	-
Monochlorobenzene	ug/L	-	-	-	-	-	-	-	-	<0.4	-	<0.4	-	<0.05	-	-	-	-	<0.4	-	-	-	-	-	-	-	80.00	-
o-xylene	ug/L	-	-	-	-	-	-	-	-	<0.5	-	<0.5	-	<0.05	-	-	-	-	<0.5	-	-	-	-	-	-	-	-	-
Styrene	ug/L	-	-	-	-	-	-	-	-	<0.4	-	<0.4	-	<0.05	-	-	-	-	<0.4	-	-	-	-	-	-	-	-	-
t-1,2-Dichloroethylene	ug/L	-	-	-	-	-	-	-	-	<0.2	-	<0.2	-	<0.05	-	-	-	-	<0.5	-	-	-	-	-	-	-	-	200.00
t-1,3-Dichloropropylene	ug/L	-	-	-	-	-	-	-	-	<0.3	-	<0.3	-	<0.05	-	-	-	-	<0.3	-	-	-	-	-	-	-	-	7.00
Tetrachloroethylene	ug/L	-	-	< 0.5	< 0.5	-	-	-	-	<0.5	-	<0.5	-	<0.20	-	-	-	-	<0.4	-	-	-	-	-	-	-	10.00	-
Toluene	ug/L	-	-	-	-	-	-	-	-	<0.3	-	<0.3	-	<0.05	-	-	-	-	<0.3	-	-	-	-	-	< 0.5	-	60.00	0.80
Trichloroethylene	ug/L	-	-	-	-	-	-	-	-	<0.5	-	<0.5	-	<0.05	-	-	-	-	<0.5	-	-	-	-	-	-	-	5.00	20.00
Trichlorofluoromethane	ug/L	-	-	< 0.2	<0.2	-	-	-	-	<0.2	-	<0.2	-	<0.02	-	-	-	-	<0.2	-	-	-	-	-	-	-	-	-
Vinyl Chloride	ug/L	-	-	-	-	-	-	-	-	<0.5	-	<0.5	-	<0.05	-	-	-	-	<0.5	-	-	-	-	-	< 0.2	-	1.00	600.00
Xylene; total	ug/L	-	-	-	-	-	-	-	-	<0.5	-	<0.5	-	<0.05	-	-	-	-	<0.5	-	-	-	-	-	-	-	90.00	40.00
Field Parameters																												
Temperature	°C	-	-	-	-	-	7.63	NM	NM	-	9.20	-	2.68	-	-	-	-	4.70	-	5.10	-	-	7.36	-	-	-	-	-
pH	pH Units	-	-	7.76	8.04	8.07	7.78	7.91	8.07	-	7.76	7.74	7.72	-	-	-	-	7.81	7.42	7.60	-	-	7.83	-	-	-	-	-
Conductivity	uS/cm	-	-	1320	1440	1450	1290	1440	604	-	204	1420	1380	-	-	-	-	1450	1370	1340	-	-	1290	-	-	-	-	-
Oxidation Reduction Potential	mV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Oxygen	mg/L	-	-	308.00	307.00	310.00	318.00	329.00	281.00	-	82.00	318.00	325.00	-	-	-	-	345.00	355.00	361.00	-	-	328.00	-	-	-	-	-
TDS	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1040.00	-	862.00	-	-	2035.00	-	-	-	-	-

Notes:

PWQO	Provincial Water Quality Objectives
ODWQS	Ontario Drinking Water Quality Standards - Ontario Regulation 169/03 "Ontario Drinking Water Quality Standards" under the Safe Drinking Water Act", dated 2002, and "Technical Support Document for Ontario Drinking Water Standards, Objectives and Guidelines", dated June 2003.
BOLD	Exceeds PWQO
BOLD	Exceeds ODWQS
Units	All Units in mg/L Unless Otherwise Noted.

Pinchin Project No. 350221.002

TABLE 3
Groundwater Quality Results - MW2
Roblin Waste Disposal Site and Waste Transfer Station
Town of Greater Napanee, Ontario

Parameter	Units	Sample Designation																																					ODWQS	PWQO
		Sample Collection Date (dd/mm/yyyy)																																						
		MW2																																						
		#####	#####	*6-6-16*	#####	#####	#####	#####	#####	#####	#####	#####	#####	#####	#####	#####	#####	#####	#####	#####	#####	#####	#####	#####	#####	*8-5-23*	*8-5-23*	#####	#####	#####	#####	#####	#####	*7-5-25*	*7-5-25 (DUP)*	#####	*7-10-25*		
Alkalinity	mg/L	277.00	281.00	281.00	276.00	266.00	275.00	284.00	299.00	289.00	306.00	296.00	302.00	295.00	303.00	301.00	292.00	294.00	289.00	290.00	317.00	317.00	267.00	276.00	286.00	286	303.00	304.00	303.00	303.00	286.00	287.00	284	283	271	277	289	294	30 - 500	-
Ammonia	mg/L	0.2900	0.1500	0.2900	0.3400	0.2700	0.2500	-	-	0.3700	0.1600	0.1700	0.2400	0.2400	0.1300	0.1120	0.1900	0.1650	0.0990	0.1030	0.0760	0.0690	0.1300	0.1280	0.1530	0.185	0.0260	0.0370	0.1080	0.1040	0.0410	0.0620	0.122	0.09	-	-	-	-	-	-
Ammonia+Ammonium (N)	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.10	0.12	< 0.1	< 0.1	-	-
Biochemical Oxygen Demand (BOD_5)	mg/L	2.00	3.00	2.00	9.00	2.00	3.00	2.00	2.00	1.00	1.00	2.00	5.00	6.00	2.00	6.00	2.00	<1	5.00	5.00	12.00	10.00	3.00	4.00	5.00	6	4.00	4.00	<1	3.00	5.00	5.00	8	8.00	< 4	4.00	< 4	< 4	-	-
COD	mg/L	5.0	5.0	5.0	5.0	6.0	12.0	<5	<5	7.0	<5	<5	13.0	12.0	26.0	35.0	10.0	8.0	<5	<5	11.0	<5	<5	<5	<5	25	9.0	10.0	5.0	<5	10.00	10.00	<5	17.00	< 8	< 8	< 8	< 8	-	-
Conductivity	uS/cm	565.00	598.00	583.00	584.00	553.00	627.00	585.00	585.00	583.00	609.00	611.00	640.00	637.00	646.00	644.00	641.00	634.00	591.00	596.00	680.00	672.00	574.00	580.00	604.00	591	606.00	611.00	594.00	588.00	589.00	592.00	597	595	581	589	607	615	-	-
Hardness	mg/L	**249.00**	**303.00**	**300.00**	**259.00**	**276.00**	**310.00**	**304.00**	**304.00**	**296.00**	**309.00**	**326.00**	**335.00**	**335.00**	**329.00**	**327.00**	**296.00**	**296.00**	**314.00**	**311.00**	**324.00**	**324.00**	**281.00**	**288.00**	**317.00**	**314**	**307.00**	**304.00**	**304.00**	**302.00**	**299.00**	**301.00**	**312**	**305**	**271**	**310**	**360**	**357**	80 - 100	-
pH	pH Units	8.02	7.83	7.90	7.92	7.95	8.05	7.84	7.98	8.01	7.84	7.87	8.06	7.89	7.87	7.85	8.25	8.17	7.75	7.72	7.83	7.68	7.90	7.81	7.54	7.24	7.82	7.85	7.61	7.60	7.96	7.88	7.96	7.79	8.09	8.06	7.97	8.12	6.5 - 8.5	-
DOC	mg/L	0.50	0.60	0.90	1.40	3.80	**11.80**	2.30	2.10	1.50	2.00	1.30	1.30	1.40	1.80	1.70	**6.50**	1.30	1.20	1.30	1.90	2.00	2.00	2.00	2.00	2.20	1.30	1.60	2.30	1.80	1.10	1.10	1.80	2.00	1.00	1.00	1.00	1.00	5.0	-
Chloride	mg/L	13.60	16.40	15.30	16.20	14.10	19.40	18.00	19.00	20.00	20.00	21.00	25.00	25.00	20.00	20.00	25.00	23.00	20.00	21.00	21.00	23.00	20.00	20.00	23.00	24	20.00	19.00	20.00	20.00	19.00	19.00	22	22	23	23	25	25	250	-
Nitrate	mg/L	0.10	0.10	0.10	0.10	0.05	0.05	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	< 0.06	< 0.06	< 0.06	< 0.06	10	-
Nitrite	mg/L	0.10	0.10	0.10	0.30	-	-	<0.1	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.00	-
Sulphate	mg/L	4.00	6.00	1.00	3.00	1.00	8.00	15.00	12.00	5.00	24.00	23.00	20.00	20.00	20.00	22.00	23.00	22.00	22.00	25.00	27.00	28.00	12.00	13.00	13.00	12.0	22.00	21.00	17.00	17.00	11.00	11.00	18.0	18.0	12.0	10.0	17.0	17.0	500	-
TDS	mg/L	311.00	329.00	321.00	321.00	304.00	345.00	380.00	380.00	379.00	396.00	397.00	416.00	414.00	420.00	419.00	417.00	412.00	384.00	387.00	442.00	437.00	373.00	377.00	393.00	384	394.00	397.00	386.00	382.00	383.00	385.00	388	387	306	320	380	303	500	-
Magnesium	mg/L	22.60	25.70	25.90	22.70	24.40	25.50	23.00	24.00	24.00	23.00	24.00	25.00	25.00	23.00	23.00	21.00	21.00	24.00	24.00	24.00	24.00	18.00	19.00	23.00	23.00	23.00	23.00	23.00	23.00	24.00	24.00	23.00	22.00	18.60	22.80	24.40	24.00	-	-
Calcium	mg/L	62.70	79.00	77.20	66.40	70.50	81.90	84.00	82.00	79.00	86.00	91.00	93.00	93.00	94.00	93.00	84.00	84.00	86.00	85.00	90.00	90.00	83.00	84.00	89.00	88.00	85.00	84.00	84.00	83.00	80.00	81.00	87.00	86.00	78.00	86.30	104.00	103.00	-	-
Sodium	mg/L	5.40	7.10	6.40	12.70	7.00	8.20	7.00	7.00	6.00	7.00	7.00	6.00	6.00	7.00	7.00	6.00	6.00	8.00	8.00	8.00	7.00	9.00	9.00	8.00	8.00	8.00	8.00	7.00	7.00	8.00	8.00	8.00	8.00	6.21	7.62	7.79	7.75	200	
Iron	mg/L	**1.33**	**0.96**	**1.83**	**0.88**	**1.28**	**1.22**	**1.25**	**0.99**	**2.01**	**0.81**	**0.73**	**1.51**	**1.53**	**1.01**	**1.02**	**1.09**	**1.12**	**1.35**	**1.38**	**1.00**	**1.00**	**0.93**	**0.90**	**0.81**	**0.78**	**1.26**	**1.26**	**1.17**	**1.23**	**0.77**	**0.77**	**0.92**	**0.88**	**0.47**	**0.51**	**0.66**	**0.66**	0.3	0.3
Potassium	mg/L	5.30	5.90	6.20	5.70	-	-	7.00	7.00	6.00	6.00	6.00	6.00	5.00	5.00	5.00	5.00	5.00	6.00	6.00	6.00	6.00	4.00	5.00	6.00	6.00	5.00	5.00	4.00	5.00	6.00	6.00	6.00	6.00	4.60	5.64	5.70	5.58	-	-
Manganese	mg/L	0.01	0.02	0.01	0.03	0.01	0.02	0.02	0.01	0.03	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	<0.05	<0.05	0.02	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.02	0.02	0.01	0.01	0.01	0.01	0.05	-
Arsenic	mg/L	0.00	0.00	0.00	0.00	-	-	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	<0.005	<0.005	0.00	0.00	<0.001	<0.001	0.00	0.00	0.00	0.00	<0.001	<0.001	<0.001	<0.001	<0.001	0.00	0.00	0.00	0.00	0.025	0.100
Boron	mg/L	0.28	0.29	0.32	0.28	0.30	0.29	0.35	0.33	0.27	0.31	0.32	0.33	0.34	0.35	0.33	0.26	0.28	0.32	0.33	0.310	0.31	0.24	0.24	0.29	0.29	0.340	0.34	0.31	0.31	0.33	0.33	0.33	0.27	0.29	0.28	0.28	5	0
Barium	mg/L	**3.41**	**3.36**	**4.16**	**3.68**	**4.65**	**1.63**	1.00	1.00	**4.10**	0.52	0.50	0.60	0.62	0.56	0.57	0.46	0.46	0.48	0.44	0.37	0.38	0.50	0.50	0.87	0.87	0.65	0.66	0.64	0.65	0.93	0.92	0.59	0.59	1.08	1.07	0.80	0.81	1	-
Cadmium	mg/L	0.00	0.00	0.00	0.00	0.00	0.00	<0.0001	<0.0001	0.00	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0005	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.00000	#######	0.00001	0.00001	0.005	0.0002
Chromium	mg/L	0.00	0.03	0.05	0.00	0.00	0.00	<0.001	<0.001	<0.001	<0.001	<0.001	0.00	0.00	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	<0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.01	0.00	0.0001	0.0002	0.0001	0.0001	0.05	0.01
Copper	mg/L	0.00	0.00	0.00	0.00	0.00	0.00	0.00	<0.001	0.01	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	<0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	< 0.001	< 0.001	< 0.001	< 0.001	1	0
Mercury	mg/L	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0003	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0005	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	< 0.00001	< 0.00001	< 0.00001	0.00003	0.001	0.0002
Lead	mg/L	0.00	0.00	0.00	0.00	0.00	0.00	<0.001	<0.001	**0.01**	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	<0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.00	0.00	< 0.00009	< 0.00009	0.01	0.01
Zinc	mg/L	0.01	0.01	0.01	0.01	0.01	0.01	<0.01	<0.01	0.08	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.00	0.00	< 0.002	< 0.002	5	0
Total Suspended Solids	mg/L	44.00	64.00	20.00	22.00	48.00	126.00	419.00	32.00	236.00	217.00	198.00	201.00	195.00	-	-	-	-	105.00	112.00	28.00	16.00	31.00	46.00	33.00	36.00	25.00	18.00	32.00	31.00	65.00	54.00	12.00	10.00	41.00	41.00	28.00	14.00	-	-
Total Kjedhal Nitrogen	mg/L	0.60	0.40	0.40	0.50	-	-	<0.8	<0.8	1.20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phenols	mg/L	0.00	0.00	0.00	0.00	0.00	0.00	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0010	<0.0010	<0.001	0.00	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.00	0.00	< 0.002	< 0.002	< 0.002	< 0.002	-	0.001
Total Phosphorus	mg/L	0.04	0.01	0.01	0.02	0.03	0.04	0.05	0.05	0.03	0.01	0.03	0.03	0.03	0.05	0.06	0.02	0.02	0.04	0.03	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	<0.002	0.02	0.01	0.01	0.01	0.01	< 0.03	< 0.03	< 0.03	< 0.03	-	0.02
Anion Sum	meq/L	5.99	6.19	6.06	6.05	5.73	6.20	6.50	6.77	6.45	7.18	6.99	7.16	7.02	7.04	7.04	7.02	6.99	6.80	6.91	7.49	7.57	6.15	6.35	6.64	6.65	6.61	6.56	6.50	6.47	6.49	6.51	6.68	6.66	6.31	6.38	6.82	6.93	-	-
Cation Sum	meq/L	5.45	6.57	6.54	5.95	6.07	6.78	6.59	6.57	6.36	6.65	6.99	7.13	7.10	7.02	6.97	6.32	6.32	6.77	6.72	6.97	6.93	6.13	6.28	6.85	6.80	7.08	7.05	6.98	6.98	6.47	6.52	6.74	6.61	5.86	6.71	7.72	7.66	-	-
Ion Ratio	AS/CS	1.10	0.94	0.93	1.02	0.94	0.92	1.01	0.97	0.99	0.93	1.00	1.00	1.01	1.00	0.99	0.90	0.90	1.00	0.97	0.93	0.92	1.00	0.99	1.03	1.02	0.93	0.93	0.93	0.93	1.00	1.00	1.01	0.99	0.93	1.05	1.13	1.10	-	-
Anion-Cation Balance	%	4.73	2.93	3.80	0.82	2.87	4.45	0.71	1.49	0.71	3.84	0.04	0.23	0.58	0.11	0.49	5.26	5.01	0.21	1.38	3.61	4.44	0.23	0.57	1.53	1.12	3.44	3.61	3.56	3.75	0.11	0.13	0.50	0.35	-	-	6.21	4.96	-	-
Langeliers Index 4° C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.49	0.64	-	-
Saturation pH 4°C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.48	7.48	-	-
Field Parameters																																								
Temperature	°C	10.60	13.83	9.91	12.50	14.70	10.30	22.70	22.70	11.70	8.04	8.04	12.80	12.80	8.76	8.76	11.04	11.04	11.89	11.89	-	-	8.01	8.01	9.38	9.38	10.23	10.23	12.08	12.08	12.00	12.00	7.13	7.13	11.76	11.76	-	-	-	-
pH	pH Units	7.19	7.46	7.21	6.42	7.45	7.06	7.95	7.95	7.55	7.50	7.50	6.96	6.96	6.93	6.93	7.74	7.74	7.50	7.50	-	-	7.23	7.23	7.52	7.52	7.44	7.44	7.52	7.52	7.47	7.47	8.41	8.41	7.97	7.97	-	-	-	-
Conductivity	uS/cm	413	431	518	456	456	743	206	206	444	603	603	571	571	660	660	617	617	688	688	-	-	661	661	562	562	678	678	633	633	484	484	1	1	1	1	-	-	-	-
Oxidation Reduction Potential	mV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	162.00	162.00	-	-	-	-
Dissolved Oxygen	mg/L	-	-	-	-	-	-	8.75	8.75	4.88	17.20	17.20	-	-	10.83	10.83	3.71	3.71	5.67	5.67	-	-	0.00	0.00	6.55	6.55	2.22	2.22	5.20	5.20	8.43	8.43	13.77	13.77	19.63	19.63	-	-	-	-
TDS	mg/L	-	-	-	-	-	-	-	-	-	-	-	261.00	261.00	-	-	-	-	-	-	-	-	423.00	423.00	360.00	360.00	434.00	434.00	305.00	305.00	417.30	417.30	-	-	0.38	0.38	-	-	-	-

Notes:

PWQO	Provincial Water Quality Objectives
ODWQS	Ontario Drinking Water Quality Standards - Ontario Regulation 169/03 "Ontario Drinking Water Quality Standards" under the Safe Drinking Water Act", dated 2002, and "Technical Support Document for Ontario Drinking Water Standards, Objectives and Guidelines", dated June 2003.
BOLD	Exceeds PWQO
BOLD	Exceeds ODWQS
Units	All Units in mg/L Unless Otherwise Noted.

Pinchin Project No. 350221.002

TABLE 4
Reasonable Use Criteria Assessment
Roblin Waste Disposal Site and Waste Transfer Station
Town of Greater Napanee, Ontario

Parameter	Units	Sample Designation		ODWQS	PWQO	Guideline B-7 Calculation			
		Sample Collection Date (dd/mm/yy)				Cm = Cb + x (Cr - Cb)			
		MW1							
		13/5/25	*14/10/25*			Cb	x	Cr	Cm
Alkalinity	mg/L	314	264	30 - 500	-	288.664	0.5	30-500	159.7 - 394.7
Ammonia	mg/L	-	-	-	-	-	-	-	-
Ammonia+Ammonium (N)	mg/L	-	< 0.1	-	-	-	-	-	-
Biochemical Oxygen Demand (BOD_5)	mg/L	5	-	-	-	-	-	-	-
COD	mg/L	12	< 8	-	-	-	-	-	-
Conductivity	uS/cm	1280	1410	-	-	-	-	-	-
Hardness	mg/L	**788**	-	80 - 100	-	302.874	0.5	80 - 100	190.4 - 200.4
pH	pH Units	7.91	7.98	6.5 - 8.5	-	7.876	0.5	6.5 - 8.5	7.2 - 8.2
DOC	mg/L	2	-	5.00	-	1.683	0.5	5.00	3.341
Chloride	mg/L	35	39	250.00	-	19.555	0.5	250.00	134.777
Nitrate	mg/L	0.46	0.1	10.00	-	0.087	0.25	10.00	2.565
Nitrite	mg/L	-	-	1.00	-	0.120	0.25	1.00	0.340
Sulphate	mg/L	**450**	**500**	500.00	-	10.154	0.5	500	255.077
TDS	mg/L	**917**	-	500.00	-	368.633	0.5	500	434.316
Magnesium	mg/L	69.1	-	-	-	-	-	-	-
Calcium	mg/L	201	-	-	-	-	-	-	-
Sodium	mg/L	17.3	-	200.00	-	7.298	0.5	200	103.649
Iron	mg/L	0.007	-	0.30	0.30	1.091	0.5	0.3	0.696
Potassium	mg/L	5.93	-	-	-	-	-	-	-
Manganese	mg/L	0.02	-	0.05		0.0170	0.5	0.05	0.033
Arsenic	mg/L	0.0004	-	0.025	0.10	0.0014	0.25	0.025	0.007
Boron	mg/L	**1.09**	-	5.00	0.20	0.3062	0.25	1.00	0.480
Barium	mg/L	0.02	-	1.00	-	1.0314	0.25	1.00	1.024
Cadmium	mg/L	0.000012	-	0.005	0.0002	0.000016	0.25	0.005	0.001
Chromium	mg/L	0.00011	-	0.05	0.01	0.0013	0.25	0.05	0.014
Copper	mg/L	< 0.001	-	1.00	0.01	0.0020	0.5	1.00	0.501
Mercury	mg/L	< 0.00001	-	0.001	0.0002	0.0000	0.25	0.001	0.0003
Lead	mg/L	< 0.00009	-	0.01	0.01	0.00008	0.25	0.01	0.003
Zinc	mg/L	< 0.002	-	5.00	0.02	0.0057	0.5	5.00	2.503
Total Suspended Solids	mg/L	-	-	-	-	-	-	-	-
Total Kjedhal Nitrogen	mg/L	-	-	-	-	-	-	-	-
Phenols	mg/L	< 0.002	< 0.002	-	0.001	-	-	-	-
Total Phosphorus	mg/L	< 0.03	< 0.03	-	0.02	-	-	-	-
Anion Sum	meq/L	16.57	-	-	-	-	-	-	-
Cation Sum	meq/L	16.64	-	-	-	-	-	-	-
Ion Ratio	AS/CS	1.00	-	-	-	-	-	-	-
Anion-Cation Balance	%	0.22	-	-	-	-	-	-	-
Langeliers Index 4° C	-	0.49	-	-	-	-	-	-	-
Saturation pH 4°C	-	7.20	-	-	-	-	-	-	-

Notes:

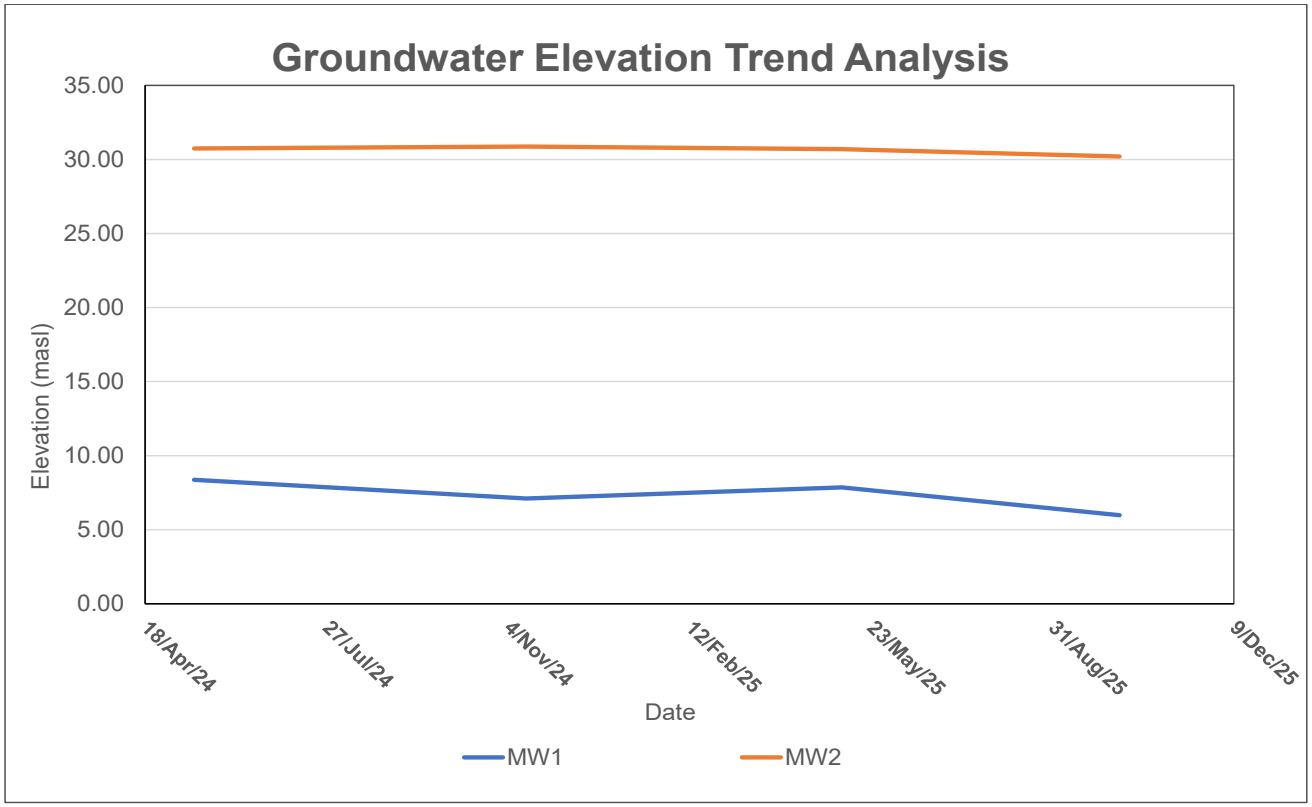
ODWQS	Ontario Drinking Water Quality Standards - Ontario Regulation 169/03 "Ontario Drinking Water Quality Standards" under the Safe Drinking Water Act", dated 2002, and "Technical Support Document for Ontario Drinking Water Standards, Objectives and Guidelines", dated June 2003.
Italics	Exceeds the associated PWQO
BOLD	Exceeds Guideline B-7
Units	All Units in mg/L Unless Otherwise Noted.
Cb	Background Concentration (Geomean of historical groundwater concentrations observed at MW04-2d)
Cr	Maximum Acceptable Contaminant Concentration (ODWQS)
x	Reduction Constant
Cm	Maximum Off-Site Acceptable Contaminant Concentration
NC	The Cm values can not be calculated as the Cb value exceeds the Cr (OWDQS)

Pinchin Project No. 350221.002

APPENDIX VI

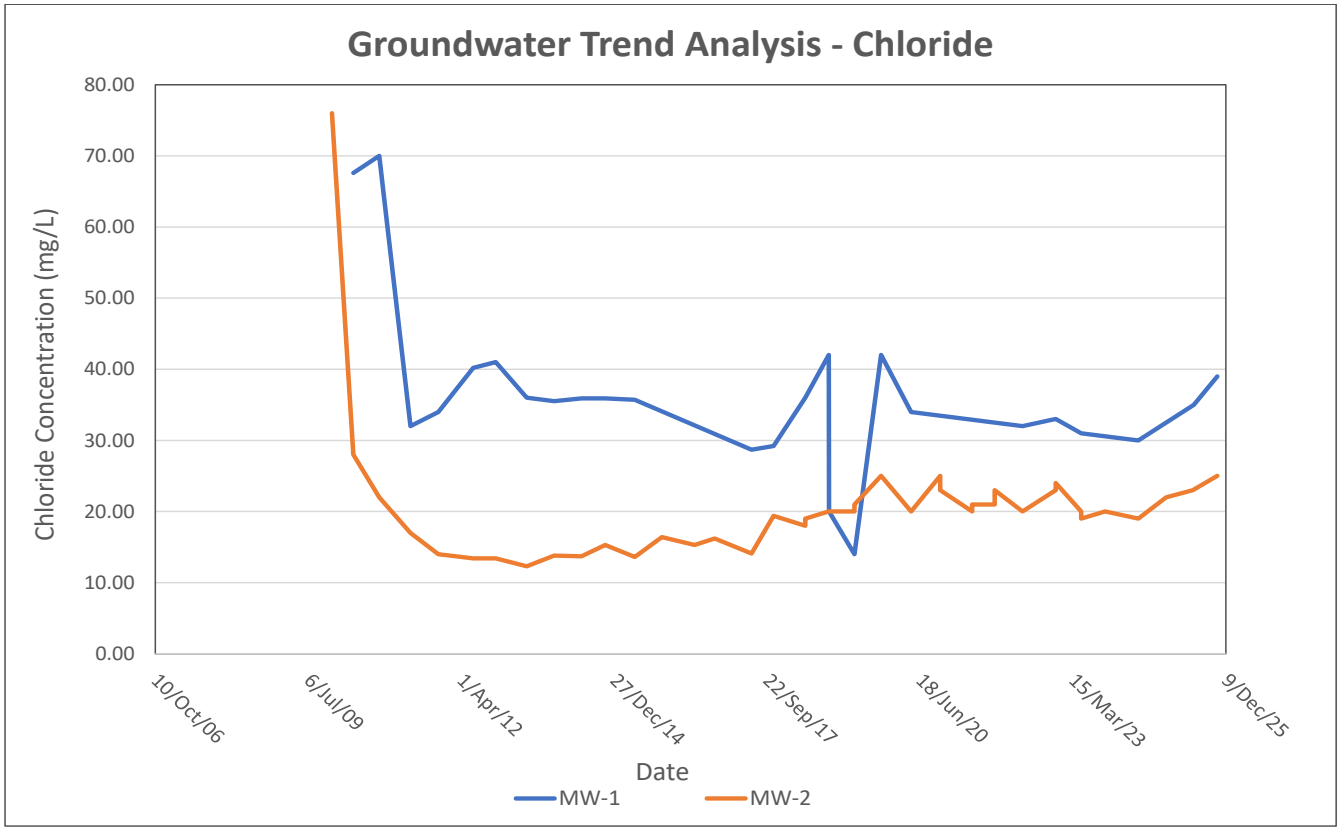
Time Versus Concentration Graphs

Town of Napanee, Ontario
Roblin Waste Disposal Site
Napanee, Ontario
April 2026



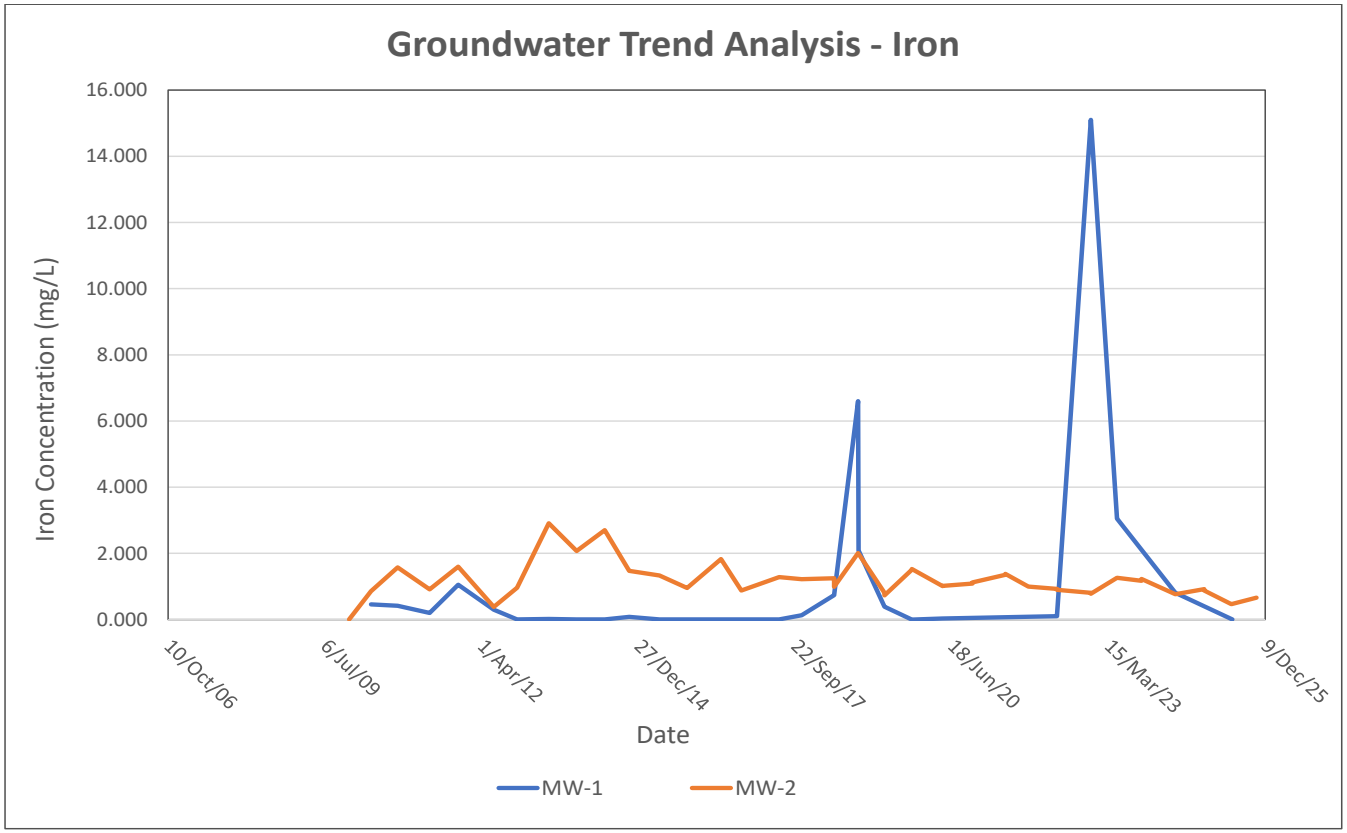
Pinchin Project No. **350221.002**

Town of Napanee, Ontario
Roblin Waste Disposal Site
Napanee, Ontario
April 2026



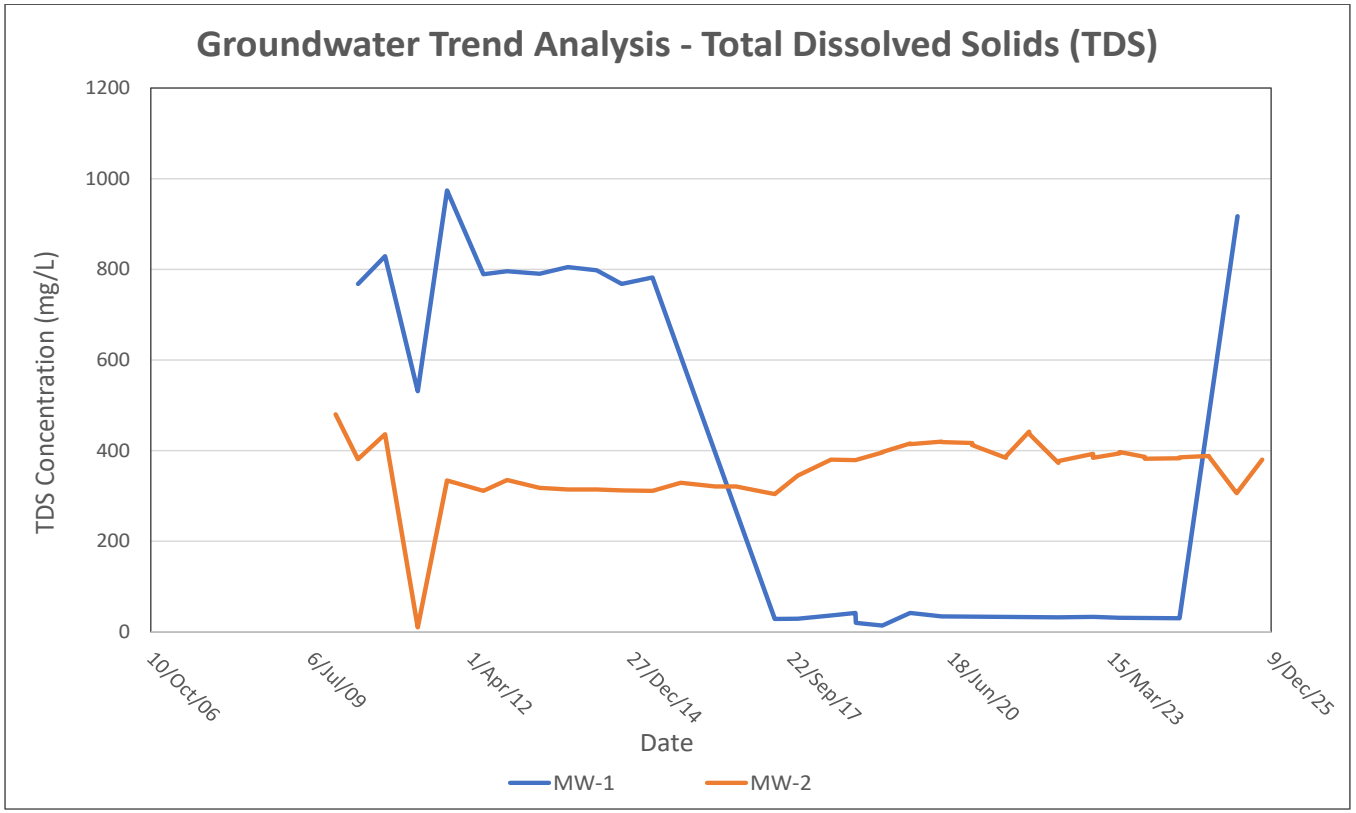
Pinchin Project No. **350221.002**

Town of Napanee, Ontario
Roblin Waste Disposal Site
Napanee, Ontario
April 2026



Pinchin Project No. **350221.002**

Town of Napanee, Ontario
Roblin Waste Disposal Site
Napanee, Ontario
April 2026



Pinchin Project No. **350221.002**

APPENDIX VII

Surface Water Summary Table

TABLE 5
Surfacewater Quality Results - SW1
Roblin Waste Disposal Site and Waste Transfer Station
Town of Greater Napanee, Ontario

Parameter	Units	Sample Designation																												ODWQS	PWQO
		Sample Collection Date (dd/mm/yyyy)																													
		SW1																													
		6-6-16	*14-10-16*	*12-6-17*	*3-11-17*	[illegible]	*30-5-18*	*30-5-18*	*30-10-18*	*16-4-19*	*7-10-19*	*7-10-19*	*21-4-20*	*21-4-20*	*28-10-20*	*28-10-20*	*26-5-21*	*26-5-21*	*19-10-21*	*20-4-22*	*20-4-22*	*22-11-22*	*22-11-22*	*8-5-23*	*12-10-23*	*15-5-24*	*15-5-24*	*14-11-24*	*8-5-25*	*7-10-25*		
pH	Elec	8.08	8.18	7.90	8.20	8.24	7.97	7.88	8.02	7.76	8.17	8.22	7.88	7.88	8.07	8.05	7.76	7.78	7.69	7.48	7.79	7.06	7.04	7.76	7.84	7.82	7.86	7.83	7.35	8.08	6.5-8.5	-
Conductivity	uS/cm	233.00	333.00	180.00	338.00	345.00	198.00	194.00	405.00	204.00	285.00	287.00	176.00	175.00	190.00	190.00	207.00	204.00	172.00	158.00	159.00	200.00	200.00	144.00	224.00	176.00	177.00	190.00	204.00	266.00	500.00	-
Alkalinity	mg/L as CaCO3	103.00	137.00	77.00	144.00	145.00	89.00	88.00	183.00	82.00	130.00	130.00	79.00	90.00	85.00	85.00	98.00	99.00	91.00	79.00	82.00	112.00	111.00	78.00	135.00	92.00	93.00	100.00	93.00	125.00	30 - 500	-
Hardness	mg/L as CaCO3	**109.00**	**151.00**	92.00	**152.00**	**151.00**	93.00	93.00	**187.00**	91.00	**144.00**	**144.00**	81.00	81.00	83.00	83.00	**105.00**	**102.00**	92.00	**79.00**	81.00	**115.00**	**115.00**	**74.00**	**121.00**	100.00	**102.00**	**105.00**	**107.00**	**138.00**	80 - 100	-
Total Dissolved Solids	mg/L	128.00	183.00	-	-	-	129.00	126.00	263.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	389.00	393.00	-	-	-	140.00	157.00	500.00	-
Chloride	mg/L	6.90	13.60	5.40	9.20	9.20	11.00	7.00	16.00	14.00	13.00	14.00	7.00	7.00	10.00	8.00	8.00	8.00	7.00	46.00	42.00	8.00	8.00	5.00	8.00	6.00	6.00	10.00	8.00	13.00	250.00	-
Sodium	mg/L	5.40	10.70	5.40	7.40	7.40	5.00	5.00	9.00	6.00	7.00	7.00	4.00	4.00	5.00	5.00	5.00	5.00	5.00	5.00	4.00	6.00	6.00	4.00	6.00	5.00	5.00	7.00	4.91	7.97	200.00	-
Calcium	mg/L	33.00	43.00	27.40	49.40	49.40	29.00	29.00	55.00	30.00	43.00	43.00	26.00	26.00	25.00	25.00	32.00	31.00	27.00	25.00	26.00	36.00	36.00	23.00	37.00	30.00	31.00	32.00	33.50	41.30	-	-
Magnesium	mg/L	6.57	10.70	5.62	6.88	6.77	5.00	5.00	12.00	4.00	9.00	9.00	4.00	4.00	5.00	5.00	6.00	6.00	6.00	4.00	4.00	6.00	6.00	4.00	7.00	6.00	6.00	6.00	5.76	8.56	-	-
Potassium	mg/L	0.70	1.80	0.60	1.60	1.60	<1	<1	1.00	1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	1.00	1.07	1.33	-	-
Sulphate	mg/L	4.00	8.00	3.00	10.00	10.00	3.00	3.00	12.00	8.00	7.00	7.00	3.00	3.00	4.00	4.00	4.00	3.00	3.00	17.00	15.00	4.00	4.00	2.00	6.00	3.00	3.00	3.00	< 2	7.00	500.00	-
Ammonia	mg/L	0.03	0.03	0.01	0.01	0.02	0.09	0.07	0.14	0.02	0.09	0.09	0.105	<0.10	0.049	0.031	<0.010	<0.010	<0.010	0.247	0.016	0.026	0.022	<0.020	0.027	<0.020	<0.020	0.042	< 0.04	< 0.1	-	-
Ammonia+Ammonium (N)	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			-	-
Nitrate	mg/L	0.100	0.300	-	-	-	<0.10	<0.10	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	< 0.06	0.21	1.00	-
Nitrite	mg/L	0.100	0.100	0.050	0.240	0.250	<0.10	<0.10	<0.1	0.350	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.710	0.260	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	-	-	10.00	-
Nitrate + Nitrite (as N)	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	< 0.06	-	-	-
Total Kjedhal Nitrogen	mg/L	0.400	0.700	0.390	0.500	0.500	<0.8	<0.8	1.100	0.400	0.600	0.600	0.634	0.680	0.311	0.370	0.839	0.500	0.464	0.344	0.541	0.519	0.532	-	-	1.980	0.502	1.000	0.34	0.50	-	-
Phenols	mg/L	0.001	0.001	0.001	0.001	0.001	<0.001	<0.001		<0.001	***0.003***	***0.003***	<0.001	<0.001	<0.001	<0.001	<0.0010	<0.0010	***0.005***	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	0.001	< 0.001	< 0.001	-	0.001
Dissolved Organic Carbon	mg/L	-	-	**7.9**	**8.4**	**9.6**	**6.7**	**6.7**	**6.6**	**5.7**	**9.3**	**9.3**	**5.8**	**5.6**	**6.4**	**6.3**	**8.3**	**7.8**	**9.2**	**23.8**	**23.9**	**6.7**	**7.5**	**5.9**	**7.8**	**6.4**	**6.4**	**7.5**	5.00	**6.00**	5.00	-
COD	mg/L	13.00	12.00	25.00	18.00	19.00	16.00	21.00	16.00	12.00	31.00	32.00	11.00	14.00	13.00	14.00	19.00	6.00	28.00	10.00	13.00	11.00	<5	17.00	25.00	41.00	26.00	48.00	20.00	8.00	-	-
Biochemical Oxygen Demand (BOD5)	mg/L	2.00	2.00	2.00	3.00	3.00	1.00	2.00	2.00	3.00	7.00	6.00	2.00	1.00	1.00	<1	2.00	2.00	4.00	<1.00	<1.00	2.00	4.00	2.00	3.00	4.00	2.00	9.00	< 4	< 4	-	-
Iron	mg/L	0.132	0.175	0.185	0.135	0.145	**0.32**	**0.4**	0.19	***0.39***	0.05	0.06	0.11	0.11	0.08	0.08	0.16	0.16	0.27	0.2	0.22	0.14	0.17	0.14	0.07	0.21	0.2	**1.65**	0.16	0.11	0.30	0.30
Manganese	mg/L	**0.064**	**0.139**	0.039	0.032	0.032	**0.15**	**0.21**	**0.06**	0.04	0.05	0.05	0.01	0.01	0.02	0.02	**0.06**	**0.06**	**0.06**	0.03	0.03	0.03	0.05	0.02	0.04	**0.06**	**0.06**	**0.24**	0.04	**0.09**	0.05	-
Total Phosphorus	mg/L	0.02	***0.03***	0.016	***0.03***	0.02	***0.06***	***0.07***	0.016	*0.034*	0.012	0.012	0.009	0.008	0.008	0.009	0.014	0.016	0.018	***0.029***	***0.058***	0.007	0.008	0.009	0.011	0.016	0.017	***0.093***	0.01	0.02	-	0.02
Total Suspended Solids	mg/L	92.00	3.00	4.00	6.00	3.00	4.00	7.00	8.00	3.00	<2	<2	3.00	4.00	<2	8.00	4.00	<2	3.00	2.00	4.00	19.00	17.00	<2	2.00	15.00	11.00	534.00	2.00	< 2	-	-
Anion Sum	meq/L	2.35	3.32	1.74	3.36	3.39	2.15	2.02	4.36	2.23	3.11	3.14	1.84	2.06	2.07	2.01	2.27	2.27	2.08	3.28	3.16	2.55	2.53	1.65	2.69	2.07	2.09	2.34	2.11	3	-	-
Cation Sum	meq/L	2.44	3.55	2.09	3.4	3.39	2.08	2.08	4.16	2.11	3.2	3.2	1.81	1.8	1.88	1.88	2.31	2.26	2.06	1.81	1.8	2.55	2.55	1.74	3.05	2.21	2.26	2.42	2.4	3.16	-	-
Ion Ratio	AS/CS	0.961	0.934	0.833	0.988	0.999	-	-	0.95	0.95	1.03	1.02	-	-	-	-	1.02	1	-	-	-	1	1.01	-	0.88	-	-	-	1.13	1.05	-	-
Anion-Cation Balance	%	1.98	3.43	9.13	0.615	0.0681	1.66	1.49	2.37	2.59	1.34	0.89	0.87	6.72	4.7	3.35	0.85	0.22	0.52	28.9	27.3	0.08	0.47	2.7	6.37	3.19	3.83	1.66	-	2.59	-	-
Arsenic	mg/L	0.0002	0.0005	-	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.0003	0.0008	0.03	0.10
Boron	mg/L	0.007	0.02	0.008	0.021	0.021	0.01	0.01	***0.3***	0.02	0.03	0.02	0.01	<0.01	0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	0.01	0.01	0.01	<0.01	<0.01	0.01	0.021	5.00	0.20
Barium	mg/L	0.06	0.086	0.053	0.066	0.065	0.05	0.05	0.1	0.04	0.08	0.08	0.04	0.04	0.05	0.05	0.06	0.06	0.05	0.04	0.04	0.06	0.06	0.04	0.08	0.05	0.05	0.09	0.0527	0.073	1.00	-
Cadmium	mg/L	0.00002	0.00002	0.000014	0.000014	0.000014	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.000005	< 0.000003	0.01	0.0002
Chromium	mg/L	0.002	0.002	0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	0.00024	0.00014	0.05	0.01
Copper	mg/L	0.0004	0.0003	0.0003	0.0007	0.0006	<0.001	<0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	< 0.001	< 0.001	1.00	0.01
Mercury	mg/L	0.00003	0.00002	0.00002	0.00002	0.00002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	< 0.00001	< 0.00001	0.001	0.0002
Lead	mg/L	0.00005	0.00005	0.00002	0.00006	0.00006	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	< 0.00009	< 0.00009	0.01	0.01
Zinc	mg/L	0.005	0.005	0.005	0.005	0.005	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	< 0.002	< 0.002	5.00	0.03
Langeliers Index 4° C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-0.13	-	-
Saturation pH 4°C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.21	-	-
Field Parameters																																
Temperature	°C	NM	-	9.20	-	2.68	-	-	-	-	-	-	-	-	4.70	-	-	-	-	-	-	5.10	-	-	7.36	-	-	-	12.86	19.05	-	-
pH	pH Units	8.07	-	7.76	7.74	7.72	-	-	-	-	-	-	-	-	7.81	-	-	-	-	-	7.42	7.60	-	-	7.83	-	-	-	9.07	8.98	-	-
Conductivity	uS/cm	604	-	204	1420	1380	-	-	-	-	-	-	-	-	1450	-	-	-	-	-	1370	1340	-	-	1290	-	-	-	0	0	-	-
Dissolved Oxygen	mg/L	8.88	15.28	5.26	11.06	-	6.80	6.80	9.80	12.11	-	-	8.99	8.99	11.77	11.77	12.13	12.13	12.13	10.55	10.55	16.58	10.55	9.94	13.80	9.75	9.75	13.76	11.21	50.00	-	-
Total Dissolved Solids	mV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.16	0.20	-	-
Flow Rate	mg/L	281.00	-	82.00	318.00	325.00	-	-	-	-	-	-	-	-	345.00	-	-	-	-	-	355.00	361.00	-	-	328.00	-	-	-	-	-	-	-
Oxidation Reduction Potential	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	1040.00	-	-	-	-	-	-	862.00	-	-	2035.00	-	-	-	82.00	42.00	-	-

Notes:

PWQO	Provincial Water Quality Objectives
ODWQS	Ontario Drinking Water Quality Standards - Ontario Regulation 169/03 "Ontario Drinking Water Quality Standards" under the Safe Drinking Water Act", dated 2002, and "Technical Support Document for Ontario Drinking Water Standards, Objectives and Guidelines", dated June 2003.
BOLD	Exceeds PWQO
BOLD	Exceeds ODWQS
Units	All Units in mg/L Unless Otherwise Noted.

Pinchin Project No. 350221.002

TABLE 6
Surfacewater Quality Results - SW2
Roblin Waste Disposal Site and Waste Transfer Station
Town of Greater Napanee, Ontario

Parameter	Units	Sample Designation																				ODWQS	PWQO
		Sample Collection Date (dd/mm/yyyy)																					
		SW2																					
		6-6-16	*14-10-16*	*12-6-17*	*3-11-17*	*03-Nov-17**	*30-5-18*	*30-10-18*	*16-4-19*	*16-4-19*	*7-10-19*	*21-4-20*	*28-10-20*	*26-5-21*	*19-10-21*	*20-4-22*	*22-11-22*	*8-5-23*	*12-10-23*	*15-5-24*	*14-11-24*	*8-5-25*	*7-10-25*		
pH	Elec	8.11	8.27	7.91	8.22	7.89	7.89	7.98	7.75	7.83	8.28	7.84	8.09	7.78	7.67	7.44	7.09	7.76	7.93	7.81	8.10	7.42	8.00	6.5-8.5	-
Conductivity	uS/cm	233.00	335.00	180.00	317.00	180.00	189.00	404.00	170.00	175.00	278.00	172.00	189.00	201.00	170.00	155.00	201.00	143.00	224.00	172.00	190.00	203.00	267.00	500.00	-
Alkalinity	mg/L as CaCO3	104.00	136.00	77.00	138.00	76.00	87.00	181.00	75.00	75.00	127.00	76.00	84.00	98.00	89.00	77.00	109.00	79.00	137.00	89.00	100.00	93.00	125.00	30 - 500	-
Hardness	mg/L as CaCO3	**108.00**	**145.00**	89.00	**139.00**	87.00	-	**184.00**	84.00	**79.00**	**144.00**	81.00	83.00	**102.00**	92.00	**79.00**	**115.00**	**74.00**	**121.00**	100.00	**105.00**	**100.00**	**136.00**	80 - 100	-
Total Dissolved Solids	mg/L	128.00	184.00	-	-	-	123.00	263.00	-	-	-	-	-	-	-	-	-	0.42	0.46	-	-	123.00	160.00	500.00	-
Chloride	mg/L	6.90	13.60	5.40	7.50	5.40	6.00	16.00	11.00	7.00	13.00	7.00	8.00	8.00	7.00	42.00	8.00	5.00	8.00	6.00	9.00	9.00	12.00	250.00	-
Sodium	mg/L	5.30	11.00	5.20	6.10	5.10	5.00	9.00	4.00	5.00	6.00	4.00	5.00	5.00	4.00	4.00	6.00	4.00	6.00	5.00	6.00	4.54	6.78	200.00	-
Calcium	mg/L	32.60	41.20	26.50	44.20	26.10	29.00	-	27.00	25.00	43.00	26.00	25.00	31.00	27.00	25.00	36.00	23.00	37.00	30.00	32.00	31.20	40.80	-	-
Magnesium	mg/L	6.52	10.30	5.46	6.86	5.35	5.00	12.00	4.00	4.00	9.00	4.00	5.00	6.00	6.00	4.00	6.00	4.00	7.00	6.00	6.00	5.38	8.38	-	-
Potassium	mg/L	0.70	1.60	0.60	1.40	0.60	<1	1.00	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1.00	0.99	1.25	-	-
Sulphate	mg/L	4.00	9.00	3.00	7.00	3.00	3.00	12.00	3.00	3.00	6.00	3.00	4.00	3.00	3.00	14.00	4.00	2.00	4.00	3.00	3.00	< 2	6.00	500.00	-
Ammonia	mg/L	0.03	0.02	0.01	0.01	0.01	0.08	0.22	0.01	0.03	0.09	<0.010	0.02	<0.010	<0.010	0.02	0.05	0.12	<0.020	0.02	0.02	< 0.04	< 0.1	-	-
Ammonia+Ammonium (N)		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrate	mg/L	0.10	0.30	-	-	-	<0.10	<0.10	-	-	-	-	-	-	-	-	-	-	-	-	-	< 0.06	< 0.06	1.00	-
Nitrite	mg/L	0.10	0.10	0.05	0.19	0.05	<0.10	<0.10	0.17	0.17	<0.10	<0.10	<0.10	<0.10	<0.10	0.32	<0.10	<0.10	<0.10	<0.10	<0.10	-	-	10.00	-
Nitrate + Nitrite (as N)		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	< 0.06	-	-	-
Total Kjedhal Nitrogen	mg/L	0.40	0.50	0.41	0.50	0.41	<0.8	1.50	0.50	0.30	0.50	0.55	0.39	0.48	0.26	0.22	0.47			0.57	0.61	< 0.05	0.600	-	-
Phenols	mg/L	0.00	0.00	0.00	0.00	0.00	<0.001	-	<0.001	<0.001	***0.003***	<0.001	<0.001	<0.0010	***0.006***	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	< 0.001	< 0.001	-	0.001
Dissolved Organic Carbon	mg/L	-	-	**8.10**	**9.60**	**7.90**	**6.70**	**6.80**	**5.90**	**5.60**	**9.30**	**5.60**	**6.40**	**7.90**	**9.20**	**5.60**	**6.40**	**6.00**	**8.00**	**6.50**	**7.80**	**5**	**6**	5.00	-
COD	mg/L	11.00	14.00	20.00	21.00	21.00	<5	21.00	10.00	14.00	32.00	15.00	9.00	15.00	22.00	9.00	<5	18.00	28.00	20.00	14.00	19.00	10.00	-	-
Biochemical Oxygen Demand (BOD5)	mg/L	2.00	2.00	2.00	3.00	2.00	1.00	2.00	3.00	1.00	3.00	<1	<1	3.00	2.00	<1	2.00	2.00	2.00	3.00	2.00	< 4	< 4	-	-
Iron	mg/L	0.12	0.05	0.17	0.15	0.17	0.24	0.19	0.19	0.17	0.09	0.11	0.11	0.17	0.23	0.12	0.12	0.12	0.08	0.23	0.21	0.154	0.122	0.30	0.30
Manganese	mg/L	**0.06**	**0.09**	0.04	0.04	0.04	**0.07**	**0.07**	0.01	0.01	**0.07**	0.01	0.03	**0.06**	0.04	0.01	0.02	0.02	0.05	**0.06**	0.05	0.0271	0.099	0.05	-
Total Phosphorus	mg/L	0.02	***0.03***	0.02	0.02	0.02	***0.05***	0.02	0.01	0.01	0.02	0.01	0.01	0.02	0.01	0.02	0.01	0.01	0.01	0.02	0.02	0.012	0.033	-	0.02
Total Suspended Solids	mg/L	12.00	5.00	6.00	3.00	3.00	<2	-	6.00	4.00	4.00	<2	<2	<2	3.00	<2	<2	<2	<2	<2	<2	2.00	4.00	-	-
Anion Sum	meq/L	2.36	3.31	1.74	3.13	1.74	1.97	4.32	1.88	1.77	3.03	1.78	1.99	2.25	2.04	3.04	2.49	1.66	2.68	2.01	2.32	2.14	2.96	-	-
Cation Sum	meq/L	2.42	3.43	2.02	3.08	1.99	2.08	4.11	1.85	1.80	3.15	1.80	1.88	2.26	2.01	1.75	2.55	1.76	3.05	2.21	2.38	2.24	3.07	-	-
Ion Ratio	AS/CS	0.98	0.96	0.86	1.02	0.87	-	0.95	N/A-LC	N/A-LC	1.04	-	-	1.00	-	-	1.03	N/A-LC	0.88	-	-	1.04	1.04	-	-
Anion-Cation Balance	%	1.29	1.90	7.50	0.76	6.73	2.72	2.45	0.90	0.68	1.97	0.58	2.86	0.22	0.61	26.90	1.30	3.02	6.38	4.69	1.33	-	1.83	-	-
Arsenic	mg/L	0.00	0.00	-	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.0002	0.0006	0.03	0.10
Boron	mg/L	0.01	0.02	0.01	0.01	0.01	0.01	0.02	<0.01	<0.01	0.02	<0.01	0.01	<0.01	0.01	<0.01	<0.01	<0.01	0.01	0.01	<0.01	0.009	0.017	5.00	0.20
Barium	mg/L	0.06	0.09	0.05	0.06	0.05	0.05	0.10	0.04	0.04	0.08	0.04	0.05	0.06	0.05	0.04	0.06	0.04	0.08	0.05	0.06	0.0497	0.0726	1.00	-
Cadmium	mg/L	0.00	0.00	0.00	0.00	0.00	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.000003	< 0.000003	0.01	0.0002
Chromium	mg/L	0.00	0.00	0.00	0.00	0.00	<0.001	<0.001	<0.001	<0.001	0.00	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.00019	0.00017	0.05	0.01
Copper	mg/L	0.00	0.00	0.00	0.00	0.00	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.00	< 0.001	1.00	0.01
Mercury	mg/L	0.00	0.00	0.00	0.00	0.00	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	< 0.00001	< 0.00001	0.001	0.0002
Lead	mg/L	0.00	0.00	0.00	0.00	0.00	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	< 0.00009	< 0.00009	0.01	0.01
Zinc	mg/L	0.01	0.01	0.01	0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	< 0.002	0.002	5.00	0.03
Langeliers Index 4° C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-0.22	-	-
Saturation pH 4°C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.22	-	-
Field Parameters																									
Temperature	°C	20.70	9.80	22.90	8.50	-	22.17	6.70	4.52	4.52	15.20	7.86	8.87	21.89	-	5.50	1.05	12.84	15.10	16.20	6.89	14.32	18.10	-	-
pH	pH Units	7.29	5.46	7.28	7.50	-	7.95	7.97	7.55	7.55	7.05	7.83	7.97	7.88	-	8.49	7.68	8.07	8.05	7.57	9.31	8.20	8.62	-	-
Conductivity	uS/cm	200	378	171	207	-	206	262	169	169	345.00	174.00	210.00	245.00	-	203.00	220.00	189.00	214.00	193	289	0	0	-	-
Dissolved Oxygen	mg/L	9.21	15.16	7.52	13.20	-	8.75	10.12	11.40	11.40	-	10.27	12.12	13.47	-	13.66	15.72	10.44	13.70	10.22	13.21	5.03	50.00	-	-
Total Dissolved Solids	mV	-	-	-	-	-	-	-	-	-	162.00	113.00	137.00	-	-	132.00	144.00	123.00	137.00	150.20	-	0.14	0.19	-	-
Flow Rate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oxidation Reduction Potential	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	145.00	90.00	-	-

Notes:

PWQO	Provincial Water Quality Objectives
ODWQS	Ontario Drinking Water Quality Standards - Ontario Regulation 169/03 "Ontario Drinking Water Quality Standards" under the Safe Drinking Water Act", dated 2002, and "Technical Support Document for Ontario Drinking Water Standards, Objectives and Guidelines", dated June 2003.
BOLD	Exceeds PWQO
BOLD	Exceeds ODWQS
Units	All Units in mg/L Unless Otherwise Noted.

Pinchin Project No. 350221.002

PINCHIN

TABLE 7
Surfacewater Quality Results - SW3
Roblin Waste Disposal Site and Waste Transfer Station
Town of Greater Napanee, Ontario

Parameter	Units	Sample Designation																			ODWQS	PWQO
		Sample Collection Date (dd/mm/yyyy)																				
		SW3																				
		30-10-18	*16-4-19*	*7-10-19*	*21-4-20*	*28-10-20*	*26-5-21*	*19-10-21*	*19-10-21*	*20-4-22*	*22-11-22*	*8-5-23*	*8-5-23*	*12-10-23*	*12-10-23*	*15-5-24*	*14-11-24*	*8-5-25*	*8-5-25 (DUP)*	*7-10-25*	*7-10-25 (DUP)*		
pH	Elec	7.98	7.78	8.33	7.86	8.06	7.78	7.67	7.69	7.79	7.02	7.76	7.77	7.9	7.86	7.84	8.02	7.34	7.21	8.15	8.14	6.5-8.5	-
Conductivity	uS/cm	410	171	280	172	191	204	169	169	155	200	143	143	223	221	172	187	201.00	196.00	233.00	257.00	500.00	-
Alkalinity	mg/L as CaCO3	182	75	130	77	85	99	89	89	78	115	78	78	139	137	90	101	92.00	88.00	118.00	119.00	30 - 500	-
Hardness	mg/L as CaCO3	**187**	**79**	**144**	81	82	**102**	90	86	**76**	**115**	**71**	**74**	**121**	**119**	97	**105**	**103.00**	**102.00**	**135.00**	**137.00**	80 - 100	-
Total Dissolved Solids	mg/L	266	-	-	-	-	-	-	-	-	-	0.413	0.366	0.485	0.435	-	-	131.00	111.00	154.00	140.00	500.00	-
Chloride	mg/L	16.00	11.00	13.00	6.00	8.00	8.00	7.00	7.00	41.00	8.00	5.00	5.00	8.00	11.00	6.00	10.00	8.00	8.00	12.00	12.00	250.00	-
Sodium	mg/L	9.00	5.00	6.00	4.00	5.00	5.00	4.00	4.00	4.00	6.00	5.00	4.00	6.00	6.00	5.00	6.00	4.61	4.50	6.52	6.53	200.00	-
Calcium	mg/L	55.00	25.00	43.00	26.00	25.00	31.00	26.00	26.00	24.00	36.00	22.00	23.00	37.00	36.00	29.00	32.00	32.20	31.80	40.30	41.20	-	-
Magnesium	mg/L	12.00	4.00	9.00	4.00	5.00	6.00	6.00	5.00	4.00	6.00	4.00	4.00	7.00	7.00	6.00	6.00	5.51	5.46	8.44	8.33	-	-
Potassium	mg/L	1.00	<1	1.00	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1.00	1.00	0.99	1.23	1.24	-	-
Sulphate	mg/L	12.00	3.00	6.00	3.00	4.00	3.00	3.00	3.00	14.00	4.00	2.00	2.00	4.00	4.00	2.00	10.00	< 2	< 2	5.00	5.00	500.00	-
Ammonia	mg/L	0.18	0.04	0.09	<0.010	0.048	<0.010	<0.010	<0.010	0.018	0.026	<0.020	0.126	0.02	<0.020	<0.020	0.026	< 0.04	< 0.04	< 0.1	< 0.1	-	-
Ammonia+Ammonium (N)	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrate	mg/L	<0.10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	< 0.06	< 0.06	0.190	< 0.06	1.00	-
Nitrite	mg/L	<0.10	0.17	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.27	<0.10	<0.10	<0.10	<0.10	0.1	<0.10	<0.10	-	-	-	-	10.00	-
Nitrate + Nitrite (as N)	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	< 0.06	< 0.06	-	-	-	-
Total Kjedhal Nitrogen	mg/L	1	0.3	1	0.779	0.369	0.413	<0.100	<0.100	0.37	0.59	-	-	-	-	0.450	0.553	0.06	0.30	< 0.5	< 0.5	-	-
Phenols	mg/L	-	<0.001	0.003	<0.001	<0.001	<0.0010	***0.004***	***0.003***	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	< 0.001	< 0.001	< 0.001	< 0.001	-	0.001
Dissolved Organic Carbon	mg/L	**6.8**	**5.5**	**9**	**5.7**	**6.4**	**7.6**	**9.5**	**9.2**	**23.1**	**6.5**	**6.1**	**6**	**7.2**	**7.8**	**6.5**	**7.3**	5.00	5.00	**6**	**6**	5.00	-
COD	mg/L	15	8	32	12	9	15	25	29	9	6	19	21	24	19	28	15	17.00	23.00	< 8	< 8	-	-
Biochemical Oxygen Demand (BOD5)	mg/L	3	1	7	2	<1	3	3	2	<1	<1	2	2	2	2	3	2	< 4	< 4	< 4	< 4	-	-
Iron	mg/L	***0.51***	0.17	0.07	0.11	0.12	0.19	0.27	0.26	0.12	0.18	0.13	0.13	0.15	0.07	0.26	0.16	0.17	0.17	0.084	0.082	0.30	0.30
Manganese	mg/L	**0.13**	0.01	**0.06**	0.01	0.02	**0.08**	**0.06**	**0.06**	0.01	0.04	0.02	0.02	**0.07**	0.04	**0.08**	0.03	0.03	0.03	**0.0672**	**0.0676**	0.05	-
Total Phosphorus	mg/L	***0.034***	***0.08***	0.014	0.009	0.012	0.018	0.01	0.009	***0.022***	0.012	0.008	0.009	0.016	0.011	0.019	0.011	0.01	0.01	0.017	0.016	-	0.02
Total Suspended Solids	mg/L	32	<2	3	<2	<2	<2	<2	<2	<2	16	<2	<2	<2	<2	33	-	5.00	4.00	2.00	< 2	-	-
Anion Sum	meq/L	4.34	1.88	3.09	1.77	2.01	2.27	2.04	2.04	3.03	2.61	1.64	1.66	2.68	2.63	2.01	2.36	2.10	2.02	2.8	2.82	-	-
Cation Sum	meq/L	4.16	1.8	3.18	1.8	1.88	2.26	1.96	1.88	1.7	2.55	1.74	1.74	3.09	3.14	2.16	2.38	2.30	2.27	3.03	3.07	-	-
Ion Ratio	AS/CS	0.96	N/A-LC	1.03	-	-	1	-	-	-	0.98	-	-	0.87	0.84	-	-	1.09	1.13	1.09	1.09	-	-
Anion-Cation Balance	%	2.11	2.39	1.4	0.81	3.32	0.22	1.87	4	28	1.08	2.9	2.43	7	8.79	3.54	0.30	-	-	4.08	4.26	-	-
Arsenic	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.00	0.00	0.0005	0.0006	0.03	0.10
Boron	mg/L	0.03	<0.01	0.02	<0.01	<0.01	<0.01	0.01	0.02	<0.01	<0.01	<0.01	<0.01	0.01	0.01	<0.01	<0.01	0.01	0.01	0.015	0.015	5.00	0.20
Barium	mg/L	0.11	0.04	0.08	0.04	0.05	0.06	0.05	0.05	0.04	0.06	0.04	0.04	0.08	0.08	0.05	0.06	0.05	0.05	0.0714	0.0705	1.00	-
Cadmium	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.00	0.00	< 0.000003	< 0.000003	0.01	0.0002
Chromium	mg/L	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.00	0.00	0.00015	0.00021	0.05	0.01
Copper	mg/L	0.003	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	< 0.001	< 0.001	< 0.001	< 0.001	1.00	0.01
Mercury	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	0.001	0.0002
Lead	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	< 0.00009	< 0.00009	0.00013	< 0.00009	0.01	0.01
Zinc	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	< 0.002	< 0.002	0.011	< 0.002	5.00	0.03
Langeliers Index 4° C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-0.1	-0.09	-	-
Saturation pH 4°C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.25	8.23	-	-
Field Parameters																							
Temperature	°C	6.1	4.05	-	8.12	8.14	22.7	-	-	5.74	2.28	13.29	13.29	14.1	14.1	16.2	6.68	13.53	13.53	17.84	17.84	-	-
pH	pH Units	7.96	7.48	-	8.35	8.06	8.12	-	-	7.85	7.84	8.07	8.07	7.88	7.88	7.46	8.93	8.24	8.24	8.51	8.51	-	-
Conductivity	uS/cm	258	170	-	-	241	264	-	-	203	214	202	202	215	215	194	155	0	0	0	0	-	-
Dissolved Oxygen	mg/L	10.28	11.7	-	9.02	12.4	11.65	-	-	9.68	14.84	9.04	9.04	13.7	13.7	10.82	14.15	50.00	50.00	28.27	28.27	-	-
Total Dissolved Solids	mV	-	-	-	115	256	-	-	-	132	-	129	129	137	137	149.5	-	0.15	0.15	0.18	0.18	-	-
Flow Rate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oxidation Reduction Potential	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	149.00	149.00	127.00	127.00	-	-

Notes:

PWQO	Provincial Water Quality Objectives
ODWQS	Ontario Drinking Water Quality Standards - Ontario Regulation 169/03 "Ontario Drinking Water Quality Standards" under the Safe Drinking Water Act", dated 2002, and "Technical Support Document for Ontario Drinking Water Standards, Objectives and Guidelines", dated June 2003.
BOLD	Exceeds PWQO
BOLD	Exceeds ODWQS
Units	All Units in mg/L Unless Otherwise Noted.

Pinchin Project No. 350221.002

TABLE 8
Surface Water Trigger Assessment 2025
Roblin Waste Disposal Site and Waste Transfer Station
Town of Greater Napanee, Ontario

Parameter	Units	MDL	Trigger Criteria			Trigger Locations					
						Sampling event					
			ODWQS	PWQO	Average Background	SW1		SW2		SW3	
						8/5/25	*7/10/25*	*8/5/25*	*7/10/25*	*8/5/25*	*7/10/25*
pH	Elec	1	6.5-8.5	-	7.8375	7.35	**8.08**	7.42	**8.00**	7.34	**8.15**
Conductivity	uS/cm	5	500	-	203	**204.00**	**266.00**	203.00	**267.00**	201.00	**233.00**
Alkalinity	mg/L as CaCO3	5	30 - 500	-	111.75	93.00	**125.00**	93.00	**125.00**	92.00	**118.00**
Hardness	mg/L as CaCO3	1	80 - 100	-	115	**107.00**	**138.00**	**100.00**	**136.00**	**103.00**	**135.00**
Total Dissolved Solids	mg/L	1	500	-	390	140.00	157.00	123.00	160.00	131.00	154.00
Chloride	mg/L	1	250	-	9.5	8.00	**13.00**	9.00	**12.00**	8.00	**12.00**
Sodium	mg/L	2	200	-	6	4.91	**7.97**	4.54	**6.78**	4.61	**6.52**
Calcium	mg/L	1	-	-	36	33.50	**41.30**	31.20	**40.80**	32.20	**40.30**
Magnesium	mg/L	1	-	-	6	5.76	**8.56**	5.38	**8.38**	5.51	**8.44**
Potassium	mg/L	1	-	-	1.2	1.07	**1.33**	0.99	**1.25**	1.00	**1.23**
Sulphate	mg/L	1	500	-	6	< 2	**7.00**	< 2	6.00	< 2	5.00
Ammonia	mg/L	0.02	-	-	0.027	< 0.04	< 0.1	< 0.04	< 0.1	< 0.04	< 0.1
Ammonia+Ammonium (N)	mg/L	-	-	-	-	-	-	-	-	-	-
Nitrate	mg/L	0.1	1	-	0.21	< 0.06	0.21	< 0.06	< 0.06	< 0.06	0.19
Nitrite	mg/L	0.1	10	-	0.26	-	-	-	-	-	-
Nitrate + Nitrite (as N)	mg/L	-	-	-	-	< 0.06	-	< 0.06	-	< 0.06	-
Total Kjedhal Nitrogen	mg/L	0.8	-	-	0.65575	0.34	0.50	< 0.05	0.600	0.06	< 0.5
Phenols	mg/L	0.001	-	0.001	0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Dissolved Organic Carbon	mg/L	0.5	5	-	7.5	5.00	**6.00**	**5.00**	**6.00**	5.00	**6.00**
COD	mg/L	5	-	-	26	20.00	8.00	19.00	10.00	17.00	< 8
Biochemical Oxygen Demand (BOD5)	mg/L	1	-	-	4	< 4	< 4	< 4	< 4	< 4	< 4
Iron	mg/L	0.03	0.3	0.30	0.2075	0.16	0.11	0.154	0.122	0.17	0.084
Manganese	mg/L	0.01	0.05	-	0.06	0.04	**0.09**	0.0271	**0.099**	0.03	**0.0672**
Total Phosphorus	mg/L	0.01	-	0.02	0.0185	0.01	0.02	0.012	0.033	0.01	0.0170
Total Suspended Solids	mg/L	2	-	-	17.5	2.00	< 2	2.00	4.00	5.00	2.00
Anion Sum	meq/L	0.01	-	-	2.655	2.11	**3**	2.14	**2.96**	2.10	**2.8**
Cation Sum	meq/L	0.01	-	-	2.55	2.4	**3.16**	2.24	**3.07**	2.30	**3.03**
Ion Ratio	AS/CS	0.01	-	-	1.05	**1.13**	1.05	1.04	1.04	**1.09**	**1.09**
Anion-Cation Balance	%	0.01	-	-	3.83	-	2.59	-	1.83	-	**4.08**
Arsenic	mg/L	0.001	0.025	0.10	0.000675	0.0003	**0.0008**	0.0002	0.00060	0.0002	0.0005
Boron	mg/L	0.01	5	0.2	0.010	0.01	**0.021**	0.009	**0.017**	0.009	**0.015**
Barium	mg/L	0.01	1	-	0.06975	0.0527	**0.073**	0.0497	**0.0726**	0.05	**0.0714**
Cadmium	mg/L	0.0001	0.005	0.0002	0.000005	0.000005	< 0.000003	0.000003	< 0.000003	0.000003	< 0.000003
Chromium	mg/L	0.001	0.05	0.0089	0.00062	0.00024	0.00014	0.00019	0.00017	0.0002	0.00015
Copper	mg/L	0.001	1	0.005	0.002	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Mercury	mg/L	0.0001	0.001	0.0002	-	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Lead	mg/L	0.001	0.01	0.005	0.002	< 0.00009	< 0.00009	< 0.00009	< 0.00009	< 0.00009	0.00013
Zinc	mg/L	0.01	5	0.03	-	< 0.002	< 0.002	< 0.002	0.002	< 0.002	0.011

Notes:

PWQO	Provincial Water Quality Objectives
ODWQS	Ontario Drinking Water Quality Standards - Ontario Regulation 169/03 "Ontario Drinking Water Quality Standards" under the Safe Drinking Water Act", dated 2002, and "Technical Support Document for Ontario Drinking Water Standards, Objectives and Guidelines", dated June 2003.
BOLD	Exceeds PWQO
BOLD	Exceeds ODWQS
BOLD	Exceeds Trigger Level
Units	All Units in mg/L Unless Otherwise Noted.

Pinchin Project No. 350221.003

APPENDIX VIII

Quality Assurance Results

TABLE 9
Groundwater Duplicate Data - Spring 2025
Roblin Waste Disposal Site and Waste Transfer Station
Town of Greater Napanee, Ontario

Parameter	Units	RDL	PQL	MW-2	DUP1	Relative Percent Difference (%)
Alkalinity	mg/L	2	10	271	277	2.19
Ammonia	mg/L		0	-	-	NC
Ammonia+Ammonium (N)	mg/L	0.1	0.5	0.10	0.12	NC
Biochemical Oxygen Demand (BOD_5)	mg/L	2	10	< 4	4.00	NC
COD	mg/L	8	40	< 8	< 8	NC
Conductivity	uS/cm	2	10	581	589	1.37
Hardness	mg/L	0.05	0.25	271	310	13.43
pH	pH Units	0.05	0.25	8.09	8.06	0.37
DOC	mg/L	1	5	1.00	1.00	NC
Chloride	mg/L	1	5	23	23	0.00
Nitrate	mg/L	0.06	0.3	< 0.06	< 0.06	NC
Nitrite	mg/L		0	-	-	NC
Sulphate	mg/L	2	10	12.0	10.0	NC
TDS	mg/L	30	150	306	320	4.47
Magnesium	mg/L	0.001	0.005	18.60	22.80	20.29
Calcium	mg/L		0	78.00	86.30	10.10
Sodium	mg/L	0.01	0.05	6.21	7.62	20.39
Iron	mg/L	0.007	0.035	0.47	0.51	7.82
Potassium	mg/L	0.009	0.045	4.60	5.64	20.31
Manganese	mg/L	0.001	0.005	0.01	0.01	3.79
Arsenic	mg/L	0.0002	0.001	0.00	0.00	NC
Boron	mg/L	0.002	0.01	0.27	0.29	6.38
Barium	mg/L	0.00008	0.0004	1.08	1.07	0.93
Cadmium	mg/L	0.000003	0.000015	0.00000	0.000003	NC
Chromium	mg/L	0.00008	0.0004	0.0001	0.0002	NC
Copper	mg/L	0.001	0.005	< 0.001	< 0.001	NC
Mercury	mg/L	0.00001	0.00005	< 0.00001	< 0.00001	NC
Lead	mg/L	0.00009	0.00045	0.00	0.00	NC
Zinc	mg/L	0.002	0.01	0.00	0.00	NC
Total Suspended Solids	mg/L	2	10	41.00	41.00	0.00
Total Kjedhal Nitrogen	mg/L		0	-	-	NC
Phenols	mg/L	0.002	0.01	< 0.002	< 0.002	NC
Total Phosphorus	mg/L	0.03	0.15	< 0.03	< 0.03	NC
Anion Sum	meq/L	-9999	-49995	6.31	6.38	1.10
Cation Sum	meq/L	-9999	-49995	5.86	6.71	13.52
Ion Ratio	AS/CS	-9999	-49995	0.93	1.05	12.12
Anion-Cation Balance	%	-9999	-49995	-	-	NC
Langeliers Index 4° C	-	-9999	-49995	-	-	NC
Saturation pH 4°C	-	-9999	-49995	-	-	NC

Notes:

RDL	laboratory reportable detection limit
PQL	practical quantification limit (PQL = 5 x RDL).
NC	not calculable due to one or more of the concentrations being quantified over the reasonable detection limit (RDL) or the practical quantification limit (PQL).
BOLD	bolded and shaded entries indicates that the relative percent difference (RPD) exceeds the industry standard of 50%.
BLANK CELLS	Bbank cells indicate no data available.

Pinchin Project No. 350221.002

TABLE 10
Groundwater Duplicate Data - Fall 2025
Roblin Waste Disposal Site and Waste Transfer Station
Town of Greater Napanee, Ontario

Parameter	Units	RDL	PQL	MW-2	DUP1	Relative Percent Difference (%)
Alkalinity	mg/L	2	10	289	294	1.72
Ammonia	mg/L		0	-	-	NC
Ammonia+Ammonium (N)	mg/L	0.1	0.5	< 0.1	< 0.1	NC
Biochemical Oxygen Demand (BOD_5)	mg/L	2	10	< 4	< 4	NC
COD	mg/L	8	40	< 8	< 8	NC
Conductivity	uS/cm	2	10	607	615	1.31
Hardness	mg/L	0.05	0.25	360	357	0.84
pH	pH Units	0.05	0.25	7.97	8.12	1.86
DOC	mg/L	1	5	1.00	1.00	NC
Chloride	mg/L	1	5	25	25	0.00
Nitrate	mg/L	0.06	0.3	< 0.06	< 0.06	NC
Nitrite	mg/L		0	-	-	NC
Sulphate	mg/L	2	10	17.0	17.0	0.00
TDS	mg/L	30	150	380	303	22.55
Magnesium	mg/L	0.001	0.005	24.40	24.00	1.65
Calcium	mg/L		0	104.00	103.00	0.97
Sodium	mg/L	0.01	0.05	7.79	7.75	0.51
Iron	mg/L	0.007	0.035	0.66	0.66	1.06
Potassium	mg/L	0.009	0.045	5.70	5.58	2.13
Manganese	mg/L	0.001	0.005	0.01	0.01	5.71
Arsenic	mg/L	0.0002	0.001	0.00	0.00	0.00
Boron	mg/L	0.002	0.01	0.28	0.28	1.80
Barium	mg/L	0.00008	0.0004	0.80	0.81	1.24
Cadmium	mg/L	0.000003	0.000015	0.00001	0.00001	NC
Chromium	mg/L	0.00008	0.0004	0.0001	0.0001	NC
Copper	mg/L	0.001	0.005	< 0.001	< 0.001	NC
Mercury	mg/L	0.00001	0.00005	< 0.00001	0.00003	NC
Lead	mg/L	0.00009	0.00045	< 0.00009	< 0.00009	NC
Zinc	mg/L	0.002	0.01	< 0.002	< 0.002	NC
Total Suspended Solids	mg/L	2	10	28.00	14.00	**66.67**
Total Kjedhal Nitrogen	mg/L		0	-	-	NC
Phenols	mg/L	0.002	0.01	< 0.002	< 0.002	NC
Total Phosphorus	mg/L	0.03	0.15	< 0.03	< 0.03	NC
Anion Sum	meq/L	-9999	-49995	6.82	6.93	1.60
Cation Sum	meq/L	-9999	-49995	7.72	7.66	0.78
Ion Ratio	AS/CS	-9999	-49995	1.13	1.10	2.69
Anion-Cation Balance	%	-9999	-49995	6.21	4.96	22.38
Langeliers Index 4° C	-	-9999	-49995	0.49	0.64	26.55
Saturation pH 4°C	-	-9999	-49995	7.48	7.48	0.00

Notes:

RDL	Laboratory reportable detection limit
PQL	Practical quantification limit (PQL = 5 x RDL).
NC	Not calculable due to one or more of the concentrations being quantified over the reasonable detection limit (RDL) or the practical quantification limit (PQL).
BOLD	Bolded and shaded entries indicates that the relative percent difference (RPD) exceeds the industry standard of 50%.
BLANK CELLS	Blank cells indicate no data available.

Pinchin Project No. 350221.002

TABLE 11
Surface Water Duplicate Data - Spring 2025
Roblin Waste Disposal Site and Waste Transfer Station
Town of Greater Napanee, Ontario

Parameter	Units	RDL	PQL	SW3	DUP1	Relative Percent Difference (%)
pH	Elec	0.05	0.25	7.34	7.21	1.79
Conductivity	uS/cm	2	10	201.00	196.00	2.52
Alkalinity	mg/L as CaCO3	2	10	92.00	88.00	4.44
Hardness	mg/L as CaCO3	0.05	0.25	103.00	102.00	0.98
Total Dissolved Solids	mg/L	30	150	131.00	111.00	NC
Chloride	mg/L	1	5	8.00	8.00	0.00
Sodium	mg/L	0.01	0.05	4.61	4.50	2.41
Calcium	mg/L	0.01	0.05	32.20	31.80	1.25
Magnesium	mg/L	0.001	0.005	5.51	5.46	0.91
Potassium	mg/L	0.009	0.045	1.00	0.99	0.50
Sulphate	mg/L	2	10	< 2	< 2	NC
Ammonia	mg/L		0	< 0.04	< 0.04	NC
Ammonia+Ammonium (N)	mg/L	0.1	0.5	-	-	NC
Nitrate	mg/L	0.06	0.3	< 0.06	< 0.06	NC
Nitrite	mg/L		0	-	-	NC
Nitrate + Nitrite (as N)	mg/L		0	< 0.06	< 0.06	NC
Total Kjedhal Nitrogen	mg/L	0.5	2.5	0.06	0.30	NC
Phenols	mg/L	0.001	0.005	< 0.001	< 0.001	NC
Dissolved Organic Carbon	mg/L	1	5	5.00	5.00	NC
COD	mg/L	8	40	17.00	23.00	NC
Biochemical Oxygen Demand (BOD_5)	mg/L	2	10	< 4	< 4	NC
Iron	mg/L	0.007	0.035	0.17	0.17	1.20
Manganese	mg/L	0.00001	0.00005	0.03	0.03	2.21
Total Phosphorus	mg/L	0.003	0.015	0.01	0.01	NC
Total Suspended Solids	mg/L	30	150	5.00	4.00	NC
Anion Sum	meq/L	-9999	-49995	2.10	2.02	3.88
Cation Sum	meq/L	-9999	-49995	2.30	2.27	1.31
Ion Ratio	AS/CS	-9999	-49995	1.09	1.13	3.60
Anion-Cation Balance	%	-9999	-49995	-	-	NC
Arsenic	mg/L	0.0002	0.001	0.00	0.00	NC
Boron	mg/L	0.002	0.01	0.01	0.01	NC
Barium	mg/L	0.00008	0.0004	0.05	0.05	1.40
Cadmium	mg/L	0.000003	0.000015	0.00	0.00	NC
Chromium	mg/L	0.00008	0.0004	0.00	0.00	NC
Copper	mg/L	0.001	0.005	< 0.001	< 0.001	NC
Mercury	mg/L	0.00001	0.00005	< 0.00001	< 0.00001	NC
Lead	mg/L	0.009	0.045	< 0.00009	< 0.00009	NC
Zinc	mg/L	0.002	0.01	< 0.002	< 0.002	NC
Langeliers Index 4° C	-	-9999	-49995	-	-	NC
Saturation pH 4°C	-	-9999	-49995	-	-	NC

Notes:

RDL	Laboratory reportable detection limit
PQL	Practical quantification limit (PQL = 5 x RDL).
NC	Not calculable due to one or more of the concentrations being quantified over the reasonable detection limit (RDL) or the practical quantification limit (PQL).
BOLD	Bolded and shaded entries indicates that the relative percent difference (RPD) exceeds the industry standard of 50%.
BLANK CELLS	Blank cells indicate no data available.

Pinchin Project No. 350221.002

TABLE 12
Surface Water Duplicate Data - Fall 2025
Roblin Waste Disposal Site and Waste Transfer Station
Town of Greater Napanee, Ontario

Parameter	Units	RDL	PQL	SW3	DUP1	Relative Percent Difference (%)
pH	Elec	0.05	0.25	8.15	8.14	0.12
Conductivity	uS/cm	2	10	233.00	257.00	9.80
Alkalinity	mg/L as CaCO3	2	10	118.00	119.00	0.84
Hardness	mg/L as CaCO3	0.05	0.25	135.00	137.00	1.47
Total Dissolved Solids	mg/L	30	150	154.00	140.00	NC
Chloride	mg/L	1	5	12.00	12.00	0.00
Sodium	mg/L	0.01	0.05	6.52	6.53	0.15
Calcium	mg/L	0.01	0.05	40.30	41.20	2.21
Magnesium	mg/L	0.001	0.005	8.44	8.33	1.31
Potassium	mg/L	0.009	0.045	1.23	1.24	0.81
Sulphate	mg/L	2	10	5.00	5.00	NC
Ammonia	mg/L		0	< 0.1	< 0.1	NC
Ammonia+Ammonium (N)	mg/L	0.1	0.5	-	-	NC
Nitrate	mg/L	0.06	0.3	0.190	< 0.06	NC
Nitrite	mg/L		0	-	-	NC
Nitrate + Nitrite (as N)	mg/L		0	-	-	NC
Total Kjedhal Nitrogen	mg/L	0.5	2.5	< 0.5	< 0.5	NC
Phenols	mg/L	0.001	0.005	< 0.001	< 0.001	NC
Dissolved Organic Carbon	mg/L	1	5	6.000	6.000	0.00
COD	mg/L	8	40	< 8	< 8	NC
Biochemical Oxygen Demand (BOD_5)	mg/L	2	10	< 4	< 4	NC
Iron	mg/L	0.007	0.035	0.084	0.082	2.41
Manganese	mg/L	0.00001	0.00005	0.0672	0.0676	0.59
Total Phosphorus	mg/L	0.003	0.015	0.017	0.016	6.06
Total Suspended Solids	mg/L	30	150	2.00	< 2	NC
Anion Sum	meq/L	-9999	-49995	2.8	2.82	0.71
Cation Sum	meq/L	-9999	-49995	3.03	3.07	1.31
Ion Ratio	AS/CS	-9999	-49995	1.09	1.09	0.00
Anion-Cation Balance	%	-9999	-49995	4.08	4.26	4.32
Arsenic	mg/L	0.0002	0.001	0.0005	0.0006	NC
Boron	mg/L	0.002	0.01	0.015	0.015	0.00
Barium	mg/L	0.00008	0.0004	0.0714	0.0705	1.27
Cadmium	mg/L	0.000003	0.000015	< 0.000003	< 0.000003	NC
Chromium	mg/L	0.00008	0.0004	0.00015	0.00021	NC
Copper	mg/L	0.001	0.005	< 0.001	< 0.001	NC
Mercury	mg/L	0.00001	0.00005	< 0.00001	< 0.00001	NC
Lead	mg/L	0.009	0.045	0.00013	< 0.00009	NC
Zinc	mg/L	0.002	0.01	0.011	< 0.002	NC
Langeliers Index 4° C	-	-9999	-49995	-0.1	-0.09	10.53
Saturation pH 4°C	-	-9999	-49995	8.25	8.23	0.24

Notes:

RDL	Laboratory reportable detection limit
PQL	Practical quantification limit (PQL = 5 x RDL).
NC	Not calculable due to one or more of the concentrations being quantified over the reasonable detection limit (RDL) or the practical quantification limit (PQL).
BOLD	Bolded and shaded entries indicates that the relative percent difference (RPD) exceeds the industry standard of 50%.
BLANK CELLS	Blank cells indicate no data available.

Pinchin Project No. 350221.002

APPENDIX IX

Laboratory Certificate of Analyses

SGS Canada Inc.
P.O. Box 4300 - 185 Consession Street
Lakefield, Ontario, - K0L 2H0
Phone: (705) 652 2000 FAX: (705) 652 6365

SIR Issued Date: **08-Oct-2025**
Date Received: **08-Oct-2025**
Received By:

Pinchin Ltd
Attn: Samantha Young
1456 Centennial Drive, Kingston, ON
Canada
Phone: 613-796-2342

SGS Report: **CA15087-OCT25**
Project Number:
Reference:
Version: **V 1.0**

SAMPLE INTEGRITY REPORT

Sample Integrity of Submission
The following have been identified as Sample Integrity Violations Related to SGS Canada Report: CA15087-OCT25
The report was found to contain NO ISSUES

GENERAL INTEGRITY VIOLATIONS

SAMPLE SPECIFIC INTEGRITY VIOLATIONS

PARTICULATE LOG

Printed on : 08 Oct 2025 15:39

How did we do today?

Your feedback helps us improve our service and takes less than a minute to complete.

START SURVEY

FINAL REPORT

CA15087-OCT25 R1

PO#350221.002, Roblin SW

Prepared for

Pinchin Ltd

FINAL REPORT

CA15087-OCT25 R1

First Page

CLIENT DETAILS		LABORATORY DETAILS	
Client	Pinchin Ltd	Project Specialist	Brad Moore Hon. B.Sc
Address	1456 Centennial Drive, Kingston Canada, K7P 0K4 Phone: 613-796-2342. Fax:	Laboratory Address	SGS Canada Inc. 185 Concession St., Lakefield ON, K0L 2H0
Contact	Samantha Young		
Telephone	613-796-2342	Telephone	705-652-2143
Facsimile		Facsimile	705-652-6365
Email	sryoung@pinchin.com	Email	brad.moore@sgs.com
Works #		SGS Reference	CA15087-OCT25
Project	PO#350221.002, Roblin SW	Received	2025-10-08
Reference		Approved	10/23/2025
Batch		Report Number	CA15087-OCT25 R1
Samples	WATER (4)	Date Reported	10/23/2025

COMMENTS

Temperature of Sample upon Receipt: 6 degrees C

SIGNATORIES

Brad Moore Hon. B.Sc

FINAL REPORT

CA15087-OCT25 R1

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FINAL REPORT

CA15087-OCT25 R1

Client: Pinchin Ltd
Project: PO#350221.002, Roblin SW
Project Manager: Samantha Young
Samplers: Sam

MATRIX: WATER

L1 = PWQO_L / WATER / - - Table 2 - General - July 1999 PIBS 3303E

Sample Number				7	8	9	10
Sample Name				SW-1	SW-2	SW-3	Dup-2
Sample Matrix				Surface Water	Surface Water	Surface Water	Surface Water
Sample Date				2025-10-07 00:00	2025-10-07 00:00	2025-10-07 00:00	2025-10-07 00:00
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**	**Result**
General Chemistry							
Temperature @ pH	°C	0		19.1	19.3	19.2	19.3
Alkalinity	mg/L as CaCO3	2		125	125	118	119
Total Suspended Solids	mg/L	2		< 2	4	2	< 2
Biochemical Oxygen Demand (BOD5)	mg/L	2		< 4↑	< 4↑	< 4↑	< 4↑
Conductivity	uS/cm	2		266	267	233	257
Total Dissolved Solids	mg/L	30		157	160	154	140
Chemical Oxygen Demand	mg/L	8		8	10	< 8	< 8
Total Kjeldahl Nitrogen	as N mg/L	0.5		0.5	0.6	< 0.5	< 0.5
Ammonia+Ammonium (N)	as N mg/L	0.1		< 0.1	< 0.1	< 0.1	< 0.1
Dissolved Organic Carbon	mg/L	1		6	6	6	6
Metals and Inorganics							
Sulphate	mg/L	2		7	6	5	5
Nitrate (as N)	as N mg/L	0.06		0.21	< 0.06	0.19	< 0.06
Hardness	mg/L as CaCO3	0.05		138	136	135	137
Iron (total)	mg/L	0.007	0.3	0.108	0.122	0.084	0.082
Calcium (total)	mg/L	0.01		41.3	40.8	40.3	41.2
Potassium (total)	mg/L	0.009		1.33	1.25	1.23	1.24
Magnesium (total)	mg/L	0.001		8.56	8.38	8.44	8.33
Sodium (total)	mg/L	0.01		7.97	6.78	6.52	6.53
Arsenic (total)	mg/L	0.0002	0.005	0.0008	0.0006	0.0005	0.0006
Barium (total)	mg/L	0.00008		0.0730	0.0726	0.0714	0.0705

FINAL REPORT

CA15087-OCT25 R1

Client: Pinchin Ltd
Project: PO#350221.002, Roblin SW
Project Manager: Samantha Young
Samplers: Sam

MATRIX: WATER

L1 = PWQO_L / WATER / - - Table 2 - General - July 1999 PIBS 3303E

Sample Number	7	8	9	10
Sample Name	SW-1	SW-2	SW-3	Dup-2
Sample Matrix	Surface Water	Surface Water	Surface Water	Surface Water
Sample Date	2025-10-07 00:00	2025-10-07 00:00	2025-10-07 00:00	2025-10-07 00:00

Parameter	Units	RL	L1	Result	Result	Result	Result
Metals and Inorganics (continued)							
Boron (total)	mg/L	0.002	0.2	0.021	0.017	0.015	0.015
Cadmium (total)	mg/L	0.000003	0.0005	< 0.000003	< 0.000003	< 0.000003	< 0.000003
Chromium (total)	mg/L	0.00008		0.00014	0.00017	0.00015	0.00021
Copper (total)	mg/L	0.001	0.005	< 0.001	< 0.001	< 0.001	< 0.001
Lead (total)	mg/L	0.00009	0.025	< 0.00009	< 0.00009	0.00013	< 0.00009
Phosphorus (total)	mg/L	0.003	0.01	**0.019**	**0.033**	**0.017**	**0.016**
Manganese (total)	mg/L	0.00001		0.0850	0.0990	0.0672	0.0676
Zinc (total)	mg/L	0.002	0.02	< 0.002	0.002	0.011	< 0.002
Anion Sum	meq/L	-9999		3.00	2.96	2.80	2.82
Anion-Cation Balance	% difference	-9999		2.59	1.83	4.08	4.26
Cation sum	meq/L	-9999		3.16	3.07	3.03	3.07
Ion Ratio	none	-9999		1.05	1.04	1.09	1.09
Langeliers Index 4° C	@ 4° C	-9999		-0.13	-0.22	-0.10	-0.09
Saturation pH 4°C	pHs @ 4°C	-9999		8.21	8.22	8.25	8.23

FINAL REPORT

CA15087-OCT25 R1

Client: Pinchin Ltd
Project: PO#350221.002, Roblin SW
Project Manager: Samantha Young
Samplers: Sam

MATRIX: WATER

L1 = PWQO_L / WATER / - - Table 2 - General - July 1999 PIBS 3303E

Sample Number				7	8	9	10
Sample Name				SW-1	SW-2	SW-3	Dup-2
Sample Matrix				Surface Water	Surface Water	Surface Water	Surface Water
Sample Date				2025-10-07 00:00	2025-10-07 00:00	2025-10-07 00:00	2025-10-07 00:00
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**	**Result**
Other (ORP)							
pH	No unit	0.05	8.6	8.08	8.00	8.15	8.14
Chloride	mg/L	1		13	12	12	12
Mercury (dissolved)	mg/L	0.00001	0.0002	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Phenols							
4AAP-Phenolics	mg/L	0.001	0.001	< 0.001	< 0.001	< 0.001	< 0.001

EXCEEDANCE SUMMARY

Parameter	Method	Units	Result	PWQO_L / WATER / - - Table 2 - General - July 1999 PIBS 3303E L1
SW-1				
Phosphorus	SM 3030/EPA 200.8	mg/L	0.019	0.01
SW-2				
Phosphorus	SM 3030/EPA 200.8	mg/L	0.033	0.01
SW-3				
Phosphorus	SM 3030/EPA 200.8	mg/L	0.017	0.01
Dup-2				
Phosphorus	SM 3030/EPA 200.8	mg/L	0.016	0.01

QC SUMMARY

Alkalinity

Method: SM 2320 | Internal ref.: ME-CA-[ENV]EWL-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Alkalinity	EWL0294-OCT25	mg/L as CaCO3	2	< 2	0	20	98	80	120	NA		

Ammonia by SFA

Method: SM 4500 | Internal ref.: ME-CA-[ENV]SFA-LAK-AN-007

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Ammonia+Ammonium (N)	SKA0106-OCT25	as N mg/L	0.1	<0.1	ND	10	99	90	110	99	75	125
Ammonia+Ammonium (N)	SKA0122-OCT25	as N mg/L	0.1	<0.1	ND	10	101	90	110	101	75	125

QC SUMMARY

Anions by discrete analyzer

Method: US EPA 325.2 | Internal ref.: ME-CA-IENVIEWL-LAK-AN-026

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Chloride	DIO8018-OCT25	mg/L	1	<1	ND	20	89	70	130	100	70	130
Sulphate	DIO8018-OCT25	mg/L	2	<2	0	20	99	80	120	102	75	125

Biochemical Oxygen Demand

Method: SM 5210 | Internal ref.: ME-CA-IENVIEWL-LAK-AN-007

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Biochemical Oxygen Demand (BOD5)	BOD0022-OCT25	mg/L	2	< 2	2	30	86	70	130	107	70	130

Carbon by SFA

Method: SM 5310 | Internal ref.: ME-CA-IENVISFA-LAK-AN-009

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Dissolved Organic Carbon	SKA0088-OCT25	mg/L	1	<1	3	20	100	90	110	102	75	125

QC SUMMARY

Chemical Oxygen Demand

Method: HACH 8000 | Internal ref.: ME-CA-[ENVIEWL-LAK-AN-009

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Chemical Oxygen Demand	EWL0228-OCT25	mg/L	8	<8	ND	20	90	80	120	96	75	125

Conductivity

Method: SM 2510 | Internal ref.: ME-CA-[ENVIEWL-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Conductivity	EWL0294-OCT25	uS/cm	2	< 2	0	10	99	90	110	NA		

Mercury by CVAAS

Method: EPA 7471A/SM 3112B | Internal ref.: ME-CA-[ENVISPE-LAK-AN-004

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Mercury (dissolved)	EHG0030-OCT25	mg/L	0.00001	< 0.00001	ND	20	113	80	120	113	70	130

QC SUMMARY

Metals in aqueous samples - ICP-MS

Method: SM 3030/EPA 200.8 | Internal ref.: ME-CA-[ENVISPE-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Arsenic (total)	EMS0125-OCT25	mg/L	0.0002	<0.0002	12	20	105	90	110	93	70	130
Barium (total)	EMS0125-OCT25	mg/L	0.00008	<0.00008	8	20	105	90	110	98	70	130
Boron (total)	EMS0125-OCT25	mg/L	0.002	<0.002	3	20	101	90	110	100	70	130
Calcium (total)	EMS0125-OCT25	mg/L	0.01	<0.01	1	20	101	90	110	103	70	130
Cadmium (total)	EMS0125-OCT25	mg/L	0.000003	<0.000003	0	20	105	90	110	89	70	130
Chromium (total)	EMS0125-OCT25	mg/L	0.00008	<0.00008	ND	20	110	90	110	77	70	130
Copper (total)	EMS0125-OCT25	mg/L	0.001	<0.001	3	20	105	90	110	74	70	130
Iron (total)	EMS0125-OCT25	mg/L	0.007	<0.007	2	20	104	90	110	125	70	130
Potassium (total)	EMS0125-OCT25	mg/L	0.009	<0.009	1	20	105	90	110	104	70	130
Magnesium (total)	EMS0125-OCT25	mg/L	0.001	<0.001	1	20	103	90	110	122	70	130
Manganese (total)	EMS0125-OCT25	mg/L	0.00001	<0.00001	0	20	105	90	110	92	70	130
Sodium (total)	EMS0125-OCT25	mg/L	0.01	<0.01	1	20	97	90	110	96	70	130
Lead (total)	EMS0125-OCT25	mg/L	0.00009	<0.00009	2	20	100	90	110	90	70	130
Zinc (total)	EMS0125-OCT25	mg/L	0.002	<0.002	0	20	106	90	110	102	70	130
Phosphorus (total)	EMS9007-OCT25	mg/L	0.003	<0.003	ND	20	100	90	110	NV	70	130

QC SUMMARY

pH

Method: SM 4500 I Internal ref.: ME-CA-[ENV]EWL-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High
pH	EWL0294-OCT25	No unit	0.05	NA	0		100			NA		

Phenols by SFA

Method: SM 5530B-D I Internal ref.: ME-CA-[ENV]SFA-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High
4AAP-Phenolics	SKA0086-OCT25	mg/L	0.001	<0.001	0	10	100	80	120	91	75	125

Solids Analysis

Method: SM 2540C I Internal ref.: ME-CA-[ENV]EWL-LAK-AN-005

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High
Total Dissolved Solids	EWL0226-OCT25	mg/L	30	<30	0	20	100	80	120	NA		

QC SUMMARY

Suspended Solids

Method: SM 2540D | Internal ref.: ME-CA-IENVIEWL-LAK-AN-004

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Total Suspended Solids	EWL0238-OCT25	mg/L	2	< 2	1	10	93	90	110	NA		
Total Suspended Solids	EWL0242-OCT25	mg/L	2	< 2	0	10	95	90	110	NA		

Total Nitrogen

Method: SM 4500-N C/4500-NO3- F | Internal ref.: ME-CA-IENVISFA-LAK-AN-002

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Total Kjeldahl Nitrogen	SKA0110-OCT25	as N mg/L	0.5	<0.5	1	10	101	90	110	89	75	125

QC SUMMARY

Method Blank: a blank matrix that is carried through the entire analytical procedure. Used to assess laboratory contamination.
Duplicate: Paired analysis of a separate portion of the same sample that is carried through the entire analytical procedure. Used to evaluate measurement precision.
LCS/Spike Blank: Laboratory control sample or spike blank refer to a blank matrix to which a known amount of analyte has been added. Used to evaluate analyte recovery and laboratory accuracy without sample matrix effects.
Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate laboratory accuracy with sample matrix effects.
Reference Material: a material or substance matrix matched to the samples that contains a known amount of the analyte of interest. A reference material may be used in place of a matrix spike.
RL: Reporting limit
RPD: Relative percent difference
AC: Acceptance criteria

Multielement Scan Qualifier: as the number of analytes in a scan increases, so does the chance of a limit exceedance by random chance as opposed to a real method problem. Thus, in multielement scans, for the LCS and matrix spike, up to 10% of the analytes may exceed the quoted limits by up to 10% absolute and the spike is considered acceptable.
Duplicate Qualifier: for duplicates as the measured result approaches the RL, the uncertainty associated with the value increases dramatically, thus duplicate acceptance limits apply only where the average of the two duplicates is greater than five times the RL.
Matrix Spike Qualifier: for matrix spikes, as the concentration of the native analyte increases, the uncertainty of the matrix spike recovery increases. Thus, the matrix spike acceptance limits apply only when the concentration of the matrix spike is greater than or equal to the concentration of the native analyte.

LEGEND

FOOTNOTES

NSS Insufficient sample for analysis.
RL Reporting Limit.
↑ Reporting limit raised.
↓ Reporting limit lowered.
NA The sample was not analysed for this analyte
ND Non Detect

Results relate only to the sample tested.
Data reported represent the sample as submitted to SGS.

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Test method information available upon request.
"Temperature Upon Receipt" is representative of the whole shipment and may not reflect the temperature of individual samples.

SGS Canada Inc. statement of conformity decision rule does not consider uncertainty when analytical results are compared to a specified standard or regulation.

-- End of Analytical Report --

SGS

Request for Laboratory Services and CHAIN OF CUSTODY (General)

SGS Environmental Services - Lakefield: 185 Concession St., Lakefield, ON K0L 2H0 Phone: 705-652-2000 Toll Free: 877-747-7658 Fax: 705-652-6365 Web: www.ca.sgs.com {4}

SGS Environmental Services - London: 657 Consortium Court, London, ON, N6E 2S8 Phone: 519-672-4500 Toll Free: 877-848-8060 Fax: 519-672-0361 Web: www.ca.sgs.com {4}

Laboratory Information Section

Received Date (mm/dd/yyyy): ~~OCT 08 2025~~ 10/07/25

Received Time (After Hours Only): __:__

LAB LIMS #: Oct 15087 M2

Temperature Upon Receipt (°C): 6X3

Billing & Reporting Information

Invoice/Receipt to {3}:

Company: Pinchin

Attention: Samantha Young

Address: 1456 Centennial Drive, Suite 2, Kingston, ON K7L 0K4

Email: SRyoung@pinchin.com

Quote #: 2024 1378

Attached Parameter List: ☑ YES ☐ NO

Turnaround Time

Is *Rush Turnaround Time Required? ☐ YES ☑ NO

Specify:

* Rush TA Requests Require Lab Approval

Project Name/Number: Roblin LF - SW

P.O. #: 350221.002

Client Information/Report To:

Client Lab #:

Company Name:	**Pinchin Ltd.**	**Phone Number:**	**613-796-2342**
Contact Name:	**Samantha Young**	**Fax Number:**	
Address:	**1456 Centennial Drive, Suite 2, Kingston ON**	**E-mail:**	**SRyoung@pinchin.com**
Copy to:			

Sample Information

Sample Identifier	Date Sampled (mm/dd/yy)	Time Sampled	# of Bottles	Analysis Requested (please enter the analysis required below and check off which analysis applies to each sample)							
				Field Filtered	Field Temp (°C)	Field pH		SW Monitoring Package			
SW-1	10-07-25	AM	10	N	AMBS	8.98		X			
SW-2	10-07-25	"	"	"	18.10	8.61		X			
SW-3	"	"	"	"	17.84	8.51		X			
DUP2	"	"	"	"	17.84	8.51		X			

Sampled By {1}:	(Name) Sam Y	(Signature) Sam Y	Date:	10/07/25	(mm/dd/yy)
Relinquished by {2}:	(Name) Sam Y	(Signature) Sam Y	Date:	10/07/25	(mm/dd/yy)

Note: {1} Submission of samples to SGS is acknowledgement that you have been provided direction on sample collection/handling and transportation of samples. {2} Submission of samples to SGS is considered authorization for completion of work. Signatures may appear on this form or be retained on file in the contract, or in an alternative format (e.g. shipping documents). {3} Results may be sent by email to an unlimited number of addresses for no additional cost. Fax is available upon request. {4} Completion of work may require the subcontracting of samples between the London and Lakefield laboratories.

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Revision #: 2.3
Date of Issue: 24 Jun. 2014

SGS Canada Inc.
P.O. Box 4300 - 185 Consession Street
Lakefield, Ontario, - K0L 2H0
Phone: (705) 652 2000 FAX: (705) 652 6365

SIR Issued Date: **16-Oct-2025**
Date Received: **15-Oct-2025**
Received By: **Caylin Graham**

Pinchin Ltd
Attn: Samantha Young
1456 Centennial Drive, Kingston, ON
Canada
Phone: 613-796-2342

SGS Report: **CA15161-OCT25**
Project Number:
Reference:
Version: **V 1.0**

SAMPLE INTEGRITY REPORT

Sample Integrity of Submission
The following have been identified as Sample Integrity Violations Related to SGS Canada Report: CA15161-OCT25
The report was found to contain 1 ISSUES

GENERAL INTEGRITY VIOLATIONS

SAMPLE SPECIFIC INTEGRITY VIOLATIONS

SGS Sample ID	**CA15161-OCT25-7**
Date / Time Sampled	**14-Oct-2025 00:00**
Client Sample ID	**MW-1**

Insufficient Sample Volume
BOD PET, TSS PET, FF Metals, FF Hg, and FF DOC bottles received empty - insufficient sample to complete all analysis, slashed all analysis as per priority list

PARTICULATE LOG

Printed on : 16 Oct 2025 09:36

FINAL REPORT

CA15161-OCT25 R

350221.002, Roblin LF - GW

Prepared for

Pinchin Ltd

FINAL REPORT

CA15161-OCT25 R

First Page

CLIENT DETAILS		LABORATORY DETAILS	
Client	Pinchin Ltd	Project Specialist	Brad Moore Hon. B.Sc
		Laboratory	SGS Canada Inc.
Address	1456 Centennial Drive, Kingston Canada, K7P 0K4 Phone: 613-796-2342, Fax:	Address	185 Concession St., Lakefield ON, K0L 2H0
Contact	Samantha Young	Telephone	705-652-2143
Telephone	613-796-2342	Facsimile	705-652-6365
Facsimile		Email	brad.moore@sgs.com
Email	sryoung@pinchin.com	SGS Reference	CA15161-OCT25
Project	350221.002, Roblin LF - GW	Received	10/15/2025
Order Number		Approved	10/21/2025
Samples	Ground Water (3)	Report Number	CA15161-OCT25 R
		Date Reported	10/21/2025

COMMENTS

Temperature of Sample upon Receipt: 5 degrees C

SIGNATORIES

Brad Moore Hon. B.Sc

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FINAL REPORT

CA15161-OCT25 R

Client: Pinchin Ltd
Project: 350221.002, Roblin LF - GW
Project Manager: Samantha Young
Samplers: Sam Young

MATRIX: WATER

L1 = ODWS_AO_OG / WATER / - - Table 4 - Drinking Water - Reg O.169_03
L2 = ODWS_MAC / WATER / - - Table 1,2 and 3 - Drinking Water - Reg O.169_03

				Sample Number	7	8	9
				Sample Name	MW-1	MW-2	DUP1
				Sample Matrix	Ground Water	Ground Water	Ground Water
				Sample Date	14/10/2025	14/10/2025	14/10/2025
Parameter	**Units**	**RL**	**L1**	**L2**	**Result**	**Result**	**Result**
Acid Rock Drainage							
pH Check <2	pH	0.05			---	1.00	1.00
General Chemistry							
Temperature @ pH	°C	0			22.6	22.6	22.5
Alkalinity	mg/L as CaCO3	2	500		264	289	294
Total Suspended Solids	mg/L	2			---	28	14
Biochemical Oxygen Demand (BOD5)	mg/L	2			---	< 4 ↑	< 4 ↑
Conductivity	uS/cm	2			1410	607	615
Total Dissolved Solids	mg/L	30	500		---	380	303
Chemical Oxygen Demand	mg/L	8			< 8	< 8	< 8
Ammonia+Ammonium (N)	as N mg/L	0.1			< 0.1	< 0.1	< 0.1
Dissolved Organic Carbon	mg/L	1	5		---	1	1
Metals and Inorganics							
Phosphorus (total)	mg/L	0.03			< 0.03	< 0.03	< 0.03
Sulphate	mg/L	2	500		500	17	17
Nitrate (as N)	as N mg/L	0.06		10	0.10	< 0.06	< 0.06
Hardness (dissolved)	mg/L as CaCO3	0.05	100		---	360	357
Iron (dissolved)	mg/L	0.007	0.3		---	0.663	0.656
Calcium (dissolved)	mg/L	0.01			---	104	103
Potassium (dissolved)	mg/L	0.009			---	5.70	5.58
Magnesium (dissolved)	mg/L	0.001			---	24.4	24.0
Sodium (dissolved)	mg/L	0.01	200	20	---	7.79	7.75

FINAL REPORT

CA15161-OCT25 R

Client: Pinchin Ltd
Project: 350221.002, Roblin LF - GW
Project Manager: Samantha Young
Samplers: Sam Young

MATRIX: WATER

L1 = ODWS_AO_OG / WATER / - - Table 4 - Drinking Water - Reg O.169_03
L2 = ODWS_MAC / WATER / - - Table 1,2 and 3 - Drinking Water - Reg O.169_03

				Sample Number	7	8	9
				Sample Name	MW-1	MW-2	DUP1
				Sample Matrix	Ground Water	Ground Water	Ground Water
				Sample Date	14/10/2025	14/10/2025	14/10/2025
Parameter	**Units**	**RL**	**L1**	**L2**	**Result**	**Result**	**Result**
Metals and Inorganics (continued)							
Arsenic (dissolved)	mg/L	0.0002		0.01	---	0.0011	0.0011
Barium (dissolved)	mg/L	0.00008		1	---	0.801	0.811
Boron (dissolved)	mg/L	0.002		5	---	0.275	0.280
Cadmium (dissolved)	mg/L	0.000003		0.005	---	0.000005	0.000007
Chromium (dissolved)	mg/L	0.00008		0.05	---	0.00009	0.00009
Copper (dissolved)	mg/L	0.001	1		---	< 0.001	< 0.001
Lead (dissolved)	mg/L	0.00009		0.01	---	< 0.00009	< 0.00009
Manganese (dissolved)	mg/L	0.00001	0.05		---	0.0144	0.0136
Zinc (dissolved)	mg/L	0.002	5		---	< 0.002	< 0.002
Anion Sum	meq/L	-9999			---	6.82	6.93
Anion-Cation Balance	% difference	-9999			---	6.21	4.96
Cation sum	meq/L	-9999			---	7.72	7.66
Ion Ratio	none	-9999			---	1.13	1.1
Langeliers Index 4° C	@ 4° C	-9999			---	0.49	0.64
Saturation pH 4°C	pHs @ 4°C	-9999			---	7.48	7.48

FINAL REPORT

CA15161-OCT25 R

Client: Pinchin Ltd
Project: 350221.002, Roblin LF - GW
Project Manager: Samantha Young
Samplers: Sam Young

MATRIX: WATER

L1 = ODWS_AO_OG / WATER / - - Table 4 - Drinking Water - Reg O.169_03
L2 = ODWS_MAC / WATER / - - Table 1,2 and 3 - Drinking Water - Reg O.169_03

				Sample Number	7	8	9
				Sample Name	MW-1	MW-2	DUP1
				Sample Matrix	Ground Water	Ground Water	Ground Water
				Sample Date	14/10/2025	14/10/2025	14/10/2025
Parameter	**Units**	**RL**	**L1**	**L2**	**Result**	**Result**	**Result**
Other (ORP)							
pH	No unit	0.05	8.5		7.98	7.97	8.12
Chloride	mg/L	1	250		39	25	25
Mercury (dissolved)	mg/L	0.00001		0.001	---	< 0.00001	0.00003
Phenols							
4AAP-Phenolics	mg/L	0.002			< 0.002	< 0.002	< 0.002

EXCEEDANCE SUMMARY

Parameter	Method	Units	Result	ODWS_AO_OG / WATER / - - Table 4 - Drinking Water - Reg O.169_03 L1	ODWS_MAC / WATER / - - Table 1,2 and 3 - Drinking Water - Reg O.169_03 L2
MW-2					
Hardness (dissolved)	SM 3030/EPA 200.7	mg/L as CaCO3	360	100	
Iron (dissolved)	SM 3030/EPA 200.8	mg/L	0.663	0.3	
DUP1					
Hardness (dissolved)	SM 3030/EPA 200.7	mg/L as CaCO3	357	100	
Iron (dissolved)	SM 3030/EPA 200.8	mg/L	0.656	0.3	

QC SUMMARY

Alkalinity

Method: SM 2320 | Internal ref.: ME-CA-[ENV]EWL-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Alkalinity	EWL0397-OCT25	mg/L as CaCO3	2	< 2	0	20	109	80	120	NA		

Ammonia by SFA

Method: SM 4500 | Internal ref.: ME-CA-[ENV]SFA-LAK-AN-007

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Ammonia+Ammonium (N)	SKA0161-OCT25	as N mg/L	0.1	<0.1	ND	10	99	90	110	100	75	125

QC SUMMARY

Anions by discrete analyzer

Method: US EPA 325.2 I Internal ref.: ME-CA-IENVIEWL-LAK-AN-026

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Chloride	DIO8026-OCT25	mg/L	1	<1	ND	20	97	70	130	98	70	130
Sulphate	DIO8026-OCT25	mg/L	2	<2	ND	20	101	80	120	101	75	125

Biochemical Oxygen Demand

Method: SM 5210 I Internal ref.: ME-CA-IENVIEWL-LAK-AN-007

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Biochemical Oxygen Demand (BOD5)	BOD0033-OCT25	mg/L	2	< 2	9	30	102	70	130	NV	70	130

Carbon by SFA

Method: SM 5310 I Internal ref.: ME-CA-IENVISFA-LAK-AN-009

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Dissolved Organic Carbon	SKA0144-OCT25	mg/L	1	<1	1	20	102	90	110	100	75	125

QC SUMMARY

Chemical Oxygen Demand

Method: HACH 8000 I Internal ref.: ME-CA-IENVIEWL-LAK-AN-009

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Chemical Oxygen Demand	EWL0461-OCT25	mg/L	8	<8	ND	20	102	80	120	107	75	125
Chemical Oxygen Demand	EWL0482-OCT25	mg/L	8	<8	13	20	106	80	120	96	75	125

Conductivity

Method: SM 2510 I Internal ref.: ME-CA-IENVIEWL-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Conductivity	EWL0397-OCT25	uS/cm	2	< 2	0	10	99	90	110	NA		

Mercury by CVAAS

Method: EPA 7471A/SM 3112B I Internal ref.: ME-CA-IENVISPE-LAK-AN-004

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Mercury (dissolved)	EHG0037-OCT25	mg/L	0.00001	< 0.00001	ND	20	101	80	120	118	70	130

QC SUMMARY

Metals in aqueous samples - ICP-MS

Method: SM 3030/EPA 200.8 | Internal ref.: ME-CA-[ENVISPE-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Arsenic (dissolved)	EMS0182-OCT25	mg/L	0.0002	<0.0002	6	20	98	90	110	107	70	130
Barium (dissolved)	EMS0182-OCT25	mg/L	0.00008	<0.00008	1	20	101	90	110	98	70	130
Boron (dissolved)	EMS0182-OCT25	mg/L	0.002	<0.002	1	20	102	90	110	94	70	130
Calcium (dissolved)	EMS0182-OCT25	mg/L	0.01	<0.01	1	20	101	90	110	103	70	130
Cadmium (dissolved)	EMS0182-OCT25	mg/L	0.000003	<0.000003	18	20	101	90	110	102	70	130
Chromium (dissolved)	EMS0182-OCT25	mg/L	0.00008	<0.00008	7	20	99	90	110	102	70	130
Copper (dissolved)	EMS0182-OCT25	mg/L	0.001	<0.001	ND	20	97	90	110	93	70	130
Iron (dissolved)	EMS0182-OCT25	mg/L	0.007	<0.007	0	20	101	90	110	100	70	130
Potassium (dissolved)	EMS0182-OCT25	mg/L	0.009	<0.009	1	20	99	90	110	93	70	130
Magnesium (dissolved)	EMS0182-OCT25	mg/L	0.001	<0.001	1	20	102	90	110	101	70	130
Manganese (dissolved)	EMS0182-OCT25	mg/L	0.00001	<0.00001	1	20	101	90	110	108	70	130
Sodium (dissolved)	EMS0182-OCT25	mg/L	0.01	<0.01	1	20	98	90	110	98	70	130
Lead (dissolved)	EMS0182-OCT25	mg/L	0.00009	<0.00009	ND	20	95	90	110	89	70	130
Zinc (dissolved)	EMS0182-OCT25	mg/L	0.002	<0.002	ND	20	101	90	110	94	70	130

QC SUMMARY

pH

Method: SM 4500 I Internal ref.: ME-CA-IENVIEWL-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
pH	EWL0397-OCT25	No unit	0.05	NA	0		100			NA		

Phenols by SFA

Method: SM 5530B-D I Internal ref.: ME-CA-IENVISFA-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
4AAP-Phenolics	SKA0143-OCT25	mg/L	0.002	<0.002	ND	10	100	80	120	98	75	125

Phosphorus by SFA

Method: SM 4500-P J I Internal ref.: ME-CA-IENVISFA-LAK-AN-003

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Phosphorus (total)	SKA0179-OCT25	mg/L	0.03	<0.03	ND	10	100	90	110	104	75	125

QC SUMMARY

Solids Analysis

Method: SM 2540C | Internal ref.: ME-CA-IENVIEWL-LAK-AN-005

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Total Dissolved Solids	EWL0414-OCT25	mg/L	30	<30	ND	20	103	80	120	NA		

Suspended Solids

Method: SM 2540D | Internal ref.: ME-CA-IENVIEWL-LAK-AN-004

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Total Suspended Solids	EWL0393-OCT25	mg/L	2	< 2	2	10	96	90	110	NA		

QC SUMMARY

Method Blank: a blank matrix that is carried through the entire analytical procedure. Used to assess laboratory contamination.
Duplicate: Paired analysis of a separate portion of the same sample that is carried through the entire analytical procedure. Used to evaluate measurement precision.
LCS/Spike Blank: Laboratory control sample or spike blank refer to a blank matrix to which a known amount of analyte has been added. Used to evaluate analyte recovery and laboratory accuracy without sample matrix effects.
Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate laboratory accuracy with sample matrix effects.
Reference Material: a material or substance matrix matched to the samples that contains a known amount of the analyte of interest. A reference material may be used in place of a matrix spike.
RL: Reporting limit
RPD: Relative percent difference
AC: Acceptance criteria

Multielement Scan Qualifier: as the number of analytes in a scan increases, so does the chance of a limit exceedance by random chance as opposed to a real method problem. Thus, in multielement scans, for the LCS and matrix spike, up to 10% of the analytes may exceed the quoted limits by up to 10% absolute and the spike is considered acceptable.
Duplicate Qualifier: for duplicates as the measured result approaches the RL, the uncertainty associated with the value increases dramatically, thus duplicate acceptance limits apply only where the average of the two duplicates is greater than five times the RL.
Matrix Spike Qualifier: for matrix spikes, as the concentration of the native analyte increases, the uncertainty of the matrix spike recovery increases. Thus, the matrix spike acceptance limits apply only when the concentration of the matrix spike is greater than or equal to the concentration of the native analyte.

LEGEND

FOOTNOTES

NSS Insufficient sample for analysis.
RL Reporting Limit.
↑ Reporting limit raised.
↓ Reporting limit lowered.
NA The sample was not analysed for this analyte
ND Non Detect

Results relate only to the sample tested.
Data reported represent the sample as submitted to SGS. Solid samples expressed on a dry weight basis.
"Temperature Upon Receipt" is representative of the whole shipment and may not reflect the temperature of individual samples.
Analysis conducted on samples submitted pursuant to or as part of Reg. 153/04, are in accordance to the "Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act and Excess Soil Quality" published by the Ministry and dated March 9, 2004 as amended.

SGS provides criteria information (such as regulatory or guideline limits and summary of limit exceedances) as a service. Every attempt is made to ensure the criteria information in this report is accurate and current, however, it is not guaranteed. Comparison to the most current criteria is the responsibility of the client and SGS assumes no responsibility for the accuracy of the criteria levels indicated.

SGS Canada Inc. statement of conformity decision rule does not consider uncertainty when analytical results are compared to a specified standard or regulation.
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This report supersedes all previous versions.

-- End of Analytical Report --

SGS

Request for Laboratory Services and CHAIN OF CUSTODY (General)

SGS Environmental Services - Lakefield: 185 Concession St., Lakefield, ON K0L 2H0 Phone: 705-652-2000 Toll Free: 877-747-7658 Fax: 705-652-6365 Web: www.ca.sgs.com {4}

SGS Environmental Services - London: 657 Consortium Court, London, ON, N6E 2S8 Phone: 519-672-4500 Toll Free: 877-848-8060 Fax: 519-672-0361 Web: www.ca.sgs.com {4}

Laboratory Information Section

Received Date (mm/dd/yyyy): 10/15/25 | LAB LIMS #: CA 15161-OCT25

Received Time (After Hours Only): __:__ | Temperature Upon Receipt (°C): 4, 5, 6

Billing & Reporting Information

Invoice/Receipt to {3}:

Company: Pinchin

Attention: Samantha Young

Address: 1456 Centennial Drive, Suite 2, Kingston, ON K7L 0K4

Email: SRyoung@pinchin.com

Quote #: 2024 1378

Attached Parameter List: ☑ YES ☐ NO

Turnaround Time

Is *Rush Turnaround Time Required? ☐ YES ☑ NO

Specify:

*Rush TA Requests Require Lab Approval

Project Name/Number: Roblin LF - GW | P.O. #: 350221.002

Client Information/Report To:

Client Lab #:

Company Name:	**Pinchin Ltd.**	**Phone Number:**	**613-796-2342**
Contact Name:	**Samantha Young**	**Fax Number:**	
Address:	**1456 Centennial Drive, Suite 2, Kingston ON**	**E-mail:**	**SRyoung@pinchin.com**
Copy to:			

Sample Information

Analysis Requested
(please enter the analysis required below and check off which analysis applies to each sample)

Sample Identifier	Date Sampled (mm/dd/yy)	Time Sampled	# of Bottles	Field Filtered	Field Temp (°C)	Field pH		GW Monitoring Package	SVOCs		
MW-1	10/14/25	BM	11	X				X	X		
MW-2	↓	↓	↓	↓				X			
DUP1	↓	↓	↓	↓				X			
MW-1 is a limited Sample Volume.											

Sampled By {1}: (Name) Sam Young (Signature) SY Date: 10/14/25 (mm/dd/yy)

Relinquished by {2}: (Name) Sam Young (Signature) SY Date: 10/14/25 (mm/dd/yy)

Note: {1} Submission of samples to SGS is acknowledgement that you have been provided direction on sample collection/handling and transportation of samples. {2} Submission of samples to SGS is considered authorization for completion of work. Signatures may appear on this form or be retained on file in the contract, or in an alternative format (e.g. shipping documents). {3} Results may be sent by email to an unlimited number of addresses for no additional cost. Fax is available upon request. {4} Completion of work may require the subcontracting of samples between the London and Lakefield laboratories.

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Revision #: 2.3
Date of Issue: 24 Jun. 2014

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SGS Canada Inc.
P.O. Box 4300 - 185 Consession Street
Lakefield, Ontario, - K0L 2H0
Phone: (705) 652 2000 FAX: (705) 652 6365

SIR Issued Date: **15-May-2025**
Date Received: **15-May-2025**
Received By:

Pinchin Ltd
Attn: Samantha Young
1456 Centennial Drive, Kingston, ON
Canada
Phone: 613-796-2342

SGS Report: **CA15364-MAY25**
Project Number:
Reference: **Roblin LF, Attention to, Samantha Young**
Version: **V 1.0**

SAMPLE INTEGRITY REPORT

Sample Integrity of Submission
The following have been identified as Sample Integrity Violations Related to SGS Canada Report: CA15364-MAY25
The report was found to contain NO ISSUES

GENERAL INTEGRITY VIOLATIONS

SAMPLE SPECIFIC INTEGRITY VIOLATIONS

PARTICULATE LOG

Printed on : 15 May 2025 16:00



FINAL REPORT

CA15364-MAY25 R

Roblin LF

Prepared for

Pinchin Ltd

FINAL REPORT

CA15364-MAY25 R

First Page

CLIENT DETAILS		LABORATORY DETAILS	
Client	Pinchin Ltd	Project Specialist	Brad Moore Hon. B.Sc
		Laboratory	SGS Canada Inc.
Address	1456 Centennial Drive, Kingston Canada, K7P 0K4 Phone: 613-796-2342, Fax:	Address	185 Concession St., Lakefield ON, K0L 2H0
Contact	Samantha Young	Telephone	705-652-2143
Telephone	613-796-2342	Facsimile	705-652-6365
Facsimile		Email	brad.moore@sgs.com
Email	sryoung@pinchin.com	SGS Reference	CA15364-MAY25
Project	Roblin LF	Received	05/15/2025
Order Number		Approved	05/27/2025
Samples	Ground Water (1)	Report Number	CA15364-MAY25 R
		Date Reported	05/27/2025

COMMENTS

Temperature of Sample upon Receipt: 6 degrees C

SIGNATORIES

Brad Moore Hon. B.Sc

FINAL REPORT

CA15364-MAY25 R

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FINAL REPORT

CA15364-MAY25 R

Client: Pinchin Ltd
Project: Roblin LF
Project Manager: Samantha Young
Samplers: Samantha Young

MATRIX: WATER

L1 = ODWS_AO_OG / WATER / - - Table 4 - Drinking Water - Reg O.169_03
L2 = ODWS_MAC / WATER / - - Table 1,2 and 3 - Drinking Water - Reg O.169_03

Sample Number	7
Sample Name	MW1
Sample Matrix	Ground Water
Sample Date	13/05/2025

Parameter	Units	RL	L1	L2	Result
Acid Rock Drainage					
pH Check <2	pH	0.05			1.00
BTEX					
Benzene	ug/L	0.5		1	< 0.5
Toluene	ug/L	0.5		60	< 0.5
General Chemistry					
Temperature @ pH	°C	0			18.5
Alkalinity	mg/L as CaCO3	2	500		314
Biochemical Oxygen Demand (BOD5)	mg/L	2			5
Conductivity	uS/cm	2			1280
Total Dissolved Solids	mg/L	30	500		917
Chemical Oxygen Demand	mg/L	8			12
Ammonia+Ammonium (N)	as N mg/L	0.1			< 0.1
Dissolved Organic Carbon	mg/L	1	5		2

FINAL REPORT

CA15364-MAY25 R

Client: Pinchin Ltd
Project: Roblin LF
Project Manager: Samantha Young
Samplers: Samantha Young

MATRIX: WATER

Sample Number	7
Sample Name	MW1
Sample Matrix	Ground Water
Sample Date	13/05/2025

L1 = ODWS_AO_OG / WATER / - - Table 4 - Drinking Water - Reg O.169_03
L2 = ODWS_MAC / WATER / - - Table 1,2 and 3 - Drinking Water - Reg O.169_03

Parameter	Units	RL	L1	L2	Result
Metals and Inorganics					
Phosphorus (total)	mg/L	0.03			< 0.03
Sulphate	mg/L	2	500		450
Nitrate (as N)	as N mg/L	0.06		10	0.46
Hardness	mg/L as CaCO3	0.05	100		788
Iron (total)	mg/L	0.007	0.3		0.007
Calcium (total)	mg/L	0.01			201
Potassium (total)	mg/L	0.009			5.93
Magnesium (total)	mg/L	0.001			69.1
Sodium (total)	mg/L	0.01	200	20	17.3
Arsenic (total)	mg/L	0.0002		0.01	0.0004
Barium (total)	mg/L	0.00008		1	0.0186
Boron (total)	mg/L	0.002		5	1.09
Cadmium (total)	mg/L	0.000003		0.005	0.000012
Chromium (total)	mg/L	0.00008		0.05	0.00011
Copper (total)	mg/L	0.001	1		< 0.001
Lead (total)	mg/L	0.00009		0.01	< 0.00009
Manganese (total)	mg/L	0.00001	0.05		0.0229
Zinc (total)	mg/L	0.002	5		< 0.002
Anion Sum	meq/L	-9999			16.57
Anion-Cation Balance	% difference	-9999			0.22
Cation sum	meq/L	-9999			16.64
Ion Ratio	none	-9999			1.00

FINAL REPORT

CA15364-MAY25 R

Client: Pinchin Ltd
Project: Roblin LF
Project Manager: Samantha Young
Samplers: Samantha Young

MATRIX: WATER

Sample Number	7
Sample Name	MW1
Sample Matrix	Ground Water
Sample Date	13/05/2025

L1 = ODWS_AO_OG / WATER / - - Table 4 - Drinking Water - Reg O.169_03
L2 = ODWS_MAC / WATER / - - Table 1,2 and 3 - Drinking Water - Reg O.169_03

Parameter	Units	RL	L1	L2	Result
Metals and Inorganics (continued)					
Langeliers Index 4° C	@ 4° C	-9999			0.71
Saturation pH 4°C	pHs @ 4°C	-9999			7.20
Other (ORP)					
pH	No unit	0.05	8.5		7.91
Chloride	mg/L	1	250		35
Mercury (dissolved)	mg/L	0.00001		0.001	< 0.00001
Phenols					
4AAP-Phenolics	mg/L	0.002			< 0.002
VOC Surrogates					
Surr 1,2-Dichloroethane-d4	Surr Rec %	no			114
Surr 2-Bromo-1-Chloropropane	Surr Rec %	no			101
Surr 4-Bromofluorobenzene	Surr Rec %	no			90
VOCs					
1,4-Dichlorobenzene	µg/L	0.5			< 0.5
Dichloromethane	µg/L	0.5			< 0.5
Vinyl Chloride	µg/L	0.2			< 0.2

EXCEEDANCE SUMMARY

Parameter	Method	Units	Result	ODWS_AO_OG / WATER / - - Table 4 - Drinking Water - Reg O.169_03 L1	ODWS_MAC / WATER / - - Table 1,2 and 3 - Drinking Water - Reg O.169_03 L2
MW1					
Total Dissolved Solids	SM 2540C	mg/L	917	500	
Hardness	SM 3030/EPA 200.8	mg/L as CaCO3	788	100	

QC SUMMARY

Alkalinity

Method: SM 2320 | Internal ref.: ME-CA-[ENV]EWL-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Alkalinity	EWL0400-MAY25	mg/L as CaCO3	2	< 2	5	20	104	80	120	NA		

Ammonia by SFA

Method: SM 4500 | Internal ref.: ME-CA-[ENV]SFA-LAK-AN-007

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Ammonia+Ammonium (N)	SKA0174-MAY25	as N mg/L	0.1	<0.1	ND	10	100	90	110	94	75	125

QC SUMMARY

Anions by discrete analyzer

Method: US EPA 325.2 | Internal ref.: ME-CA-IENVIEWL-LAK-AN-026

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Chloride	DIO8036-MAY25	mg/L	1	<1	4	20	97	80	120	99	75	125
Sulphate	DIO8036-MAY25	mg/L	2	<2	1	20	105	80	120	98	75	125

Anions by IC

Method: EPA300/MA300-Ions1.3 | Internal ref.: ME-CA-IENVIIC-LAK-AN-001

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Nitrate (as N)	DIO0432-MAY25	mg/L	0.06	<0.06	ND	20	101	90	110	99	75	125

Biochemical Oxygen Demand

Method: SM 5210 | Internal ref.: ME-CA-IENVIEWL-LAK-AN-007

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Biochemical Oxygen Demand (BOD5)	BOD0032-MAY25	mg/L	2	< 2	8	30	99	70	130	118	70	130

QC SUMMARY

Carbon by SFA

Method: SM 5310 | Internal ref.: ME-CA-[ENV]SFA-LAK-AN-009

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Dissolved Organic Carbon	SKA0171-MAY25	mg/L	1	<1	5	20	98	90	110	83	75	125

Chemical Oxygen Demand

Method: HACH 8000 | Internal ref.: ME-CA-[ENV]EWL-LAK-AN-009

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Chemical Oxygen Demand	EWL0411-MAY25	mg/L	8	<8	6	20	100	80	120	NV	75	125

Conductivity

Method: SM 2510 | Internal ref.: ME-CA-[ENV]EWL-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Conductivity	EWL0400-MAY25	uS/cm	2	< 2	0	20	98	90	110	NA		

QC SUMMARY

Mercury by CVAAS

Method: EPA 7471A/SM 3112B | Internal ref.: ME-CA-[ENV]SPE-LAK-AN-004

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Mercury (dissolved)	EHG0022-MAY25	mg/L	0.00001	< 0.00001	ND	20	119	80	120	130	70	130

QC SUMMARY

Metals in aqueous samples - ICP-MS

Method: SM 3030/EPA 200.8 | Internal ref.: ME-CA-[ENVISPE-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Arsenic (total)	EMS0168-MAY25	mg/L	0.0002	<0.0002	ND	20	99	90	110	102	70	130
Barium (total)	EMS0168-MAY25	mg/L	0.00008	<0.00008	3	20	98	90	110	95	70	130
Boron (total)	EMS0168-MAY25	mg/L	0.002	<0.002	ND	20	96	90	110	95	70	130
Calcium (total)	EMS0168-MAY25	mg/L	0.01	<0.01	19	20	97	90	110	101	70	130
Cadmium (total)	EMS0168-MAY25	mg/L	0.000003	<0.000003	11	20	96	90	110	100	70	130
Chromium (total)	EMS0168-MAY25	mg/L	0.00008	<0.00008	ND	20	99	90	110	107	70	130
Copper (total)	EMS0168-MAY25	mg/L	0.001	<0.001	ND	20	98	90	110	102	70	130
Iron (total)	EMS0168-MAY25	mg/L	0.007	<0.007	0	20	103	90	110	125	70	130
Potassium (total)	EMS0168-MAY25	mg/L	0.009	<0.009	0	20	97	90	110	84	70	130
Magnesium (total)	EMS0168-MAY25	mg/L	0.001	<0.001	2	20	99	90	110	98	70	130
Manganese (total)	EMS0168-MAY25	mg/L	0.00001	<0.00001	0	20	97	90	110	99	70	130
Sodium (total)	EMS0168-MAY25	mg/L	0.01	<0.01	7	20	98	90	110	95	70	130
Lead (total)	EMS0168-MAY25	mg/L	0.00009	<0.00009	8	20	97	90	110	96	70	130
Zinc (total)	EMS0168-MAY25	mg/L	0.002	<0.002	1	20	99	90	110	105	70	130

QC SUMMARY

pH

Method: SM 4500 I Internal ref.: ME-CA-[ENV]EWL-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High
pH	EWL0400-MAY25	No unit	0.05	NA	0		100			NA		

Phenols by SFA

Method: SM 5530B-D I Internal ref.: ME-CA-[ENV]SFA-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High
4AAP-Phenolics	SKA0170-MAY25	mg/L	0.002	<0.002	ND	10	99	80	120	93	75	125

Phosphorus by SFA

Method: SM 4500-P J I Internal ref.: ME-CA-[ENV]SFA-LAK-AN-003

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High
Phosphorus (total)	SKA0168-MAY25	mg/L	0.03	<0.03	5	10	100	90	110	92	75	125

QC SUMMARY

Solids Analysis

Method: SM 2540C | Internal ref.: ME-CA-IENVIEWL-LAK-AN-005

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Total Dissolved Solids	EWL0458-MAY25	mg/L	30	<30	0	20	105	80	120	NA		

Volatile Organics

Method: EPA 5030B/8260C | Internal ref.: ME-CA-IENVIGC-LAK-AN-004

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
1,4-Dichlorobenzene	GCM0257-MAY25	ug/L	0.5	<0.5	ND	30	98	60	130	99	50	140
Benzene	GCM0257-MAY25	ug/L	0.5	<0.5	ND	30	98	60	130	96	50	140
Dichloromethane	GCM0257-MAY25	ug/L	0.5	<0.5	ND	30	98	60	130	95	50	140
Toluene	GCM0257-MAY25	ug/L	0.5	<0.5	ND	30	97	60	130	98	50	140
Vinyl Chloride	GCM0257-MAY25	ug/L	0.2	<0.2	ND	30	106	50	140	101	50	140

QC SUMMARY

Method Blank: a blank matrix that is carried through the entire analytical procedure. Used to assess laboratory contamination.
Duplicate: Paired analysis of a separate portion of the same sample that is carried through the entire analytical procedure. Used to evaluate measurement precision.
LCS/Spike Blank: Laboratory control sample or spike blank refer to a blank matrix to which a known amount of analyte has been added. Used to evaluate analyte recovery and laboratory accuracy without sample matrix effects.
Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate laboratory accuracy with sample matrix effects.
Reference Material: a material or substance matrix matched to the samples that contains a known amount of the analyte of interest. A reference material may be used in place of a matrix spike.
RL: Reporting limit
RPD: Relative percent difference
AC: Acceptance criteria

Multielement Scan Qualifier: as the number of analytes in a scan increases, so does the chance of a limit exceedance by random chance as opposed to a real method problem. Thus, in multielement scans, for the LCS and matrix spike, up to 10% of the analytes may exceed the quoted limits by up to 10% absolute and the spike is considered acceptable.
Duplicate Qualifier: for duplicates as the measured result approaches the RL, the uncertainty associated with the value increases dramatically, thus duplicate acceptance limits apply only where the average of the two duplicates is greater than five times the RL.
Matrix Spike Qualifier: for matrix spikes, as the concentration of the native analyte increases, the uncertainty of the matrix spike recovery increases. Thus, the matrix spike acceptance limits apply only when the concentration of the matrix spike is greater than or equal to the concentration of the native analyte.

LEGEND

FOOTNOTES

NSS Insufficient sample for analysis.
RL Reporting Limit.
↑ Reporting limit raised.
↓ Reporting limit lowered.
NA The sample was not analysed for this analyte
ND Non Detect

Results relate only to the sample tested.
Data reported represent the sample as submitted to SGS. Solid samples expressed on a dry weight basis.
"Temperature Upon Receipt" is representative of the whole shipment and may not reflect the temperature of individual samples.
Analysis conducted on samples submitted pursuant to or as part of Reg. 153/04, are in accordance to the "Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act and Excess Soil Quality" published by the Ministry and dated March 9, 2004 as amended.

SGS provides criteria information (such as regulatory or guideline limits and summary of limit exceedances) as a service. Every attempt is made to ensure the criteria information in this report is accurate and current, however, it is not guaranteed. Comparison to the most current criteria is the responsibility of the client and SGS assumes no responsibility for the accuracy of the criteria levels indicated.

SGS Canada Inc. statement of conformity decision rule does not consider uncertainty when analytical results are compared to a specified standard or regulation.
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This report supersedes all previous versions.

-- End of Analytical Report --

SGS

Request for Laboratory Services and CHAIN OF CUSTODY (General)

SGS Environmental Services - Lakefield: 185 Concession St., Lakefield, ON K0L 2H0 Phone: 705-652-2000 Toll Free: 877-747-7658 Fax: 705-652-6365 Web: www.ca.sgs.com {4}

SGS Environmental Services - London: 657 Consortium Court, London, ON, N6E 2S8 Phone: 519-672-4500 Toll Free: 877-848-8060 Fax: 519-672-0361 Web: www.ca.sgs.com {4}

Laboratory Information Section

Received Date (mm/dd/yyyy): 05/15/2025 | LAB LIMS #: CA-15364-May25

Received Time (After Hours Only): __:__ | Temperature Upon Receipt (°C): 6x3

Billing & Reporting Information

Invoice/Receipt to {3}:

Company:	Pinchin
Attention:	Samantha Young
Address:	1456 Centennial Drive, Suite 2 Kingston, ON K7L 0K4
Email:	SRyoung@pinchin.com

Project Name/Number: Roblin LF - GW | P.O. #:

Quote #: 2024 1378

Attached Parameter List: ☐ YES ☑ NO

Turnaround Time

Is *Rush Turnaround Time Required? ☐ YES ☑ NO

Specify:

* Rush TA Requests Require Lab Approval

Client Information/Report To: | Client Lab #:

Company Name:	Pinchin Ltd.	Phone Number:	613-796-2342
Contact Name:	Samantha Young	Fax Number:	
Address:	1456 Centennial Drive, Suite 2, Kingston ON	E-mail:	SRyoung@pinchin.com
Copy to:			

Sample Information

Sample Identifier	Date Sampled (mm/dd/yy)	Time Sampled	# of Bottles	Analysis Requested (please enter the analysis required below and check off which analysis applies to each sample)							
				Field Filtered	Field Temp (°C)	Field pH		GW Monitoring Package	VOCs (MW-1)		
MW1	05/13/25	AM		N	-	-		X			
Limited sampling volume, preservative rinsed in field filter containers.											
Please prioritize Gen Chem over TSS and BOD.											

Sampled By {1}:	(Name) Samantha Young	(Signature) SY	Date: 05/13/25	(mm/dd/yy)
Relinquished by {2}:	(Name) Samantha Young	(Signature) SY	Date: 05/14/25	(mm/dd/yy)

Note: {1} Submission of samples to SGS is acknowledgement that you have been provided direction on sample collection/handling and transportation of samples. {2} Submission of samples to SGS is considered authorization for completion of work. Signatures may appear on this form or be retained on file in the contract, or in an alternative format (e.g. shipping documents). {3} Results may be sent by email to an unlimited number of addresses for no additional cost. Fax is available upon request. {4} Completion of work may require the subcontracting of samples between the London and Lakefield laboratories.

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Revision #: 2.3
Date of Issue: 24 Jun. 2014

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10:00 AM

SGS Canada Inc.
P.O. Box 4300 - 185 Consession Street
Lakefield, Ontario, - K0L 2H0
Phone: (705) 652 2000 FAX: (705) 652 6365

SIR Issued Date: **12-May-2025**
Date Received: **09-May-2025**
Received By:

Pinchin Ltd
Attn: Samantha Young
1456 Centennial Drive, Kingston, ON
Canada
Phone: 613-796-2342

SGS Report: **CA40117-MAY25**
Project Number: **Roblin LF- GW**
Reference: **Roblin LF-GW, Samantha Young**
Version: **V 1.0**

SAMPLE INTEGRITY REPORT

Sample Integrity of Submission
The following have been identified as Sample Integrity Violations Related to SGS Canada Report: CA40117-MAY25
The report was found to contain NO ISSUES

GENERAL INTEGRITY VIOLATIONS

SAMPLE SPECIFIC INTEGRITY VIOLATIONS

PARTICULATE LOG

Printed on : 12 May 2025 11:32



FINAL REPORT

CA40117-MAY25 R

Roblin LF- GW

Prepared for

Pinchin Ltd

FINAL REPORT

CA40117-MAY25 R

First Page

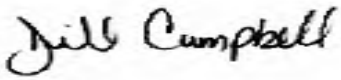
CLIENT DETAILS		LABORATORY DETAILS	
Client	Pinchin Ltd	Project Specialist	Jill Campbell, B.Sc.,GISAS
		Laboratory	SGS Canada Inc.
Address	1456 Centennial Drive Kingston, ON K7P 0K4, Canada	Address	185 Concession St., Lakefield ON, K0L 2H0
Contact	Samantha Young	Telephone	2165
Telephone	613-796-2342	Facsimile	705-652-6365
Facsimile		Email	jill.campbell@sgs.com
Email	sryoung@pinchin.com	SGS Reference	CA40117-MAY25
Project	Roblin LF- GW	Received	05/09/2025
Order Number		Approved	05/22/2025
Samples	Ground Water (2)	Report Number	CA40117-MAY25 R
		Date Reported	05/22/2025

COMMENTS

Temperature of Sample upon Receipt: 4 degrees C

SIGNATORIES

Jill Campbell, B.Sc.,GISAS



FINAL REPORT

CA40117-MAY25 R

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FINAL REPORT

CA40117-MAY25 R

Client: Pinchin Ltd
Project: Roblin LF- GW
Project Manager: Samantha Young
Samplers: Sam Young

MATRIX: WATER

			Sample Number	7	8	
			Sample Name	MW2	Dup1	
			Sample Matrix	Ground Water	Ground Water	
			Sample Date	07/05/2025	07/05/2025	
Parameter	**Units**	**RL**		**Result**	**Result**	
General Chemistry						
Biochemical Oxygen Demand (BOD5)	mg/L	2		< 4 ↑	4	
Total Suspended Solids	mg/L	2		41	41	
Alkalinity	mg/L as CaCO3	2		271	277	
Conductivity	uS/cm	2		581	589	
Total Dissolved Solids	mg/L	30		306	320	
Chemical Oxygen Demand	mg/L	8		< 8	< 8	
Ammonia+Ammonium (N)	as N mg/L	0.04		0.10	0.12	
Dissolved Organic Carbon	mg/L	1		1	1	
Metals and Inorganics						
Phosphorus (total)	mg/L	0.03		< 0.03	< 0.03	
Sulphate	mg/L	2		12	10	
Nitrate (as N)	as N mg/L	0.06		< 0.06	< 0.06	
Hardness (dissolved)	mg/L as CaCO3	0.05		271	310	
Arsenic (dissolved)	mg/L	0.0002		0.0005	0.0006	
Barium (dissolved)	mg/L	0.00008		1.08	1.07	
Boron (dissolved)	mg/L	0.002		0.273	0.291	
Calcium (dissolved)	mg/L	0.01		78.0	86.3	
Cadmium (dissolved)	mg/L	0.000003		0.000004	0.000003	
Chromium (dissolved)	mg/L	0.00008		0.00012	0.00019	
Copper (dissolved)	mg/L	0.001		< 0.001	< 0.001	
Iron (dissolved)	mg/L	0.007		0.467	0.505	
Potassium (dissolved)	mg/L	0.009		4.60	5.64	

FINAL REPORT

CA40117-MAY25 R

Client: Pinchin Ltd
Project: Roblin LF- GW
Project Manager: Samantha Young
Samplers: Sam Young

MATRIX: WATER

			Sample Number	7	8
			Sample Name	MW2	Dup1
			Sample Matrix	Ground Water	Ground Water
			Sample Date	07/05/2025	07/05/2025
Parameter	**Units**	**RL**		**Result**	**Result**
Metals and Inorganics (continued)					
Magnesium (dissolved)	mg/L	0.001		18.6	22.8
Manganese (dissolved)	mg/L	0.00001		0.00880	0.00914
Sodium (dissolved)	mg/L	0.01		6.21	7.62
Lead (dissolved)	mg/L	0.00009		0.00031	0.00023
Zinc (dissolved)	mg/L	0.002		0.002	0.002
Other (ORP)					
pH	No unit	0.05		8.09	8.06
Chloride	mg/L	1		23	23
Mercury (dissolved)	mg/L	0.00001		< 0.00001	< 0.00001
Phenols					
4AAP-Phenolics	mg/L	0.002		< 0.002	< 0.002

QC SUMMARY

Alkalinity

Method: SM 2320 | Internal ref.: ME-CA-[ENV]EWL-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Alkalinity	EWL0274-MAY25	mg/L as CaCO3	2	< 2	1	20	98	80	120	NA		

Ammonia by SFA

Method: SM 4500 | Internal ref.: ME-CA-[ENV]SFA-LAK-AN-007

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Ammonia+Ammonium (N)	SKA0150-MAY25	mg/L	0.04	<0.04	0	10	100	90	110	98	75	125

QC SUMMARY

Anions by discrete analyzer

Method: US EPA 325.2 | Internal ref.: ME-CA-IENVIEWL-LAK-AN-026

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Chloride	DIO8033-MAY25	mg/L	1	<1	ND	20	97	80	120	98	75	125
Sulphate	DIO8033-MAY25	mg/L	2	<2	8	20	97	80	120	99	75	125

Anions by IC

Method: EPA300/MA300-Ions1.3 | Internal ref.: ME-CA-IENVIIC-LAK-AN-001

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Nitrate (as N)	DIO0256-MAY25	mg/L	0.06	<0.06	1	20	103	90	110	105	75	125
Nitrate (as N)	DIO0259-MAY25	mg/L	0.06	<0.06	ND	20	103	90	110	105	75	125

QC SUMMARY

Biochemical Oxygen Demand

Method: SM 5210 I Internal ref.: ME-CA-[ENVIEWL-LAK-AN-007

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Biochemical Oxygen Demand (BOD5)	BOD0024-MAY25	mg/L	2	< 2	3	30	95	70	130	102	70	130

Carbon by SFA

Method: SM 5310 I Internal ref.: ME-CA-[ENVISFA-LAK-AN-009

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Dissolved Organic Carbon	SKA0147-MAY25	mg/L	1	<1	ND	20	100	90	110	94	75	125

Chemical Oxygen Demand

Method: HACH 8000 I Internal ref.: ME-CA-[ENVIEWL-LAK-AN-009

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Chemical Oxygen Demand	EWL0320-MAY25	mg/L	8	<8	10	20	99	80	120	88	75	125

QC SUMMARY

Conductivity

Method: SM 2510 | Internal ref.: ME-CA-[ENV]EWL-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Conductivity	EWL0274-MAY25	uS/cm	2	< 2	1	20	100	90	110	NA		

Mercury by CVAAS

Method: EPA 7471A/SM 3112B | Internal ref.: ME-CA-[ENV]SPE-LAK-AN-004

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Mercury (dissolved)	EHG0016-MAY25	mg/L	0.00001	< 0.00001	ND	20	110	80	120	113	70	130

QC SUMMARY

Metals in aqueous samples - ICP-MS

Method: SM 3030/EPA 200.8 | Internal ref.: ME-CA-[ENVISPE-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Arsenic (dissolved)	EMS0117-MAY25	mg/L	0.0002	<0.0002	ND	20	100	90	110	96	70	130
Barium (dissolved)	EMS0117-MAY25	mg/L	0.00008	<0.00008	2	20	99	90	110	71	70	130
Boron (dissolved)	EMS0117-MAY25	mg/L	0.002	<0.002	2	20	106	90	110	94	70	130
Calcium (dissolved)	EMS0117-MAY25	mg/L	0.01	<0.01	0	20	105	90	110	101	70	130
Cadmium (dissolved)	EMS0117-MAY25	mg/L	0.000003	<0.000003	5	20	101	90	110	91	70	130
Chromium (dissolved)	EMS0117-MAY25	mg/L	0.00008	<0.00008	15	20	95	90	110	94	70	130
Copper (dissolved)	EMS0117-MAY25	mg/L	0.001	<0.001	2	20	99	90	110	95	70	130
Iron (dissolved)	EMS0117-MAY25	mg/L	0.007	<0.007	ND	20	107	90	110	75	70	130
Potassium (dissolved)	EMS0117-MAY25	mg/L	0.009	<0.009	0	20	101	90	110	94	70	130
Magnesium (dissolved)	EMS0117-MAY25	mg/L	0.001	<0.001	0	20	104	90	110	99	70	130
Manganese (dissolved)	EMS0117-MAY25	mg/L	0.00001	<0.00001	4	20	98	90	110	86	70	130
Sodium (dissolved)	EMS0117-MAY25	mg/L	0.01	<0.01	1	20	102	90	110	97	70	130
Lead (dissolved)	EMS0117-MAY25	mg/L	0.00009	<0.00009	5	20	97	90	110	91	70	130
Zinc (dissolved)	EMS0117-MAY25	mg/L	0.002	<0.002	0	20	102	90	110	99	70	130
Arsenic (dissolved)	EMS0136-MAY25	mg/L	0.0002	<0.0002	11	20	100	90	110	104	70	130
Barium (dissolved)	EMS0136-MAY25	mg/L	0.00008	<0.00008	1	20	102	90	110	100	70	130
Boron (dissolved)	EMS0136-MAY25	mg/L	0.002	<0.002	1	20	103	90	110	97	70	130
Calcium (dissolved)	EMS0136-MAY25	mg/L	0.01	<0.01	2	20	103	90	110	92	70	130
Cadmium (dissolved)	EMS0136-MAY25	mg/L	0.000003	<0.000003	13	20	99	90	110	93	70	130
Chromium (dissolved)	EMS0136-MAY25	mg/L	0.00008	<0.00008	18	20	104	90	110	106	70	130

QC SUMMARY

Metals in aqueous samples - ICP-MS (continued)

Method: SM 3030/EPA 200.8 | Internal ref.: ME-CA-[ENV]SPE-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Copper (dissolved)	EMS0136-MAY25	mg/L	0.001	<0.001	0	20	99	90	110	105	70	130
Iron (dissolved)	EMS0136-MAY25	mg/L	0.007	<0.007	4	20	104	90	110	100	70	130
Potassium (dissolved)	EMS0136-MAY25	mg/L	0.009	<0.009	2	20	105	90	110	101	70	130
Magnesium (dissolved)	EMS0136-MAY25	mg/L	0.001	<0.001	3	20	102	90	110	96	70	130
Manganese (dissolved)	EMS0136-MAY25	mg/L	0.00001	<0.00001	0	20	103	90	110	98	70	130
Sodium (dissolved)	EMS0136-MAY25	mg/L	0.01	<0.01	3	20	100	90	110	91	70	130
Lead (dissolved)	EMS0136-MAY25	mg/L	0.00009	<0.00009	18	20	98	90	110	93	70	130
Zinc (dissolved)	EMS0136-MAY25	mg/L	0.002	<0.002	0	20	102	90	110	119	70	130

pH

Method: SM 4500 | Internal ref.: ME-CA-[ENV]EWL-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
pH	EWL0274-MAY25	No unit	0.05	NA	0		100			NA		

QC SUMMARY

Phenols by SFA

Method: SM 5530B-D | Internal ref.: ME-CA-IENVISFA-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High
4AAP-Phenolics	SKA0129-MAY25	mg/L	0.002	<0.002	ND	10	98	80	120	98	75	125

Phosphorus by SFA

Method: SM 4500-P J | Internal ref.: ME-CA-IENVISFA-LAK-AN-003

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High
Phosphorus (total)	SKA0148-MAY25	mg/L	0.03	<0.03	0	10	98	90	110	94	75	125

Solids Analysis

Method: SM 2540C | Internal ref.: ME-CA-IENVIEWL-LAK-AN-005

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High
Total Dissolved Solids	EWL0276-MAY25	mg/L	30	<30	1	20	99	80	120	NA		

QC SUMMARY

Suspended Solids

Method: SM 2540D | Internal ref.: ME-CA-IENVIEWL-LAK-AN-004

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Total Suspended Solids	EWL0286-MAY25	mg/L	2	< 2	1	10	94	90	110	NA		
Total Suspended Solids	EWL0294-MAY25	mg/L	2	< 2	1	10	91	90	110	NA		

Method Blank: a blank matrix that is carried through the entire analytical procedure. Used to assess laboratory contamination.
Duplicate: Paired analysis of a separate portion of the same sample that is carried through the entire analytical procedure. Used to evaluate measurement precision.
LCS/Spike Blank: Laboratory control sample or spike blank refer to a blank matrix to which a known amount of analyte has been added. Used to evaluate analyte recovery and laboratory accuracy without sample matrix effects.
Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate laboratory accuracy with sample matrix effects.
Reference Material: a material or substance matrix matched to the samples that contains a known amount of the analyte of interest. A reference material may be used in place of a matrix spike.
RL: Reporting limit
RPD: Relative percent difference
AC: Acceptance criteria

Multielement Scan Qualifier: as the number of analytes in a scan increases, so does the chance of a limit exceedance by random chance as opposed to a real method problem. Thus, in multielement scans, for the LCS and matrix spike, up to 10% of the analytes may exceed the quoted limits by up to 10% absolute and the spike is considered acceptable.
Duplicate Qualifier: for duplicates as the measured result approaches the RL, the uncertainty associated with the value increases dramatically, thus duplicate acceptance limits apply only where the average of the two duplicates is greater than five times the RL.
Matrix Spike Qualifier: for matrix spikes, as the concentration of the native analyte increases, the uncertainty of the matrix spike recovery increases. Thus, the matrix spike acceptance limits apply only when the concentration of the matrix spike is greater than or equal to the concentration of the native analyte.

LEGEND

FOOTNOTES

NSS Insufficient sample for analysis.
RL Reporting Limit.
↑ Reporting limit raised.
↓ Reporting limit lowered.
NA The sample was not analysed for this analyte
ND Non Detect

Results relate only to the sample tested.
Data reported represent the sample as submitted to SGS. Solid samples expressed on a dry weight basis.
"Temperature Upon Receipt" is representative of the whole shipment and may not reflect the temperature of individual samples.
Analysis conducted on samples submitted pursuant to or as part of Reg. 153/04, are in accordance to the "Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act and Excess Soil Quality" published by the Ministry and dated March 9, 2004 as amended.

SGS provides criteria information (such as regulatory or guideline limits and summary of limit exceedances) as a service. Every attempt is made to ensure the criteria information in this report is accurate and current, however, it is not guaranteed. Comparison to the most current criteria is the responsibility of the client and SGS assumes no responsibility for the accuracy of the criteria levels indicated.

SGS Canada Inc. statement of conformity decision rule does not consider uncertainty when analytical results are compared to a specified standard or regulation.
This document is issued, on the Client's behalf, by the Company under its General Conditions of Service available on request and accessible at http://www.sgs.com/terms_and_conditions.htm.
The Client's attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any other holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. Reproduction of this analytical report in full or in part is prohibited.

This report supersedes all previous versions.

-- End of Analytical Report --

SGS

Request for Laboratory Services and CHAIN OF CUSTODY (General)

SGS Environmental Services - Lakefield: 185 Concession St., Lakefield, ON K0L 2H0 Phone: 705-652-2000 Toll Free: 877-747-7658 Fax: 705-652-6365 Web: www.ca.sgs.com {4}

SGS Environmental Services - London: 657 Consortium Court, London, ON, N6E 2S8 Phone: 519-672-4500 Toll Free: 877-848-8060 Fax: 519-672-0361 Web: www.ca.sgs.com {4}

Laboratory Information Section

Received Date (mm/dd/yyyy): 05/09/2025

Received Time (After Hours Only): 08:30

LAB LIMS #: CA40117MAY25, CA40118MAY25

Temperature Upon Receipt (°C): 4 CK3

Billing & Reporting Information

Invoice/Receipt to {3}:

Company: Pinchin

Attention: Samantha Young

Address: 1456 Centennial Drive, Suite 2, Kingston, ON K7L 0K4

Email: SRyoung@pinchin.com

Project Name/Number: Roblin LF - GW

P.O. #:

Quote #: 2024 1378

Attached Parameter List: ☑ YES ☐ NO

Turnaround Time

Is *Rush Turnaround Time Required? ☐ YES ☑ NO

Specify:

* Rush TA Requests Require Lab Approval

Client Information/Report To:

Client Lab #:

Company Name:	**Pinchin Ltd.**	**Phone Number:**	**613-796-2342**
Contact Name:	**Samantha Young**	**Fax Number:**	
Address:	**1456 Centennial Drive, Suite 2, Kingston ON**	**E-mail:**	**SRyoung@pinchin.com**
Copy to:			

Sample Information

Analysis Requested

(please enter the analysis required below and check off which analysis applies to each sample)

Sample Identifier	Date Sampled (mm/dd/yy)	Time Sampled	# of Bottles	Field Filtered	Field Temp (°C)	Field pH	Sml Monitoring Package	GW Monitoring Package	VOCs (MW-1)		
MW2	May7	AM	11	Y	11.76	7.97		X			
DUP1	May7		11	Y	11.76	7.97		X			
SW1	May8		11	N	12.86	9.07	X	X			
SW2	May8		11	N	14.32	8.20	X	X			
SW3	May8		11	N	13.53	8.24	X	X			
DUP2	May8.		11	N	13.53	8.24	X	X			
								X			
								X			
								X			
								X			
								X			
								X			
								X			
								X			
								X			
								X			

Sampled By {1}: (Name) Sam Young (Signature) SY Date: 05/05/25 (mm/dd/yy)

Relinquished by {2}: (Name) Sam Young (Signature) SY Date: 05/05/25 (mm/dd/yy)

Note: {1} Submission of samples to SGS is acknowledgement that you have been provided direction on sample collection/handling and transportation of samples. {2} Submission of samples to SGS is considered authorization for completion of work. Signatures may appear on this form or be retained on file in the contract, or in an alternative format (e.g. shipping documents). {3} Results may be sent by email to an unlimited number of addresses for no additional cost. Fax is available upon request. {4} Completion of work may require the subcontracting of samples between the London and Lakefield laboratories.

This document is issued by the Company under its General Conditions of Service accessible at http://www.sgs.com/terms_and_conditions.htm. (Printed copies are available upon request.) Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.

Revision #: 2.3
Date of Issue: 24 Jun. 2014

SGS Canada Inc.
P.O. Box 4300 - 185 Consession Street
Lakefield, Ontario, - K0L 2H0
Phone: (705) 652 2000 FAX: (705) 652 6365

SIR Issued Date: **12-May-2025**
Date Received: **09-May-2025**
Received By:

Pinchin Ltd
Attn: Samantha Young
1456 Centennial Drive, Kingston, ON
Canada
Phone: 613-796-2342

SGS Report: **CA40118-MAY25**
Project Number: **Roblin LF SW**
Reference: **Roblin LF SW, Samantha Young**
Version: **V 1.0**

SAMPLE INTEGRITY REPORT

Sample Integrity of Submission
The following have been identified as Sample Integrity Violations Related to SGS Canada Report: CA40118-MAY25
The report was found to contain NO ISSUES

GENERAL INTEGRITY VIOLATIONS

SAMPLE SPECIFIC INTEGRITY VIOLATIONS

PARTICULATE LOG

Printed on : 12 May 2025 11:32



FINAL REPORT

CA40118-MAY25 R

Roblin LF SW

Prepared for

Pinchin Ltd

TE-GL-ENVLAB-IT-011v1.6.3

FINAL REPORT

CA40118-MAY25 R

First Page

CLIENT DETAILS		LABORATORY DETAILS	
Client	Pinchin Ltd	Project Specialist	Jill Campbell, B.Sc.,GISAS
		Laboratory	SGS Canada Inc.
Address	1456 Centennial Drive Kingston, ON K7P 0K4, Canada	Address	185 Concession St., Lakefield ON, K0L 2H0
Contact	Samantha Young	Telephone	2165
Telephone	613-796-2342	Facsimile	705-652-6365
Facsimile		Email	jill.campbell@sgs.com
Email	sryoung@pinchin.com	SGS Reference	CA40118-MAY25
Project	Roblin LF SW	Received	05/09/2025
Order Number		Approved	05/22/2025
Samples	Surface Water (4)	Report Number	CA40118-MAY25 R
		Date Reported	05/22/2025

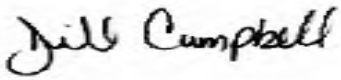
COMMENTS

Temperature of Sample upon Receipt: 4 degrees C
Cooling Agent Present: Yes
Custody Seal Present: Yes

Chain of Custody Number: N/A

SIGNATORIES

Jill Campbell, B.Sc.,GISAS



FINAL REPORT

CA40118-MAY25 R

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FINAL REPORT

CA40118-MAY25 R

Client: Pinchin Ltd
Project: Roblin LF SW
Project Manager: Samantha Young
Samplers: Sam Young

MATRIX: WATER

			Sample Number	6	7	8	9
			Sample Name	SW1	SW2	SW3	Dup2
			Sample Matrix	Surface Water	Surface Water	Surface Water	Surface Water
			Sample Date	08/05/2025	08/05/2025	08/05/2025	08/05/2025
Parameter	**Units**	**RL**		**Result**	**Result**	**Result**	**Result**
General Chemistry							
Biochemical Oxygen Demand (BOD5)	mg/L	2		< 4 ↑	< 4 ↑	< 4 ↑	< 4 ↑
Total Suspended Solids	mg/L	2		2	2	5	4
Alkalinity	mg/L as CaCO3	2		93	93	92	88
Conductivity	uS/cm	2		204	203	201	196
Total Dissolved Solids	mg/L	30		140	123	131	111
Chemical Oxygen Demand	mg/L	8		20	19	17	23
Total Kjeldahl Nitrogen (N)	as N mg/L	0.05		0.34	< 0.05	0.06	0.30
Ammonia+Ammonium (N)	as N mg/L	0.04		< 0.04	< 0.04	< 0.04	< 0.04
Dissolved Organic Carbon	mg/L	1		5	5	5	5
Metals and Inorganics							
Sulphate	mg/L	2		< 2	< 2	< 2	< 2
Nitrate (as N)	as N mg/L	0.06		< 0.06	< 0.06	< 0.06	< 0.06
Nitrate + Nitrite (as N)	as N mg/L	0.06		< 0.06	< 0.06	< 0.06	< 0.06
Hardness	mg/L as CaCO3	0.05		107	100	103	102
Arsenic (total)	mg/L	0.0002		0.0003	0.0002	0.0002	0.0002
Barium (total)	mg/L	0.00008		0.0527	0.0497	0.0497	0.0504
Boron (total)	mg/L	0.002		0.010	0.009	0.009	0.009
Calcium (total)	mg/L	0.01		33.5	31.2	32.2	31.8
Cadmium (total)	mg/L	0.000003		0.000005	0.000003	0.000003	0.000003
Chromium (total)	mg/L	0.00008		0.00024	0.00019	0.00024	0.00111
Copper (total)	mg/L	0.001		< 0.001	< 0.001	< 0.001	< 0.001
Iron (total)	mg/L	0.007		0.163	0.154	0.167	0.165

FINAL REPORT

CA40118-MAY25 R

Client: Pinchin Ltd
Project: Roblin LF SW
Project Manager: Samantha Young
Samplers: Sam Young

MATRIX: WATER

Sample Number				6	7	8	9
Sample Name				SW1	SW2	SW3	Dup2
Sample Matrix				Surface Water	Surface Water	Surface Water	Surface Water
Sample Date				08/05/2025	08/05/2025	08/05/2025	08/05/2025
Parameter	**Units**	**RL**		**Result**	**Result**	**Result**	**Result**
Metals and Inorganics (continued)							
Potassium (total)	mg/L	0.009		1.07	0.993	0.998	0.993
Magnesium (total)	mg/L	0.001		5.76	5.38	5.51	5.46
Manganese (total)	mg/L	0.00001		0.0356	0.0271	0.0269	0.0275
Sodium (total)	mg/L	0.01		4.91	4.54	4.61	4.50
Lead (total)	mg/L	0.00009		< 0.00009	< 0.00009	< 0.00009	< 0.00009
Phosphorus (total)	mg/L	0.003		0.013	0.012	0.013	0.011
Zinc (total)	mg/L	0.002		< 0.002	< 0.002	< 0.002	< 0.002
Cation sum	meq/L	-9999		2.40	2.24	2.30	2.27
Anion Sum	meq/L	-9999		2.11	2.14	2.10	2.02
Ion Ratio	none	-9999		1.13	1.04	1.09	1.13
Other (ORP)							
pH	No unit	0.05		7.35	7.42	7.34	7.21
Chloride	mg/L	1		8	9	8	8
Mercury (dissolved)	mg/L	0.00001		< 0.00001	< 0.00001	< 0.00001	< 0.00001

FINAL REPORT

CA40118-MAY25 R

Client: Pinchin Ltd
Project: Roblin LF SW
Project Manager: Samantha Young
Samplers: Sam Young

MATRIX: WATER

Sample Number			6	7	8	9	
Sample Name			SW1	SW2	SW3	Dup2	
Sample Matrix			Surface Water	Surface Water	Surface Water	Surface Water	
Sample Date			08/05/2025	08/05/2025	08/05/2025	08/05/2025	
Parameter	**Units**	**RL**		**Result**	**Result**	**Result**	**Result**
Phenols							
4AAP-Phenolics	mg/L	0.001		< 0.001	< 0.001	< 0.001	< 0.001

QC SUMMARY

Alkalinity

Method: SM 2320 | Internal ref.: ME-CA-[ENV]EWL-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Alkalinity	EWL0274-MAY25	mg/L as CaCO3	2	< 2	1	20	98	80	120	NA		

Ammonia by SFA

Method: SM 4500 | Internal ref.: ME-CA-[ENV]SFA-LAK-AN-007

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Ammonia+Ammonium (N)	SKA0150-MAY25	mg/L	0.04	<0.04	0	10	100	90	110	98	75	125

QC SUMMARY

Anions by discrete analyzer

Method: US EPA 325.2 | Internal ref.: ME-CA-IENVIEWL-LAK-AN-026

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Chloride	DIO8033-MAY25	mg/L	1	<1	ND	20	97	80	120	98	75	125
Sulphate	DIO8033-MAY25	mg/L	2	<2	8	20	97	80	120	99	75	125

Anions by IC

Method: EPA300/MA300-Ions1.3 | Internal ref.: ME-CA-IENVIIC-LAK-AN-001

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Nitrate + Nitrite (as N)	DIO0259-MAY25	mg/L	0.06	<0.06	NA		NA			NA		
Nitrate (as N)	DIO0259-MAY25	mg/L	0.06	<0.06	ND	20	103	90	110	105	75	125

QC SUMMARY

Biochemical Oxygen Demand

Method: SM 5210 I Internal ref.: ME-CA-[ENV]EWL-LAK-AN-007

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Biochemical Oxygen Demand (BOD5)	BOD0024-MAY25	mg/L	2	< 2	3	30	95	70	130	102	70	130

Carbon by SFA

Method: SM 5310 I Internal ref.: ME-CA-[ENV]SFA-LAK-AN-009

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Dissolved Organic Carbon	SKA0147-MAY25	mg/L	1	<1	ND	20	100	90	110	94	75	125
Dissolved Organic Carbon	SKA0171-MAY25	mg/L	1	<1	5	20	98	90	110	83	75	125

QC SUMMARY

Chemical Oxygen Demand

Method: HACH 8000 | Internal ref.: ME-CA-[ENVIEWL-LAK-AN-009

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Chemical Oxygen Demand	EWL0297-MAY25	mg/L	8	<8	6	20	96	80	120	92	75	125
Chemical Oxygen Demand	EWL0319-MAY25	mg/L	8	<8	18	20	99	80	120	80	75	125
Chemical Oxygen Demand	EWL0320-MAY25	mg/L	8	<8	10	20	99	80	120	88	75	125

Conductivity

Method: SM 2510 | Internal ref.: ME-CA-[ENVIEWL-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Conductivity	EWL0274-MAY25	uS/cm	2	< 2	1	20	100	90	110	NA		

QC SUMMARY

Mercury by CVAAS

Method: EPA 7471A/SM 3112B | Internal ref.: ME-CA-IENVISPE-LAK-AN-004

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Mercury (dissolved)	EHG0016-MAY25	mg/L	0.00001	< 0.00001	ND	20	110	80	120	113	70	130

QC SUMMARY

Metals in aqueous samples - ICP-MS

Method: SM 3030/EPA 200.8 | Internal ref.: ME-CA-[ENVISPE-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Arsenic (total)	EMS0116-MAY25	mg/L	0.0002	<0.0002	6	20	102	90	110	101	70	130
Barium (total)	EMS0116-MAY25	mg/L	0.00008	<0.00008	5	20	98	90	110	80	70	130
Boron (total)	EMS0116-MAY25	mg/L	0.002	<0.002	3	20	103	90	110	97	70	130
Calcium (total)	EMS0116-MAY25	mg/L	0.01	<0.01	3	20	103	90	110	91	70	130
Cadmium (total)	EMS0116-MAY25	mg/L	0.000003	<0.000003	4	20	102	90	110	95	70	130
Chromium (total)	EMS0116-MAY25	mg/L	0.00008	<0.00008	ND	20	103	90	110	109	70	130
Copper (total)	EMS0116-MAY25	mg/L	0.001	<0.001	8	20	107	90	110	100	70	130
Iron (total)	EMS0116-MAY25	mg/L	0.007	<0.007	9	20	105	90	110	100	70	130
Potassium (total)	EMS0116-MAY25	mg/L	0.009	<0.009	1	20	102	90	110	124	70	130
Magnesium (total)	EMS0116-MAY25	mg/L	0.001	<0.001	2	20	103	90	110	96	70	130
Manganese (total)	EMS0116-MAY25	mg/L	0.00001	<0.00001	2	20	103	90	110	72	70	130
Sodium (total)	EMS0116-MAY25	mg/L	0.01	<0.01	0	20	103	90	110	99	70	130
Lead (total)	EMS0116-MAY25	mg/L	0.00009	<0.00009	2	20	105	90	110	96	70	130
Phosphorus (total)	EMS0116-MAY25	mg/L	0.003	<0.003	10	20	103	90	110	NV	70	130
Zinc (total)	EMS0116-MAY25	mg/L	0.002	<0.002	3	20	100	90	110	71	70	130
Chromium (total)	EMS0140-MAY25	mg/L	0.00008	<0.00008	ND	20	103	90	110	104	70	130
Arsenic (total)	EMS0208-MAY25	mg/L	0.0002	<0.0002	1	20	101	90	110	78	70	130

QC SUMMARY

pH

Method: SM 4500 I Internal ref.: ME-CA-[ENV]EWL-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High
pH	EWL0274-MAY25	No unit	0.05	NA	0		100			NA		

Phenols by SFA

Method: SM 5530B-D I Internal ref.: ME-CA-[ENV]SFA-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High
4AAP-Phenolics	SKA0129-MAY25	mg/L	0.001	<0.001	ND	10	98	80	120	98	75	125

Solids Analysis

Method: SM 2540C I Internal ref.: ME-CA-[ENV]EWL-LAK-AN-005

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High
Total Dissolved Solids	EWL0276-MAY25	mg/L	30	<30	1	20	99	80	120	NA		

QC SUMMARY

Suspended Solids

Method: SM 2540D | Internal ref.: ME-CA-IENVIEWL-LAK-AN-004

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Total Suspended Solids	EWL0286-MAY25	mg/L	2	< 2	1	10	94	90	110	NA		
Total Suspended Solids	EWL0294-MAY25	mg/L	2	< 2	1	10	91	90	110	NA		

Total Nitrogen

Method: SM 4500-N C/4500-NO3- F | Internal ref.: ME-CA-IENVISFA-LAK-AN-002

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Total Kjeldahl Nitrogen (N)	SKA0131-MAY25	mg/L	0.05	<0.05	4	10	96	90	110	92	75	125
Total Kjeldahl Nitrogen (N)	SKA0151-MAY25	mg/L	0.05	<0.05	1	10	98	90	110	98	75	125

QC SUMMARY

Method Blank: a blank matrix that is carried through the entire analytical procedure. Used to assess laboratory contamination.
Duplicate: Paired analysis of a separate portion of the same sample that is carried through the entire analytical procedure. Used to evaluate measurement precision.
LCS/Spike Blank: Laboratory control sample or spike blank refer to a blank matrix to which a known amount of analyte has been added. Used to evaluate analyte recovery and laboratory accuracy without sample matrix effects.
Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate laboratory accuracy with sample matrix effects.
Reference Material: a material or substance matrix matched to the samples that contains a known amount of the analyte of interest. A reference material may be used in place of a matrix spike.
RL: Reporting limit
RPD: Relative percent difference
AC: Acceptance criteria

Multielement Scan Qualifier: as the number of analytes in a scan increases, so does the chance of a limit exceedance by random chance as opposed to a real method problem. Thus, in multielement scans, for the LCS and matrix spike, up to 10% of the analytes may exceed the quoted limits by up to 10% absolute and the spike is considered acceptable.
Duplicate Qualifier: for duplicates as the measured result approaches the RL, the uncertainty associated with the value increases dramatically, thus duplicate acceptance limits apply only where the average of the two duplicates is greater than five times the RL.
Matrix Spike Qualifier: for matrix spikes, as the concentration of the native analyte increases, the uncertainty of the matrix spike recovery increases. Thus, the matrix spike acceptance limits apply only when the concentration of the matrix spike is greater than or equal to the concentration of the native analyte.

LEGEND

FOOTNOTES

NSS Insufficient sample for analysis.
RL Reporting Limit.
↑ Reporting limit raised.
↓ Reporting limit lowered.
NA The sample was not analysed for this analyte
ND Non Detect

Results relate only to the sample tested.
Data reported represent the sample as submitted to SGS. Solid samples expressed on a dry weight basis.
"Temperature Upon Receipt" is representative of the whole shipment and may not reflect the temperature of individual samples.
Analysis conducted on samples submitted pursuant to or as part of Reg. 153/04, are in accordance to the "Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act and Excess Soil Quality" published by the Ministry and dated March 9, 2004 as amended.

SGS provides criteria information (such as regulatory or guideline limits and summary of limit exceedances) as a service. Every attempt is made to ensure the criteria information in this report is accurate and current, however, it is not guaranteed. Comparison to the most current criteria is the responsibility of the client and SGS assumes no responsibility for the accuracy of the criteria levels indicated.

SGS Canada Inc. statement of conformity decision rule does not consider uncertainty when analytical results are compared to a specified standard or regulation.
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The Client's attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any other holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. Reproduction of this analytical report in full or in part is prohibited.

This report supersedes all previous versions.

-- End of Analytical Report --

SGS

Request for Laboratory Services and CHAIN OF CUSTODY (General)

SGS Environmental Services - Lakefield: 185 Concession St., Lakefield, ON K0L 2H0 Phone: 705-652-2000 Toll Free: 877-747-7658 Fax: 705-652-6365 Web: www.ca.sgs.com {4}

SGS Environmental Services - London: 657 Consortium Court, London, ON, N6E 2S8 Phone: 519-672-4500 Toll Free: 877-848-8060 Fax: 519-672-0361 Web: www.ca.sgs.com {4}

Laboratory Information Section

Received Date (mm/dd/yyyy): 05/09/2025

Received Time (After Hours Only): 08:30

LAB LIMS #: CA4011 7 May 25 (GW), CA4011 8 May 25 (SW)

Temperature Upon Receipt (°C): 4 CK3

Billing & Reporting Information

Invoice/Receipt to {3}:

Company: Pinchin

Attention: Samantha Young

Address: 1456 Centennial Drive, Suite 2, Kingston, ON K7L 0K4

Email: SRyoung@pinchin.com

Quote #: 2024 1378

Attached Parameter List: ☑ YES ☐ NO

Turnaround Time

Is *Rush Turnaround Time Required? ☐ YES ☑ NO

Specify:

* Rush TA Requests Require Lab Approval

Project Name/Number: Roblin LF - GW

P.O. #:

Client Information/Report To:

Client Lab #:

Company Name:	**Pinchin Ltd.**	**Phone Number:**	**613-796-2342**
Contact Name:	**Samantha Young**	**Fax Number:**	
Address:	**1456 Centennial Drive, Suite 2, Kingston ON**	**E-mail:**	**SRyoung@pinchin.com**
Copy to:			

Sample Information

Sample Identifier	Date Sampled (mm/dd/yy)	Time Sampled	# of Bottles	Analysis Requested: Field Filtered	Field Temp (°C)	Field pH	SW Monitoring Package	GW Monitoring Package	VOCs (MW-1)
MW2	May7	AM	11	Y	11.76	7.97		X	
DUP1	May7		11	Y	11.76	7.97		X	
SW1	May8		11	N	12.86	9.07	X	X	
SW2	May8		11	N	14.32	8.20	X	X	
SW3	May8		11	N	13.53	8.24	X	X	
DUP2	May8		11	N	13.53	8.24	X	X	

Sampled By {1}:	(Name) Sam Young	(Signature) SY	**Date:**	08/05/25	(mm/dd/yy)
Relinquished by {2}:	(Name) Sam Young	(Signature) SY	**Date:**	08/05/25	(mm/dd/yy)

Note: {1} Submission of samples to SGS is acknowledgement that you have been provided direction on sample collection/handling and transportation of samples. {2} Submission of samples to SGS is considered authorization for completion of work. Signatures may appear on this form or be retained on file in the contract, or in an alternative format (e.g. shipping documents). {3} Results may be sent by email to an unlimited number of addresses for no additional cost. Fax is available upon request. {4} Completion of work may require the subcontracting of samples between the London and Lakefield laboratories.

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Revision #: 2.3
Date of Issue: 24 Jun. 2014

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Certificate of Analysis

Client: Egis Canada Ltd. (King)
1-1329 Gardiners Road
Kingston, ON
K7P 0L8
Attention: Mr. Fraser Armstrong
PO#:
Invoice to: EGIS Canada Ltd. (King)

Report Number: 3007494
Date Submitted: 2024-05-16
Date Reported: 2024-05-31
Project: 18 7001 Rob
COC #: 223914

Dear Fraser Armstrong:

Please find attached the analytical results for your samples. If you have any questions regarding this report, please do not hesitate to call (613-727-5692).

Report Comments:

Emma-Dawn Ferguson 2024.05.31 14:00:52 -04'00'

APPROVAL: _____
Emma-Dawn Ferguson, Chemist

All analysis is completed at Eurofins Environment Testing Canada Inc. (Ottawa, Ontario) unless otherwise indicated.

Eurofins Environment Testing Canada Inc. (Ottawa, Ontario) is accredited by CALA, Canadian Association for Laboratory Accreditation to ISO/IEC 17025 for tests which appear on the scope of accreditation. The scope is available at: https://directory.cala.ca/.

Eurofins Environment Testing Canada Inc. (Ottawa, Ontario) is licensed by the Ontario Ministry of the Environment, Conservation, and Parks (MECP) for specific tests in drinking water (license #2318). A copy of the license is available upon request.

Eurofins Environment Testing Canada Inc. (Ottawa, Ontario) is accredited by the Ontario Ministry of Agriculture, Food, and Rural Affairs for specific tests in agricultural soils.

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Certificate of Analysis

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K7P 0L8
Attention: Mr. Fraser Armstrong
PO#:
Invoice to: EGIS Canada Ltd. (King)

Report Number: 3007494
Date Submitted: 2024-05-16
Date Reported: 2024-05-31
Project: 18 7001 Rob
COC #: 223914

Group	Analyte	MRL	Units	Guideline	Lab I.D. / Sample Matrix / Sample Type / Sampling Date / Sample I.D.		
					1727825 GW 2024-05-15 MW1	1727826 GW 2024-05-15 MW2 Dup	1727827 GW 2024-05-15 GW2
Anions	Cl	1	mg/L	AO 250	30	19	19
	N-NO3	0.10	mg/L	MAC 10.0	0.37	<0.10	<0.10
	SO4	1	mg/L	AO 500	391	11	11
General Chemistry	Alkalinity as CaCO3	5	mg/L	OG 30-500	328	287	286
	BOD5	1	mg/L		3	5	5
	COD	5	mg/L		7	10	10
	Conductivity	5	uS/cm		1290	592	589
	DOC	0.5	mg/L	AO 5	1.1	1.1	1.1
	pH	1.00		6.5-8.5	7.83	7.88	7.96
	Phenols	0.001	mg/L		<0.001	<0.001	<0.001
	TDS (COND - CALC)	1	mg/L	AO 500	903*	385	383
	Total Suspended Solids	2	mg/L		15	54	64
Hardness	Hardness as CaCO3	1	mg/L	OG 80-100	730*	301*	299*
Indices/Calc	% Difference	0.01	%		0.21	0.13	0.11
	Anion Sum	0.01	meq/L		15.6	6.51	6.49
	Cation Sum	0.01	meq/L		15.5	6.52	6.47
	Ion Balance	0.01			1.00	1.00	1.00
Metals	As	0.001	mg/L	IMAC 0.01	<0.001	<0.001	<0.001
	B	0.01	mg/L	IMAC 5.0		0.33	0.33
		0.02	mg/L	IMAC 5.0	1.31		
	Ba	0.01	mg/L	MAC 1.0	0.02	0.92	0.93
	Ca	1	mg/L		172	81	80
	Cd	0.0001	mg/L	MAC 0.005	<0.0001	<0.0001	<0.0001
	Cr	0.001	mg/L	MAC 0.05	<0.001	<0.001	<0.001
	Cu	0.001	mg/L	AO 1	<0.001	<0.001	<0.001

Guideline = ODWSOG *** = Guideline Exceedence**

Results relate only to the parameters tested on the samples submitted.
Methods references and/or additional QA/QC information available on request.

MRL = Method Reporting Limit, AO = Aesthetic Objective, OG = Operational Guideline, MAC = Maximum Acceptable Concentration, IMAC = Interim Maximum Acceptable Concentration, STD = Standard, PWQO = Provincial Water Quality Guideline, IPWQO = Interim Provincial Water Quality Objective, TDR = Typical Desired Range

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Certificate of Analysis

Client: Egis Canada Ltd. (King)
1-1329 Gardiners Road
Kingston, ON
K7P 0L8
Attention: Mr. Fraser Armstrong
PO#:
Invoice to: EGIS Canada Ltd. (King)

Report Number: 3007494
Date Submitted: 2024-05-16
Date Reported: 2024-05-31
Project: 18 7001 Rob
COC #: 223914

Group	Analyte	MRL	Units	Guideline	1727825 GW 2024-05-15 MW1	1727826 GW 2024-05-15 MW2 Dup	1727827 GW 2024-05-15 GW2
				Lab I.D. / Sample Matrix / Sample Type / Sampling Date / Sample I.D.			
Metals	Fe	0.03	mg/L	AO 0.3	0.81*	0.77*	0.77*
	Hg	0.0001	mg/L	MAC 0.001	<0.0001	<0.0001	<0.0001
	K	1	mg/L		7	6	6
	Mg	1	mg/L		73	24	24
	Mn	0.01	mg/L	AO 0.05	0.06*	0.01	0.01
	Na	1	mg/L	AO 200	17	8	8
	P	0.002	mg/L		0.007	0.010	0.010
	Pb	0.001	mg/L	MAC 0.010	<0.001	<0.001	<0.001
	Zn	0.01	mg/L	AO 5	<0.01	<0.01	<0.01
Nutrients	N-NH3	0.020	mg/L		<0.020	0.062	0.041

Guideline = ODWSOG *** = Guideline Exceedence**

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Invoice to: EGIS Canada Ltd. (King)

Report Number: 3007494
Date Submitted: 2024-05-16
Date Reported: 2024-05-31
Project: 18 7001 Rob
COC #: 223914

QC Summary

Analyte	Blank	QC % Rec	QC Limits
Run No 460142 **Analysis/Extraction Date** 2024-05-22 **Analyst** AnK **Method** SM 5210B			
BOD5	<1 mg/L	81	75-125
Run No 460148 **Analysis/Extraction Date** 2024-05-18 **Analyst** IP **Method** SM 4110			
Chloride	<1 mg/L	100	90-110
N-NO3	<0.10 mg/L	105	90-110
SO4	<1 mg/L	100	90-110
Run No 460157 **Analysis/Extraction Date** 2024-05-21 **Analyst** IP **Method** SM 4110			
SO4	<1 mg/L	100	90-110
Run No 460158 **Analysis/Extraction Date** 2024-05-20 **Analyst** AET **Method** SM2320,2510,4500H/F			
Alkalinity (CaCO3)	<5 mg/L	97	90-110
Conductivity	<5 uS/cm	101	90-110
pH		100	90-110
Run No 460161 **Analysis/Extraction Date** 2024-05-18 **Analyst** Z_S **Method** M SM3120B-3500C			
Calcium	<1 mg/L	100	90-110

Guideline = ODWSOG *** = Guideline Exceedence**

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Report Number: 3007494
Date Submitted: 2024-05-16
Date Reported: 2024-05-31
Project: 18 7001 Rob
COC #: 223914

QC Summary

Analyte	Blank	QC % Rec	QC Limits
Potassium	<1 mg/L	104	87-113
Magnesium	<1 mg/L	98	76-124
Sodium	<1 mg/L	101	82-118
Run No 460175 **Analysis/Extraction Date** 2024-05-21 **Analyst** IP **Method** SM5530D/EPA420.2			
Phenols	<0.001 mg/L	102	50-120
Run No 460182 **Analysis/Extraction Date** 2024-05-21 **Analyst** AaN **Method** EPA 200.8			
Arsenic	<0.001 mg/L	98	80-120
Boron (total)	<0.01 mg/L	99	80-120
Barium	<0.01 mg/L	96	80-120
Cadmium	<0.0001 mg/L	101	80-120
Chromium Total	<0.001 mg/L	105	80-120
Copper	<0.001 mg/L	109	80-120
Iron	<0.03 mg/L	101	80-120
Mercury	<0.0001 mg/L	108	80-120
Manganese	<0.01 mg/L	105	80-120
P	<0.002 mg/L	96	80-120

Guideline = ODWSOG *** = Guideline Exceedence**

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Report Number: 3007494
Date Submitted: 2024-05-16
Date Reported: 2024-05-31
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COC #: 223914

QC Summary

Analyte	Blank	QC % Rec	QC Limits
Lead	<0.001 mg/L	104	80-120
Zinc	<0.01 mg/L	109	80-120
Run No 460216 **Analysis/Extraction Date** 2024-05-22 **Analyst** AnK **Method** C SM5220D			
COD	<5 mg/L	97	80-120
Run No 460222 **Analysis/Extraction Date** 2024-05-23 **Analyst** MiV **Method** C SM2540			
Total Suspended Solids	<2 mg/L	101	90-110
Run No 460248 **Analysis/Extraction Date** 2024-05-22 **Analyst** AaN **Method** EPA 200.8			
Boron (total)	<0.02 mg/L	97	80-120
Run No 460330 **Analysis/Extraction Date** 2024-05-23 **Analyst** SKH **Method** EPA 350.1			
N-NH3	<0.020 mg/L	112	80-120
Run No 460347 **Analysis/Extraction Date** 2024-05-23 **Analyst** AET **Method** C Ion Balance			
Anion Sum			
Cation Sum			
Hardness as CaCO3			

Guideline = ODWSOG *** = Guideline Exceedence**

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Report Number: 3007494
Date Submitted: 2024-05-16
Date Reported: 2024-05-31
Project: 18 7001 Rob
COC #: 223914

QC Summary

Analyte	Blank	QC % Rec	QC Limits
Ion Balance			
TDS (COND - CALC)			
Run No 460369 **Analysis/Extraction Date** 2024-05-24 **Analyst** AET **Method** C Ion Balance			
% Difference			
Run No 460772 **Analysis/Extraction Date** 2024-05-31 **Analyst** AsA **Method** SM 5310B			
DOC	<0.5 mg/L	97	80-120

Guideline = ODWSOG *** = Guideline Exceedence**

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K7P 0L8
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Report Number: 3007494
Date Submitted: 2024-05-16
Date Reported: 2024-05-31
Project: 18 7001 Rob
COC #: 223914

Sample Comment Summary

Sample ID: 1727825 MW1 N-NH3 and DOC analyzed past holding time for this report. MRLs for B have been modified for this report on an as required basis due to sample matrix.

Guideline = ODWSOG *** = Guideline Exceedence**

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Certificate of Analysis

Client: Egis Canada Ltd. (King)
1-1329 Gardiners Road
Kingston, ON
K7P 0L8
Attention: Mr. Fraser Armstrong
PO#:
Invoice to: EGIS Canada Ltd. (King)

Report Number: 3007495
Date Submitted: 2024-05-16
Date Reported: 2024-05-31
Project: 18 7001 Rob
COC #: 223913

Dear Fraser Armstrong:

Please find attached the analytical results for your samples. If you have any questions regarding this report, please do not hesitate to call (613-727-5692).

Report Comments:

Emma-Dawn Ferguson 2024.05.31 14:02:31 -04'00'

APPROVAL: _____
Emma-Dawn Ferguson, Chemist

All analysis is completed at Eurofins Environment Testing Canada Inc. (Ottawa, Ontario) unless otherwise indicated.

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K7P 0L8
Attention: Mr. Fraser Armstrong
PO#:
Invoice to: EGIS Canada Ltd. (King)

Report Number: 3007495
Date Submitted: 2024-05-16
Date Reported: 2024-05-31
Project: 18 7001 Rob
COC #: 223913

Group	Analyte	MRL	Units	Guideline	1727828 SURF W 2024-05-15 SW1	1727829 SURF W 2024-05-15 SW2	1727830 SURF W 2024-05-15 SW3	1727831 SURF W 2024-05-15 SW1 Dup
				Lab I.D. / Sample Matrix / Sample Type / Sampling Date / Sample I.D.				
Anions	Cl	1	mg/L		6	6	6	6
	N-NO3	0.10	mg/L		<0.10	<0.10	<0.10	<0.10
	SO4	1	mg/L		3	3	2	3
General Chemistry	Alkalinity as CaCO3	5	mg/L		92	89	90	93
	BOD5	1	mg/L		4	3	3	2
	COD	5	mg/L		41	20	28	26
	Conductivity	5	uS/cm		176	172	172	177
	DOC	0.5	mg/L		6.4	6.5	6.5	6.4
	pH	1.00		6.5-8.5	7.82	7.81	7.84	7.86
	Phenols	0.001	mg/L	PWQO 0.001	<0.001	<0.001	<0.001	<0.001
	Total Suspended Solids	2	mg/L		15	<2	33	11
Hardness	Hardness as CaCO3	1	mg/L		100	100	97	102
Indices/Calc	% Difference	0.01	%		3.19	4.69	3.54	3.83
	Anion Sum	0.01	meq/L		2.07	2.01	2.01	2.09
	Cation Sum	0.01	meq/L		2.21	2.21	2.16	2.26
	Ion Balance	0.01			N/A-LC	N/A-LC	N/A-LC	N/A-LC
Metals	As	0.001	mg/L	PWQO 0.100	<0.001	<0.001	<0.001	<0.001
	B	0.01	mg/L	IPWQO 0.200	0.01	0.01	<0.01	<0.01
	Ba	0.01	mg/L		0.05	0.05	0.05	0.05
	Ca	1	mg/L		30	30	29	31
	Cd	0.0001	mg/L	PWQO 0.0002	<0.0001	<0.0001	<0.0001	<0.0001
	Cr	0.001	mg/L		<0.001	<0.001	<0.001	<0.001
	Cu	0.001	mg/L	PWQO 0.005	<0.001	<0.001	<0.001	<0.001
	Fe	0.03	mg/L	PWQO 0.30	0.21	0.23	0.26	0.20
	Hg	0.0001	mg/L		<0.0001	<0.0001	<0.0001	<0.0001

Guideline = PWQO - Ontario *** = Guideline Exceedence**

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Certificate of Analysis

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K7P 0L8
Attention: Mr. Fraser Armstrong
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Invoice to: EGIS Canada Ltd. (King)

Report Number: 3007495
Date Submitted: 2024-05-16
Date Reported: 2024-05-31
Project: 18 7001 Rob
COC #: 223913

Group	Analyte	MRL	Units	Guideline	Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.	1727828 SURF W 2024-05-15 SW1	1727829 SURF W 2024-05-15 SW2	1727830 SURF W 2024-05-15 SW3	1727831 SURF W 2024-05-15 SW1 Dup
Metals	K	1	mg/L			<1	<1	<1	<1
	Mg	1	mg/L			6	6	6	6
	Mn	0.01	mg/L			0.06	0.06	0.08	0.06
	Na	1	mg/L			5	5	5	5
	P	0.002	mg/L	IPWQO 0.01		0.016*	0.015*	0.019*	0.017*
	Pb	0.001	mg/L	PWQO 0.005		<0.001	<0.001	<0.001	<0.001
	Zn	0.01	mg/L	PWQO 0.030		<0.01	<0.01	<0.01	<0.01
Nutrients	N-NH3	0.020	mg/L			<0.020	0.020	<0.020	<0.020
	Total Kjeldahl Nitrogen	0.100	mg/L			1.98	0.570	0.450	0.502

Guideline = PWQO - Ontario *** = Guideline Exceedence**

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MRL = Method Reporting Limit, AO = Aesthetic Objective, OG = Operational Guideline, MAC = Maximum Acceptable Concentration, IMAC = Interim Maximum Acceptable Concentration, STD = Standard, PWQO = Provincial Water Quality Guideline, IPWQO = Interim Provincial Water Quality Objective, TDR = Typical Desired Range

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Certificate of Analysis

Client: Egis Canada Ltd. (King)
1-1329 Gardiners Road
Kingston, ON
K7P 0L8
Attention: Mr. Fraser Armstrong
PO#:
Invoice to: EGIS Canada Ltd. (King)

Report Number: 3007495
Date Submitted: 2024-05-16
Date Reported: 2024-05-31
Project: 18 7001 Rob
COC #: 223913

QC Summary

Analyte	Blank	QC % Rec	QC Limits
Run No 460142 **Analysis/Extraction Date** 2024-05-22 **Analyst** AnK **Method** SM 5210B			
BOD5	<1 mg/L	81	75-125
Run No 460148 **Analysis/Extraction Date** 2024-05-18 **Analyst** IP **Method** SM 4110			
Chloride	<1 mg/L	100	90-110
N-NO3	<0.10 mg/L	105	90-110
SO4	<1 mg/L	100	90-110
Run No 460158 **Analysis/Extraction Date** 2024-05-20 **Analyst** AET **Method** SM2320,2510,4500H/F			
Alkalinity (CaCO3)	<5 mg/L	97	90-110
Conductivity	<5 uS/cm	101	90-110
pH		100	90-110
Run No 460161 **Analysis/Extraction Date** 2024-05-18 **Analyst** Z_S **Method** M SM3120B-3500C			
Calcium	<1 mg/L	100	90-110
Potassium	<1 mg/L	104	87-113
Magnesium	<1 mg/L	98	76-124
Sodium	<1 mg/L	101	82-118

Guideline = PWQO - Ontario *** = Guideline Exceedence**

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Invoice to: EGIS Canada Ltd. (King)

Report Number: 3007495
Date Submitted: 2024-05-16
Date Reported: 2024-05-31
Project: 18 7001 Rob
COC #: 223913

QC Summary

Analyte	Blank	QC % Rec	QC Limits
Run No 460175 **Analysis/Extraction Date** 2024-05-21 **Analyst** IP **Method** SM5530D/EPA420.2			
Phenols	<0.001 mg/L	102	50-120
Run No 460182 **Analysis/Extraction Date** 2024-05-21 **Analyst** AaN **Method** EPA 200.8			
Arsenic	<0.001 mg/L	98	80-120
Boron (total)	<0.01 mg/L	99	80-120
Barium	<0.01 mg/L	96	80-120
Cadmium	<0.0001 mg/L	101	80-120
Chromium Total	<0.001 mg/L	105	80-120
Copper	<0.001 mg/L	109	80-120
Iron	<0.03 mg/L	101	80-120
Mercury	<0.0001 mg/L	108	80-120
Manganese	<0.01 mg/L	105	80-120
P	<0.002 mg/L	96	80-120
Lead	<0.001 mg/L	104	80-120
Zinc	<0.01 mg/L	109	80-120
Run No 460192 **Analysis/Extraction Date** 2024-05-21 **Analyst** SKH **Method** EPA 351.2			

Guideline = PWQO - Ontario *** = Guideline Exceedence**

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Certificate of Analysis

Client: Egis Canada Ltd. (King)
1-1329 Gardiners Road
Kingston, ON
K7P 0L8
Attention: Mr. Fraser Armstrong
PO#:
Invoice to: EGIS Canada Ltd. (King)

Report Number: 3007495
Date Submitted: 2024-05-16
Date Reported: 2024-05-31
Project: 18 7001 Rob
COC #: 223913

QC Summary

Analyte	Blank	QC % Rec	QC Limits
Total Kjeldahl Nitrogen	<0.100 mg/L	96	70-130
Run No 460216 **Analysis/Extraction Date** 2024-05-22 **Analyst** AnK **Method** C SM5220D			
COD	<5 mg/L	97	80-120
Run No 460222 **Analysis/Extraction Date** 2024-05-23 **Analyst** MiV **Method** C SM2540			
Total Suspended Solids	<2 mg/L	101	90-110
Run No 460330 **Analysis/Extraction Date** 2024-05-23 **Analyst** SKH **Method** EPA 350.1			
N-NH3	<0.020 mg/L	112	80-120
Run No 460347 **Analysis/Extraction Date** 2024-05-23 **Analyst** AET **Method** C Ion Balance			
Anion Sum			
Cation Sum			
Hardness as CaCO3			
Ion Balance			
Run No 460369 **Analysis/Extraction Date** 2024-05-24 **Analyst** AET **Method** C Ion Balance			
% Difference			

Guideline = PWQO - Ontario *** = Guideline Exceedence**

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MRL = Method Reporting Limit, AO = Aesthetic Objective, OG = Operational Guideline, MAC = Maximum Acceptable Concentration, IMAC = Interim Maximum Acceptable Concentration, STD = Standard, PWQO = Provincial Water Quality Guideline, IPWQO = Interim Provincial Water Quality Objective, TDR = Typical Desired Range

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Certificate of Analysis

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Kingston, ON
K7P 0L8
Attention: Mr. Fraser Armstrong
PO#:
Invoice to: EGIS Canada Ltd. (King)

Report Number: 3007495
Date Submitted: 2024-05-16
Date Reported: 2024-05-31
Project: 18 7001 Rob
COC #: 223913

QC Summary

Analyte	Blank	QC % Rec	QC Limits
Run No 460772 **Analysis/Extraction Date** 2024-05-31 **Analyst** AsA **Method** SM 5310B			
DOC	<0.5 mg/L	97	80-120

Guideline = PWQO - Ontario *** = Guideline Exceedence**

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Certificate of Analysis

Client: Egis Canada Ltd. (King)
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Kingston, ON
K7P 0L8
Attention: Mr. Fraser Armstrong
PO#:
Invoice to: EGIS Canada Ltd. (King)

Report Number: 3007495
Date Submitted: 2024-05-16
Date Reported: 2024-05-31
Project: 18 7001 Rob
COC #: 223913

Sample Comment Summary

Sample ID: 1727828 SW1 N-NH3 and DOC analyzed past holding time for this report.

Guideline = PWQO - Ontario *** = Guideline Exceedence**

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Certificate of Analysis

Client: Egis Canada Ltd. (King)
516 O'Connor Drive
Kingston, ON
K7P 1N3
Attention: Mr. Fraser Armstrong
PO#:
Invoice to: EGIS Canada Ltd. (King)

Report Number: 3012590
Date Submitted: 2024-11-14
Date Reported: 2024-11-21
Project: 187001 ROB
COC #: 231710

Dear Fraser Armstrong:

Please find attached the analytical results for your samples. If you have any questions regarding this report, please do not hesitate to call (613-727-5692).

Report Comments:

Patrick Jacques 2024.11.21 16:26:07 -05'00'

APPROVAL:

Patrick Jacques, Chemist

All analysis is completed at Eurofins Environment Testing Canada Inc. (Ottawa, Ontario) unless otherwise indicated.

Eurofins Environment Testing Canada Inc. (Ottawa, Ontario) is accredited by CALA, Canadian Association for Laboratory Accreditation to ISO/IEC 17025 for tests which appear on the scope of accreditation. The scope is available at: https://directory.cala.ca/.

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Eurofins Environment Testing Canada Inc. (Ottawa, Ontario) is accredited by the Ontario Ministry of Agriculture, Food, and Rural Affairs for specific tests in agricultural soils.

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Certificate of Analysis

Client: Egis Canada Ltd. (King)
516 O'Connor Drive
Kingston, ON
K7P 1N3
Attention: Mr. Fraser Armstrong
PO#:
Invoice to: EGIS Canada Ltd. (King)

Report Number: 3012590
Date Submitted: 2024-11-14
Date Reported: 2024-11-21
Project: 187001 ROB
COC #: 231710

Group	Analyte	MRL	Units	Guideline	1751245 SURF W 2024-11-14 SW3 Dup	1751246 SURF W 2024-11-14 SW3	1751247 SURF W 2024-11-14 SW2	1751248 SURF W 2024-11-14 SW1
	Lab I.D. / Sample Matrix / Sample Type / Sampling Date / Sample I.D.							
Anions	Cl	1	mg/L		10	10	9	10
	N-NO3	0.10	mg/L		<0.10	<0.10	<0.10	<0.10
	SO4	1	mg/L		3	3	3	3
General Chemistry	Alkalinity as CaCO3	5	mg/L		101	101	100	100
	BOD5	1	mg/L		2	2	2	9
	COD	5	mg/L		18	15	14	48
	Conductivity	5	uS/cm		187	186	190	190
	DOC	0.5	mg/L		7.8	7.3	7.8	7.5
	pH	1.00		6.5-8.5	8.01	8.02	8.10	7.83
	Phenols	0.001	mg/L	PWQO 0.001	0.001	0.001	<0.001	0.001
	Total Suspended Solids	2	mg/L		<2	<2	<2	534
Hardness	Hardness as CaCO3	1	mg/L		105	105	105	105
Indices/Calc	% Difference	0.01	%		0.30	0.30	1.33	1.66
	Anion Sum	0.01	meq/L		2.36	2.36	2.32	2.34
	Cation Sum	0.01	meq/L		2.38	2.38	2.38	2.42
	Ion Balance	0.01			N/A-LC	N/A-LC	N/A-LC	N/A-LC
Metals	As	0.001	mg/L	PWQO 0.100	<0.001	<0.001	<0.001	<0.001
	B	0.01	mg/L	IPWQO 0.200	<0.01	<0.01	<0.01	<0.01
	Ba	0.01	mg/L		0.06	0.06	0.06	0.09
	Ca	1	mg/L		32	32	32	32
	Cd	0.0001	mg/L	PWQO 0.0002	<0.0001	<0.0001	<0.0001	<0.0001
	Cr	0.001	mg/L		<0.001	<0.001	<0.001	0.001
	Cu	0.001	mg/L	PWQO 0.005	<0.001	<0.001	0.001	0.002
	Fe	0.03	mg/L	PWQO 0.30	0.16	0.16	0.21	1.65*
	Hg	0.0001	mg/L		<0.0001	<0.0001	<0.0001	<0.0001

Guideline = PWQO - Ontario *** = Guideline Exceedence**

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Certificate of Analysis

Client: Egis Canada Ltd. (King)
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Kingston, ON
K7P 1N3
Attention: Mr. Fraser Armstrong
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Invoice to: EGIS Canada Ltd. (King)

Report Number: 3012590
Date Submitted: 2024-11-14
Date Reported: 2024-11-21
Project: 187001 ROB
COC #: 231710

Group	Analyte	MRL	Units	Guideline	1751245 SURF W 2024-11-14 SW3 Dup	1751246 SURF W 2024-11-14 SW3	1751247 SURF W 2024-11-14 SW2	1751248 SURF W 2024-11-14 SW1
	Lab I.D.				1751245	1751246	1751247	1751248
	Sample Matrix				SURF W	SURF W	SURF W	SURF W
	Sample Type							
	Sampling Date				2024-11-14	2024-11-14	2024-11-14	2024-11-14
	Sample I.D.				SW3 Dup	SW3	SW2	SW1
Metals	K	1	mg/L		1	1	1	1
	Mg	1	mg/L		6	6	6	6
	Mn	0.01	mg/L		0.03	0.03	0.05	0.24
	Na	1	mg/L		6	6	6	7
	P	0.002	mg/L	IPWQO 0.01	0.012*	0.011*	0.022*	0.093*
	Pb	0.001	mg/L	PWQO 0.005	<0.001	<0.001	<0.001	0.002
	Zn	0.01	mg/L	PWQO 0.030	<0.01	<0.01	<0.01	<0.01
Nutrients	N-NH3	0.020	mg/L		0.026	0.026	0.021	0.042
	Total Kjeldahl Nitrogen	0.100	mg/L		0.710	0.553	0.607	1.00

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Certificate of Analysis

Client: Egis Canada Ltd. (King)
516 O'Connor Drive
Kingston, ON
K7P 1N3
Attention: Mr. Fraser Armstrong
PO#:
Invoice to: EGIS Canada Ltd. (King)

Report Number: 3012590
Date Submitted: 2024-11-14
Date Reported: 2024-11-21
Project: 187001 ROB
COC #: 231710

QC Summary

Analyte	Blank	QC % Rec	QC Limits
Run No 468786 **Analysis/Extraction Date** 2024-11-16 **Analyst** AnK **Method** C SM5220D			
COD	<5 mg/L	102	80-120
Run No 468790 **Analysis/Extraction Date** 2024-11-21 **Analyst** AnK **Method** SM 5210B			
BOD5	<1 mg/L	100	75-125
Run No 468808 **Analysis/Extraction Date** 2024-11-17 **Analyst** SKH **Method** EPA 350.1			
N-NH3	<0.020 mg/L	101	80-120
Run No 468812 **Analysis/Extraction Date** 2024-11-16 **Analyst** AsA **Method** SM 5310B			
DOC	<0.5 mg/L	101	80-120
Run No 468881 **Analysis/Extraction Date** 2024-11-19 **Analyst** AaN **Method** EPA 200.8			
Arsenic	<0.001 mg/L	97	80-120
Boron (total)	<0.01 mg/L	97	80-120
Barium	<0.01 mg/L	94	80-120
Cadmium	<0.0001 mg/L	101	80-120
Chromium Total	<0.001 mg/L	110	80-120

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Invoice to: EGIS Canada Ltd. (King)

Report Number: 3012590
Date Submitted: 2024-11-14
Date Reported: 2024-11-21
Project: 187001 ROB
COC #: 231710

QC Summary

Analyte	Blank	QC % Rec	QC Limits
Copper	<0.001 mg/L	111	80-120
Iron	<0.03 mg/L	100	80-120
Mercury	<0.0001 mg/L	98	80-120
Manganese	<0.01 mg/L	107	80-120
P	<0.002 mg/L	103	80-120
Lead	<0.001 mg/L	109	80-120
Zinc	<0.01 mg/L	107	80-120
Run No 468924 **Analysis/Extraction Date** 2024-11-20 **Analyst** AsA **Method** SM2320,2510,4500H/F			
Alkalinity (CaCO3)	<5 mg/L	98	90-110
Conductivity	<5 uS/cm	99	90-110
pH		100	90-110
Run No 468925 **Analysis/Extraction Date** 2024-11-19 **Analyst** AsA **Method** SM2320,2510,4500H/F			
Alkalinity (CaCO3)	<5 mg/L	98	90-110
Conductivity	<5 uS/cm	99	90-110
pH		101	90-110
Run No 468951 **Analysis/Extraction Date** 2024-11-20 **Analyst** Z S **Method** M SM3120B-3500C			

Guideline = PWQO - Ontario *** = Guideline Exceedence**

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K7P 1N3
Attention: Mr. Fraser Armstrong
PO#:
Invoice to: EGIS Canada Ltd. (King)

Report Number: 3012590
Date Submitted: 2024-11-14
Date Reported: 2024-11-21
Project: 187001 ROB
COC #: 231710

QC Summary

Analyte	Blank	QC % Rec	QC Limits
Calcium	<1 mg/L	99	90-110
Potassium	<1 mg/L	108	87-113
Magnesium	<1 mg/L	93	76-124
Sodium	<1 mg/L	107	82-118
Run No 468968 **Analysis/Extraction Date** 2024-11-19 **Analyst** IP **Method** SM5530D/EPA420.2			
Phenols	<0.001 mg/L	113	50-120
Run No 468977 **Analysis/Extraction Date** 2024-11-20 **Analyst** AaN **Method** EPA 200.8			
Mercury	<0.0001 mg/L	93	80-120
Run No 468981 **Analysis/Extraction Date** 2024-11-21 **Analyst** MiV **Method** C SM2540			
Total Suspended Solids	<2 mg/L	98	90-110
Run No 468996 **Analysis/Extraction Date** 2024-11-20 **Analyst** MiV **Method** EPA 351.2			
Total Kjeldahl Nitrogen	<0.100 mg/L	93	70-130
Run No 468999 **Analysis/Extraction Date** 2024-11-21 **Analyst** IP **Method** SM 4110			
Chloride	<1 mg/L	100	90-110

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Attention: Mr. Fraser Armstrong
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Invoice to: EGIS Canada Ltd. (King)

Report Number: 3012590
Date Submitted: 2024-11-14
Date Reported: 2024-11-21
Project: 187001 ROB
COC #: 231710

QC Summary

Analyte	Blank	QC % Rec	QC Limits
N-NO3	<0.10 mg/L	105	90-110
SO4	<1 mg/L	105	90-110
Run No 469016 **Analysis/Extraction Date** 2024-11-21 **Analyst** IP **Method** SM 4110			
Chloride	<1 mg/L	100	90-110
N-NO3	<0.10 mg/L	104	90-110
SO4	<1 mg/L	100	90-110
Run No 469038 **Analysis/Extraction Date** 2024-11-21 **Analyst** AET **Method** C Ion Balance			
Anion Sum			
Cation Sum			
Hardness as CaCO3			
Ion Balance			
Run No 469041 **Analysis/Extraction Date** 2024-11-21 **Analyst** AET **Method** C Ion Balance			
% Difference			

Guideline = PWQO - Ontario *** = Guideline Exceedence**

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Certificate of Analysis

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Kingston, ON
K7P 1N3
Attention: Mr. Fraser Armstrong
PO#:
Invoice to: EGIS Canada Ltd. (King)

Report Number: 3012590
Date Submitted: 2024-11-14
Date Reported: 2024-11-21
Project: 187001 ROB
COC #: 231710

Sample Comment Summary

Sample ID: 1751247	SW2	Sediments not included for metals analysis.
Sample ID: 1751248	SW1	Sediments not included for metals analysis.

Guideline = PWQO - Ontario *** = Guideline Exceedence**

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516 O'Connor Drive
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K7P 1N3
Attention: Mr. Fraser Armstrong
PO#:
Invoice to: EGIS Canada Ltd. (King)

Report Number: 3012589
Date Submitted: 2024-11-14
Date Reported: 2024-11-21
Project: 187001 ROB
COC #: 231711

Dear Fraser Armstrong:

Please find attached the analytical results for your samples. If you have any questions regarding this report, please do not hesitate to call (613-727-5692).

Report Comments:

APPROVAL: Patrick Jacques 2024.11.21 16:18:35 -05'00'
Patrick Jacques, Chemist

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Certificate of Analysis

Client: Egis Canada Ltd. (King)
516 O'Connor Drive
Kingston, ON
K7P 1N3
Attention: Mr. Fraser Armstrong
PO#:
Invoice to: EGIS Canada Ltd. (King)

Report Number: 3012589
Date Submitted: 2024-11-14
Date Reported: 2024-11-21
Project: 187001 ROB
COC #: 231711

Group	Analyte	MRL	Units	Guideline	1751243 GW 2024-11-14 MW2	1751244 GW 2024-11-14 MW2 Dup
	Lab I.D.				1751243	1751244
	Sample Matrix				GW	GW
	Sample Type					
	Sampling Date				2024-11-14	2024-11-14
	Sample I.D.				MW2	MW2 Dup
Anions	Cl	1	mg/L	AO 250	22	22
	N-NO3	0.10	mg/L	MAC 10.0	<0.10	<0.10
	SO4	1	mg/L	AO 500	18	18
General Chemistry	Alkalinity as CaCO3	5	mg/L	OG 30-500	284	283
	BOD5	1	mg/L		8	8
	COD	5	mg/L		<5	17
	Conductivity	5	uS/cm		597	595
	DOC	0.5	mg/L	AO 5	1.8	2.0
	pH	1.00		6.5-8.5	7.96	7.79
	Phenols	0.001	mg/L		0.001	0.001
	TDS (COND - CALC)	1	mg/L	AO 500	388	387
	Total Suspended Solids	2	mg/L		12	10
Hardness	Hardness as CaCO3	1	mg/L	OG 80-100	312*	305*
Indices/Calc	% Difference	0.01	%		0.50	0.35
	Anion Sum	0.01	meq/L		6.68	6.66
	Cation Sum	0.01	meq/L		6.74	6.61
	Ion Balance	0.01			1.01	0.99
Metals	As	0.001	mg/L	IMAC 0.01	<0.001	<0.001
	B	0.01	mg/L	IMAC 5.0	0.33	0.33
	Ba	0.01	mg/L	MAC 1.0	0.59	0.59
	Ca	1	mg/L		87	86
	Cd	0.0001	mg/L	MAC 0.005	<0.0001	<0.0001
	Cr	0.001	mg/L	MAC 0.05	0.006	0.004
	Cu	0.001	mg/L	AO 1	<0.001	<0.001
	Fe	0.03	mg/L	AO 0.3	0.92*	0.88*

Guideline = ODWSOG *** = Guideline Exceedence**

Results relate only to the parameters tested on the samples submitted.
Methods references and/or additional QA/QC information available on request.

MRL = Method Reporting Limit, AO = Aesthetic Objective, OG = Operational Guideline, MAC = Maximum Acceptable Concentration, IMAC = Interim Maximum Acceptable Concentration, STD = Standard, PWQO = Provincial Water Quality Guideline, IPWQO = Interim Provincial Water Quality Objective, TDR = Typical Desired Range

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Certificate of Analysis

Client: Egis Canada Ltd. (King)
516 O'Connor Drive
Kingston, ON
K7P 1N3
Attention: Mr. Fraser Armstrong
PO#:
Invoice to: EGIS Canada Ltd. (King)

Report Number: 3012589
Date Submitted: 2024-11-14
Date Reported: 2024-11-21
Project: 187001 ROB
COC #: 231711

Group	Analyte	MRL	Units	Guideline	1751243 GW 2024-11-14 MW2	1751244 GW 2024-11-14 MW2 Dup
	Lab I.D.				1751243	1751244
	Sample Matrix				GW	GW
	Sample Type					
	Sampling Date				2024-11-14	2024-11-14
	Sample I.D.				MW2	MW2 Dup
Metals	Hg	0.0001	mg/L	MAC 0.001	<0.0001	<0.0001
	K	1	mg/L		6	6
	Mg	1	mg/L		23	22
	Mn	0.01	mg/L	AO 0.05	0.02	0.02
	Na	1	mg/L	AO 200	8	8
	P	0.002	mg/L		0.006	0.005
	Pb	0.001	mg/L	MAC 0.010	<0.001	<0.001
	Zn	0.01	mg/L	AO 5	<0.01	<0.01
Nutrients	N-NH3	0.020	mg/L		0.112	0.088

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QC Summary

Analyte	Blank	QC % Rec	QC Limits
Run No 468786 **Analysis/Extraction Date** 2024-11-16 **Analyst** AnK **Method** C SM5220D			
COD	<5 mg/L	102	80-120
Run No 468790 **Analysis/Extraction Date** 2024-11-21 **Analyst** AnK **Method** SM 5210B			
BOD5	<1 mg/L	100	75-125
Run No 468808 **Analysis/Extraction Date** 2024-11-17 **Analyst** SKH **Method** EPA 350.1			
N-NH3	<0.020 mg/L	101	80-120
Run No 468812 **Analysis/Extraction Date** 2024-11-16 **Analyst** AsA **Method** SM 5310B			
DOC	<0.5 mg/L	101	80-120
Run No 468856 **Analysis/Extraction Date** 2024-11-18 **Analyst** AaN **Method** EPA 200.8			
Arsenic	<0.001 mg/L	99	80-120
Boron (total)	<0.01 mg/L	106	80-120
Barium	<0.01 mg/L	95	80-120
Cadmium	<0.0001 mg/L	103	80-120
Chromium Total	<0.001 mg/L	108	80-120

Guideline = ODWSOG *** = Guideline Exceedence**

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MRL = Method Reporting Limit, AO = Aesthetic Objective, OG = Operational Guideline, MAC = Maximum Acceptable Concentration, IMAC = Interim Maximum Acceptable Concentration, STD = Standard, PWQO = Provincial Water Quality Guideline, IPWQO = Interim Provincial Water Quality Objective, TDR = Typical Desired Range

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QC Summary

Analyte	Blank	QC % Rec	QC Limits
Copper	<0.001 mg/L	107	80-120
Iron	<0.03 mg/L	97	80-120
Manganese	<0.01 mg/L	105	80-120
Lead	<0.001 mg/L	105	80-120
Zinc	<0.01 mg/L	108	80-120
Run No 468876 **Analysis/Extraction Date** 2024-11-19 **Analyst** AaN **Method** EPA 200.8			
Mercury	<0.0001 mg/L	83	80-120
Run No 468881 **Analysis/Extraction Date** 2024-11-19 **Analyst** AaN **Method** EPA 200.8			
P	<0.002 mg/L	103	80-120
Run No 468925 **Analysis/Extraction Date** 2024-11-19 **Analyst** AsA **Method** SM2320,2510,4500H/F			
Alkalinity (CaCO3)	<5 mg/L	98	90-110
Conductivity	<5 uS/cm	99	90-110
pH		101	90-110
Run No 468951 **Analysis/Extraction Date** 2024-11-20 **Analyst** Z_S **Method** M SM3120B-3500C			
Calcium	<1 mg/L	99	90-110

Guideline = ODWSOG *** = Guideline Exceedence**

Results relate only to the parameters tested on the samples submitted.
Methods references and/or additional QA/QC information available on request.

MRL = Method Reporting Limit, AO = Aesthetic Objective, OG = Operational Guideline, MAC = Maximum Acceptable Concentration, IMAC = Interim Maximum Acceptable Concentration, STD = Standard, PWQO = Provincial Water Quality Guideline, IPWQO = Interim Provincial Water Quality Objective, TDR = Typical Desired Range

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QC Summary

Analyte	Blank	QC % Rec	QC Limits
Potassium	<1 mg/L	108	87-113
Magnesium	<1 mg/L	93	76-124
Sodium	<1 mg/L	107	82-118
Run No 468968 **Analysis/Extraction Date** 2024-11-19 **Analyst** IP **Method** SM5530D/EPA420.2			
Phenols	<0.001 mg/L	113	50-120
Run No 468981 **Analysis/Extraction Date** 2024-11-21 **Analyst** MiV **Method** C SM2540			
Total Suspended Solids	<2 mg/L	98	90-110
Run No 468999 **Analysis/Extraction Date** 2024-11-21 **Analyst** IP **Method** SM 4110			
Chloride	<1 mg/L	100	90-110
N-NO3	<0.10 mg/L	105	90-110
SO4	<1 mg/L	105	90-110
Run No 469038 **Analysis/Extraction Date** 2024-11-21 **Analyst** AET **Method** C Ion Balance			
Anion Sum			
Cation Sum			
Hardness as CaCO3			

Guideline = ODWSOG *** = Guideline Exceedence**

Results relate only to the parameters tested on the samples submitted.
Methods references and/or additional QA/QC information available on request.

MRL = Method Reporting Limit, AO = Aesthetic Objective, OG = Operational Guideline, MAC = Maximum Acceptable Concentration, IMAC = Interim Maximum Acceptable Concentration, STD = Standard, PWQO = Provincial Water Quality Guideline, IPWQO = Interim Provincial Water Quality Objective, TDR = Typical Desired Range

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Report Number: 3012589
Date Submitted: 2024-11-14
Date Reported: 2024-11-21
Project: 187001 ROB
COC #: 231711

QC Summary

Analyte	Blank	QC % Rec	QC Limits
Ion Balance			
TDS (COND - CALC)			
Run No 469041 **Analysis/Extraction Date** 2024-11-21 **Analyst** AET **Method** C Ion Balance			
% Difference			

Guideline = ODWSOG *** = Guideline Exceedence**

Results relate only to the parameters tested on the samples submitted.
Methods references and/or additional QA/QC information available on request.

MRL = Method Reporting Limit, AO = Aesthetic Objective, OG = Operational Guideline, MAC = Maximum Acceptable Concentration, IMAC = Interim Maximum Acceptable Concentration, STD = Standard, PWQO = Provincial Water Quality Guideline, IPWQO = Interim Provincial Water Quality Objective, TDR = Typical Desired Range

APPENDIX X

Monitoring and Screening Checklist

Appendix D-Monitoring and Screening Checklist
General Information and Instructions

General Information: The checklist is to be completed, and submitted with the Monitoring Report.
Instructions: A complete checklist consists of:
(a) a completed and signed checklist, including any additional pages of information which can be attached as needed to provide further details where indicated.
(b) completed contact information for the Competent Environmental Practitioner (CEP)
(c) self-declaration that CEP(s) meet(s) the qualifications as set out below and in Section 1.2 of the Technical Guidance Document.

Definition of Groundwater CEP:
For groundwater, the CEP must have expertise in hydrogeology and meet one of the following:
(a) the person holds a licence, limited licence or temporary licence under the *Professional Engineers Act*; or
(b) the person holds a certificate of registration under the *Professional Geoscientists Act, 2000* and is a practicing member, temporary, member or limited member of the Association of Professional Geoscientists of Ontario. O. Reg. 66/08, s. 2..
Definition of Surface water CEP:
A CEP for surface water assessments is a scientist, professional engineer or professional geoscientist as described in (a) and (b) above with demonstrated experience and post-secondary education, either a diploma or degree, in hydrology, aquatic ecology, limnology, aquatic biology, physical geography with specialization in surface water, and/or water resource management.

The type of scientific work that a CEP performs must be consistent with that person's education and experience. If an individual has appropriate training and credentials in both groundwater and surface water and is responsible for both areas of expertise, the CEP may then complete and validate both sections of the checklist.

Monitoring Report and Site Information	
Waste Disposal Site Name	Roblin Waste Disposal Site and Waste Transfer Station
Location (e.g. street address, lot, concession)	Lot 19, Concession 8, in the former Township of Richmond 232 Roblin Road, Roblin, ON K0K 2W0
GPS Location (taken within the property boundary at front gate/ front entry)	Universal Transverse Mercator (UTM) coordinates: 338541 Easting and 4914799 Northing, Zone 18T
Municipality	Town of Greater Napanee
Client and/or Site Owner	Town of Greater Napanee
Monitoring Period (Year)	2025
This Monitoring Report is being submitted under the following:	
Certificate of Approval No.:	A371202
Director's Order No.:	N/A
Provincial Officer's Order No.:	N/A
Other:	N/A

Report Submission Frequency	◉ **Annual** ○ **Other**	N/A
The site is:	○ **Active** ○ **Inactive** ◉ **Closed**	
If closed, specify C of A, control or authorizing document closure date:		Unknown
Has the nature of the operations at the site changed during this monitoring period?	○ **Yes** ◉ **No**	
If yes, provide details:	N/A	
Have any measurements been taken since the last reporting period that indicate landfill gas volumes have exceeded the MOE limits for subsurface or adjacent buildings? (i. e. exceeded the LEL for methane)	○ Yes ◉ No	

Groundwater WDS Verification:

Based on all available information about the site and site knowledge, it is my opinion that:

Sampling and Monitoring Program Status:

1) The monitoring program continues to effectively characterize site conditions and any groundwater discharges from the site. All monitoring wells are confirmed to be in good condition and are secure:	(●) **Yes** ( ) **No**	N/A
2) All groundwater, leachate and WDS gas sampling and monitoring for the monitoring period being reported on was successfully completed as required by Certificate(s) of Approval or other relevant authorizing/control document(s):	( ) **Yes** (●) **No** ( ) **Not Applicable**	If no, list exceptions below or attach information.

Groundwater Sampling Location	Description/Explanation for change (change in name or location, additions, deletions)	Date
MW-1	Insufficient groundwater	14-Oct-2025
Type Here	Type Here	Select Date
Type Here	Type Here	Select Date
Type Here	Type Here	Select Date

3) a) Some or all groundwater, leachate and WDS gas sampling and monitoring requirements have been established or defined outside of a ministry C of A, authorizing, or control document.	○ **Yes** ◉ **No** ○ **Not Applicable**	
b) If yes, the sampling and monitoring identified under 3(a) for the monitoring period being reported on was successfully completed in accordance with established protocols, frequencies, locations, and parameters developed as per the Technical Guidance Document:	○ **Yes** ○ **No** ◉ **Not Applicable**	If no, list exceptions below or attach additional information.

Groundwater Sampling Location	**Description/Explanation for change (change in name or location, additions, deletions)**	**Date**
Type Here	Type Here	Select Date
Type Here	Type Here	Select Date
Type Here	Type Here	Select Date
Type Here	Type Here	Select Date

4) All field work for groundwater investigations was done in accordance with standard operating procedures as established/outlined per the Technical Guidance Document (including internal/external QA/QC requirements) (Note: A SOP can be from a published source, developed internally by the site owner's consultant, or adopted by the consultant from another organization):	◉ **Yes** ○ **No**	If no, specify (Type Here):

Sampling and Monitoring Program Results/WDS Conditions and Assessment:

5) The site has an adequate buffer, Contaminant Attenuation Zone (CAZ) and/or contingency plan in place. Design and operational measures, including the size and configuration of any CAZ, are adequate to prevent potential human health impacts and impairment of the environment.	(●) **Yes** ( ) **No**	If no, the potential design and operational concerns/exceptions are as follows (Type Here):	
6) The site meets compliance and assessment criteria.	(●) **Yes** ( ) **No**		
7) The site continues to perform as anticipated. There have been no unusual trends/ changes in measured leachate and groundwater levels or concentrations.	(●) **Yes** ( ) **No**	No significant changes	
1) Is one or more of the following risk reduction practices in place at the site: ***(a)*** **There is minimal reliance on natural attenuation of leachate due to the presence of an effective waste liner and active leachate collection/treatment; or** ***(b)*** **There is a predictive monitoring program in-place (modeled indicator concentrations projected over time for key locations); or** ***(c)*** **The site meets the following two conditions (typically achieved after 15 years or longer of site operation):** ***i.*** **The site has developed stable leachate mound(s) and stable leachate plume geometry/concentrations; and** ***ii.*** **Seasonal and annual water levels and water quality fluctuations are well understood.**	(●) **Yes** ( ) **No**	**Note which practice(s):**	☐ **(a)** ☒ **(b)** ☐ **(c)**
9) Have trigger values for contingency plans or site remedial actions been exceeded (where they exist):	(●) **Yes** ( ) **No** ( ) **Not Applicable**	Hardness at MW-1 during the spring event (788 mg/L over the B-7 Guideline of 190.4-200.4) Sulphate at MW-1 during the spring and fall events (450 mg/L (spring) and 500 mg/L (fall) over the Guideline of 255.08 mg/L)	

Groundwater CEP Declaration:

I am a licensed professional Engineer or a registered professional geoscientist in Ontario with expertise in hydrogeology, as defined in Appendix D under Instructions. Where additional expertise was needed to evaluate the site monitoring data, I have relied on individuals who I believe to be experts in the relevant discipline, who have co-signed the compliance monitoring report or monitoring program status report, and who have provided evidence to me of their credentials.

I have examined the applicable Certificate of Approval and any other environmental authorizing or control documents that apply to the site. I have read and followed the Monitoring and Reporting for Waste Disposal Sites Groundwater and Surface Water Technical Guidance Document (MOE, 2010, or as amended), and associated monitoring and sampling guidance documents, as amended from time to time. I have reviewed all of the data collected for the above-referenced site for the monitoring period(s) identified in this checklist. Except as otherwise agreed with the ministry for certain parameters, all of the analytical work has been undertaken by a laboratory which is accredited for the parameters analysed to *ISO/IEC 17025:2005 (E)- General requirements for the competence of testing and calibration laboratories,* or as amended from time to time by the ministry.

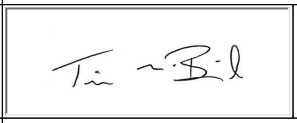
If any exceptions or potential concerns have been noted in the questions in the checklist attached to this declaration, it is my opinion that these exceptions and concerns are minor in nature and will be rectified for the next monitoring/reporting period. Where this is not the case, the circumstances concerning the exception or potential concern and my client's proposed action have been documented in writing to the Ministry of the Environment District Manager in a letter from me dated:

15-Apr-2026

Recommendations:

Based on my technical review of the monitoring results for the waste disposal site:

◉ **No changes to the monitoring program are recommended** ○ **The following change(s) to the monitoring program is/are recommended:**	
◉ **No Changes to site design and operation are recommended** ○ **The following change(s) to the site design and operation is/ are recommended:**	Type Here

Name:	Tim McBride, P.Geo.		
Seal:	Add Image		
Signature:		**Date:**	15-Apr-2026
CEP Contact Information:	Tim McBride		
Company:	Pinchin Ltd.		
Address:	662 Falconbridge Road, Unit 3 Sudbury, Ontario P3A 4S4		
Telephone No.:	705.521.0560	Fax No. :	Type Here
E-mail Address:	tmcbride@pinchin.com		
Co-signers for additional expertise provided:			
Signature:		**Date:**	Select Date
Signature:		**Date:**	Select Date

Surface Water WDS Verification:

Provide the name of surface water body/bodies potentially receiving the WDS effluent and the approximate distance to the waterbody (including the nearest surface water body/bodies to the site):

Name (s)	Salmon River
Distance(s)	75 m

Based on all available information and site knowledge, it is my opinion that:

Sampling and Monitoring Program Status:

1) The current surface water monitoring program continues to effectively characterize the surface water conditions, and includes data that relates upstream/background and downstream receiving water conditions:	(●) Yes ( ) No	
2) All surface water sampling for the monitoring period being reported was successfully completed in accordance with the Certificate(s) of Approval or relevant authorizing/control document(s) (if applicable):	(●) Yes ( ) No ( ) **Not applicable (No C of A, authorizing / control document applies)**	If no, specify below or provide details in an attachment.

Surface Water Sampling Location	Description/Explanation for change (change in name or location, additions, deletions)	Date
Type Here	Type Here	Select Date
Type Here	Type Here	Select Date
Type Here	Type Here	Select Date
Type Here	Type Here	Select Date

3) a) Some or all surface water sampling and monitoring program requirements for the monitoring period have been established outside of a ministry C of A or authorizing/control document.	○ **Yes** ○ **No** ◉ **Not Applicable**	
b) If yes, all surface water sampling and monitoring identified under 3 (a) was successfully completed in accordance with the established program from the site, including sampling protocols, frequencies, locations and parameters) as developed per the Technical Guidance Document:	○ **Yes** ○ **No** ◉ **Not Applicable**	If no, specify below or provide details in an attachment.

Surface Water Sampling Location	**Description/Explanation for change (change in name or location, additions, deletions)**	**Date**
Type Here	Type Here	Select Date
Type Here	Type Here	Select Date
Type Here	Type Here	Select Date
Type Here	Type Here	Select Date

4) All field work for surface water investigations was done in accordance with standard operating procedures, including internal/external QA/QC requirements, as established/ outlined as per the Technical Guidance Document, MOE 2010, or as amended. (Note: A SOP can be from a published source, developed internally by the site owner's consultant, or adopted by the consultant from another organization):	◉ **Yes** ○ **No**	If no, specify (Type Here):

Sampling and Monitoring Program Results/WDS Conditions and Assessment:

5) The receiving water body meets surface water-related compliance criteria and assessment criteria: i.e., there are no exceedances of criteria, based on MOE legislation, regulations, Water Management Policies, Guidelines and Provincial Water Quality Objectives and other assessment criteria (e.g., CWQGs, APVs), as noted in Table A or Table B in the Technical Guidance Document (Section 4.6):	○ **Yes** ◉ **No**

If no, list parameters that exceed criteria outlined above and the amount/percentage of the exceedance as per the table below or provide details in an attachment:

Parameter	Compliance or Assessment Criteria or Background	Amount by which Compliance or Assessment Criteria or Background Exceeded
e.g. Nickel	e.g. C of A limit, PWQO, background	e.g. X% above PWQO
Conductivity Sulphate Alkalinity	Background: Conductivity = 203 mg/L Sulphate = 6 mg/L Alkalinity = 111.75 mg/L	Conductivity: SW1 - 204 mg/L (spring), 266 mg/L (fall); SW2 - 267 mg/L (fall); SW3 - 233 mg/L (fall) Sulphate: SW1 - 7 mg/L (fall) Alkalinity: SW1/SW2 - 125 mg/L (fall); SW3 - 118 mg/L (fall)
Chloride Sodium Calcium Potassium	Background: Chloride = 9.5 mg/L Sodium = 6 mg/L Calcium = 36 mg/L Potassium = 1.2 mg/L	Chloride: SW1 - 13 mg/L (fall); SW2/SW3 - 12 mg/L (fall) Sodium: SW1 - 7.97 mg/L (fall); SW2 - 6.78 mg/L (fall); SW3 - 6.52 mg/L (fall) Calcium: SW1 - 41.30 mg/L (fall); SW2- 40.80 mg/L (fall); SW3 - 40.30 mg/L (fall) Potassium: SW1 - 1.33 mg/L (fall); SW2 - 1.25 mg/L (fall); SW3 - 1.23 mg/L (fall)
Magnesium Manganese Boron Barium Arsenic	Background: Magnesium = 6 mg/L Manganese: 0.06 mg/L Boron: 0.010 mg/L Barium: 0.06975 mg/L Arsenic: 0.000675 mg/L	Magnesium: SW1 - 8.56 mg/L (fall); SW2/SW3 - 8.4 mg/L (fall); Manganese: SW1 - 0.085 mg/L (fall); SW2 - 0.099 mg/L (fall); SW3 - 0.0672 mg/L (fall) Boron: SW1/SW2/SW3 - 0.02 mg/L (fall) Barium: SW1/SW2/SW3 - 0.07 mg/L (fall) Arsenic: SW1 - 0.0008 mg/L (fall)
Hardness DOC	Hardness: 115 mg/L (background); 80-100 mg/L ODWQS DOC: 0.5 mg/L (ODWQS)	Hardness: SW1 - 107 mg/L and 138 mg/L (spring and fall) SW2 - 100 mg/L and 136 mg/L (spring and fall) SW3 - 103 mg/L and 135 mg/L (spring and fall) DOC: SW1 - 6 mg/L (fall); SW2 - 6 and 6 mg/L (spring and fall); SW3 - 6 mg/L (fall)
6) In my opinion, any exceedances listed in Question 5 are the result of non-WDS related influences (such as background, road salting, sampling site conditions)?	◉ **Yes** ○ **No**	

7) All monitoring program surface water parameter concentrations fall within a stable or decreasing trend. The site is not characterized by historical ranges of concentrations above assessment and compliance criteria.	(●) **Yes** ( ) **No**	
8) For the monitoring program parameters, does the water quality in the groundwater zones adjacent to surface water receivers exceed assessment or compliance criteria (e.g. , PWQOs, CWQGs, or toxicity values for aquatic biota (APVs)):	( ) Yes (●) No ( ) Not Known ( ) Not Applicable	
9) Have trigger values for contingency plans or site remedial actions been exceeded (where they exist):	(●) **Yes** ( ) **No** ( ) **Not Applicable**	No action,

Surface Water CEP Declaration:

I, the undersigned hereby declare that I am a Competent Environmental Practitioner as defined in Appendix D under Instructions, holding the necessary level of experience and education to design surface water monitoring and sampling programs, conduct appropriate surface water investigations and interpret the related data as it pertains to the site for this monitoring period.

I have examined the applicable Certificate of Approval and any other environmental authorizing or control documents that apply to the site. I have read and followed the Monitoring and Reporting for Waste Disposal Sites Groundwater and Surface Water Technical Guidance Document (MOE, 2010, or as amended) and associated monitoring and sampling guidance documents, as amended from time to time. I have reviewed all of the data collected for the above-referenced site for the monitoring period(s) identified in this checklist. Except as otherwise agreed with the ministry for certain parameters, all of the analytical work has been undertaken by a laboratory which is accredited for the parameters analysed to *ISO/IEC 17025:2005 (E)- General requirements for the competence of testing and calibration laboratories,* or as amended from time to time by the ministry.

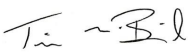
If any exceptions or potential concerns have been noted in the questions in the checklist attached to this declaration, it is my opinion that these exceptions and concerns are minor in nature or will be rectified for future monitoring events. Where this is not the case, the circumstances concerning the exception or potential concern and my client's proposed action have been documented in writing to the Ministry of the Environment District Manager in a letter from me dated:

15-Apr-2026

Recommendations:

Based on my technical review of the monitoring results for the waste disposal site:

◉ **No Changes to the monitoring program are recommended** ○ **The following change(s) to the monitoring program is/are recommended:**	
◉ **No changes to the site design and operation are recommended** ○ **The following change(s) to the site design and operation is/are recommended:**	Type Here

CEP Signature	
Relevant Discipline	Hydrogeologist (P.Geo)
Date:	Select Date
CEP Contact Information:	Tim McBride
Company:	Pinchin Ltd.
Address:	662 Falconbridge Road, Unit 3 Sudbury, Ontario P3A 4S4
Telephone No.:	705.521.0560
Fax No. :	Type Here
E-mail Address:	tmcbride@pinchin.com

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REV FINAL

2025 Water Quality Monitoring Report

South Fredericksburgh Waste Disposal Site
Napanee, Ontario

Prepared for:

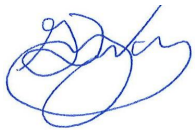
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May 1, 2026

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1.0 INTRODUCTION

Pinchin Ltd. (Pinchin) was retained by the Town of Greater Napanee (the Town) to complete the 2025 water quality monitoring and reporting for the South Fredericksburgh Waste Disposal Site (the Site) located in Napanee, Ontario which is owned and operated by the Town. The Site location is presented on Figure 1 (all figures are provided in the attached Appendix I).

The purpose of completing the monitoring program was to assess the hydraulic media for contaminants of concern during the spring and fall of 2025 as a compliance requirement under Environmental Compliance Approval (ECA) Number A371001 for the Site prepared by the Ministry of the Environment, Conservation and Parks (MECP), originally issued December 21, 1971, and amended on January 26, 2015, for the operation of a 4.71 hectare (ha) landfill within a 8.9 ha property. A notice was issued for the Amended ECA on May 14, 2020 which permitted the construction of a cellular tower on-Site. Copies of the Amended ECA and Notice No. 1 are provided in the attached Appendix II.

1.1 Location

The Site is located at 651 Road 1 approximately 1.1 kilometres (km) north of the intersection of Town Road 1 and County Road 8 within the limits of the former Township of South Fredricksburgh (now part of Greater Napanee), Ontario. The location of the Site is presented on Figure 1 (all Figures are provided in the attached Appendix I).

1.2 Ownership and Key Personnel

The Site is owned and operated by the Town of Greater Napanee. The project was completed for the following representative on behalf of the Town:

Sarah McCallum
Town of Greater Napanee
99-A Advance Avenue
Napanee, Ontario K7R 3Y5

The Competent Environmental Practitioner (CEP) for the Site groundwater and surface water monitoring program was Mr. Tim McBride of Pinchin Ltd. Mr. McBride's contact information is provided below:

Tim McBride, B.Sc., P.Geo., QP_{ESA}
Pinchin Ltd.
662 Falconbridge Road, Unit 3
Sudbury, Ontario P3A 4S4

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1.3 Description and Development of the Site

The Certificate of Approval (C of A) No. A371101 for the Site was originally issued by the Ministry on December 21, 1971. The approval was subsequently re-issued on March 25, 1980, to permit the continued operation of a 0.4 ha landfill. On September 26, 1983, the approved landfill footprint was expanded by an additional 2.02 ha resulting in a total approved landfill area of approximately 4.71 ha.

The Site currently operates under ECA No. A371001 which reflects the original 1983 approval and was subsequently amended on January 26, 2015, to incorporate an updated Design and Operations Plan. An additional amendment issued in 2020 permitted the construction of a communications tower on the Site while maintaining approval for continued waste disposal operations.

Current operations include both waste disposal and waste transfer activities with the Site accepting solid, non-hazardous waste generated within the Town, including domestic refuse, recyclables, scrap metal, cardboard and electronic waste. A Site plan is shown in Figure 2.

1.4 Reference Documents

Pinchin was provided with the following historical reports for the Site, and they are referenced within this document:

- Report entitled "Town of Greater Napanee, South Fredericksburgh Waste Disposal Site Design and Operation Plan, Certificate of Approval A371001", prepared by AECOM and dated November 2013 (the AECOM D&O Plan);
- Report entitled "*South Fredericksburgh Waste Disposal Site 2024 Annual Monitoring Report*", prepared by Egis Canada Ltd. (Egis, formerly known as McIntosh Perry Consulting Engineers) for the Client and dated April 29, 2025 (the 2024 Egis AMR); and,
- Report entitled *"Long-Term Waste Fill Plan – South Fredericksburgh Waste Disposal Site",* prepared by Pinchin Ltd. for the Town of Greater Napanee and dated January 23, 2026 (the 2025 Fill Plan).

1.5 Monitoring and Reporting Program Objectives and Requirements

The reporting requirements must be completed in accordance with Section 11 of the ECA No. A371001 which requires the submission of a monitoring report by April 30. The principal objectives of the 2025 monitoring program are as follows:

- To evaluate groundwater and surface water at the Site in relation to the Ontario Drinking Quality Water Standards (ODWQS) and to the trigger concentrations and assess the potential for impacts to nearby water resources as a result of the active landfill and associated waste deposition operations;

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- To assess the adequacy of the existing monitoring program with respect to evaluating the potential for impacts at nearby water resources;
- To determine whether remedial actions are required in consideration of the findings the monitoring program; and
- To document and report the findings of the monitoring program on an annual basis to the Municipality and provide a report to the MECP on behalf of the Town.

The monitoring and reporting completed by Pinchin has been generally developed based on the MECP document entitled "*Monitoring and Reporting for Waste Disposal Sites Groundwater and Surface Water Technical Guidance Document*" dated November 2010, as well as the Town 2024 Request for Proposal (RFP) Document entitled "*Consulting Engineering Services to Support the Town of Greater Napanee's Municipal Waste Disposal Sites*", (RFP-ES-2024-01 and addendum No. 1 and 2).

The ECA for the Site provides detailed monitoring and reporting program objectives and requirements. A copy of the ECA is provided in Appendix II.

2.0 PHYSICAL SETTING

2.1 Site Topography

The topography of the Cataraqui Region varies from rocky highlands of the Canadian Shield in the north to areas of flat, low relief along the shores of the Bay of Quinte in the south. Locally, topography in the vicinity of the Site is relatively flat with the exception of the on-Site waste mound located in the centre of the previously identified waste fill area which slopes down on all sides. Elevations for the area reportedly range from 75 to 102 metres above sea level (masl) along the shore of Quinte Bay. The Site is located in the Napanee Limestone Plain which is characterized by very thin soil and some alvars over limestone bedrock. The remainder of the Site is mostly occupied by a low-lying wetland. Figure 3 shows the topography and drainage for the Site and surrounding area.

2.2 Geology

The Site stratigraphy generally consists of a shallow overburden layer underlain by Paleozoic bedrock across most of the Site with organic deposits present in the southern portion. Regionally, the Site is underlain by Trenton–Black River limestone with interbedded shale, arkose and sandstone associated with the Ottawa and Simcoe Groups of the Shadow Lake Formation (OGS, 2014). Previous rock coring completed by Trow Associates (Trow) identified the bedrock as part of the Verulam Formation, consisting predominantly of shaly limestone (AECOM, 2015), which is known to exhibit saline characteristics. Visual inspection of an on-Site rock core generally corroborated this interpretation; however, detailed borehole and coring logs were not available for review at the time of report preparation. A borehole log detailing

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soil and groundwater conditions for the MW11 monitoring well nest replacement is provided in Appendix III; no other borehole logs are available for the Site.

2.3 Surface Water

Surface water flow in the southwestern Cataraqui Region generally follows a north-to-south gradient consistent with regional topography. Based on Site conditions, including the presence of thin overburden over fractured bedrock, the Site is interpreted to function predominantly as a groundwater recharge area with limited sustained surface water accumulation.

Surface drainage at the Site is primarily controlled by agricultural ditches which convey runoff in a northwesterly direction from the Waste Disposal Site (WDS) toward Hay Bay. These drainage pathways ultimately discharge to the Bay of Quinte and subsequently Lake Ontario. No permanent watercourses are present on-Site or immediately upgradient or downgradient of the WDS.

An abandoned quarry and a small pond located approximately 155 m to the north and northwest of the WDS act as localized collection points for surface runoff originating from the Site and adjacent agricultural lands. These features provide temporary storage and attenuation of runoff; particularly during periods of increased precipitation or snowmelt.

2.4 Hydrogeology

The Site is located within the Quinte Watershed which extends southward toward the Prince Edward Peninsula. The hydrogeological regime at the Site is governed by a combination of local stratigraphy and topographic gradients. Subsurface conditions consist of a relatively thin overburden layer overlying weathered and fractured bedrock which together control groundwater occurrence and movement.

Groundwater flow occurs within both the overburden and upper bedrock units with flow directions generally aligned with regional hydraulic gradients and local topography. Hydraulic conductivity is expected to vary spatially across the Site with more permeable zones (e.g., granular overburden and fractured bedrock) facilitating groundwater movement and less permeable materials restricting flow. The fractured bedrock is therefore, considered to play a key role in controlling groundwater flow pathways and influencing the potential migration of dissolved constituents.

To support the assessment of Site hydrogeology and groundwater quality, a network of groundwater monitoring wells has been installed across the Site. Static groundwater elevations are routinely measured at these locations and are used to evaluate groundwater flow conditions and temporal trends. Groundwater at the Site is encountered at depths ranging from just below surface to 12.5 metres below ground surface (mbgs) with observed seasonal variability. Shallow monitoring wells generally exhibit groundwater depths of less than approximately 2.0 mbgs; whereas groundwater levels in the deeper wells

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range from approximately 3.0 to 12.5 mbgs reflecting vertical variability in hydraulic conditions across the Site. The available historical and current groundwater elevations measured are presented in Appendix IV.

3.0 SITE OPERATIONS AND DEVELOPMENT

Operations at the Site consist primarily of waste disposal and waste diversion activities, including the transfer and temporary storage of recyclable materials, scrap metal, electronic waste and leaf and brush. The Site functions as both a small-scale landfill and a transfer station with designated areas for active waste placement, waste diversion and stockpiling of cover and organic materials.

As reported by the Town, operation of the Site during the 2025 reporting period was completed in general conformance with all conditions of ECA and with completion of inspection and reporting requirements. At this time, no recommendations to modify to the Site operations are suggested. General housekeeping practices at the Site are expected to be conducted to meet requirements indicated on the ECA to minimize nuisance effects by considering factors, including the vermin, vectors, dust, litter, odour, noise and traffic.

3.1 Public Complaints

No landfill complaints were received regarding the Site during 2025.

3.2 Operating Hours

The Site was open to the public during seasonal operating periods consisting of summer hours from 4:00 pm to 8:00 pm on Wednesdays and 8:00 am to 3:00 pm on Saturdays (July and August) and winter hours from 8:00 am to 3:00 pm on Saturdays (September through June).

3.3 Accepted Waste Types

The Site accepts only solid, non-hazardous municipal waste in accordance with the Waste Environmental Compliance Approval (ECA) and as defined under Ontario Regulation 347 of the Environmental Protection Act. In accordance with the ECA, only solid, non-hazardous waste was received and managed at the Site during the 2024 reporting period.

Permitted waste materials include, but are not limited to domestic refuse, clean wood and brush, blue box materials, plastics (e.g., PET), mattresses, scrap metal, glass and electronic waste. The Site does not accept liquid industrial waste or hazardous waste. In addition, the Waste Disposal Site (WDS) does not currently accept tires, propane tanks, reuse items, or organic waste streams. All waste is required to originate from within the approved service area.

The South Fredericksburgh WDS is intended for use by residents of the Town of Greater Napanee. Waste is primarily managed through curbside garbage and recycling collection programs with the WDS

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functioning as a supplementary drop-off location. Curbside collection limits are established at three (3) bags per household and five (5) bags per commercial property per week with all bags requiring appropriate tagging.

The Site is also operated as a transfer station with designated collection areas for various waste streams. On-Site bins are provided for the segregation and temporary storage of materials, including household waste, scrap metal, electronic waste, cardboard and mixed recyclables. Leaf and brush materials are deposited in a designated area along the west-southern portion of the Site. Bulky waste is also accepted and disposed of directly within the landfill area. Recycling activities at the Site are managed in accordance with current municipal waste diversion practices and applicable provincial requirements. The Site provides designated areas for the collection and temporary storage of recyclable materials, including cardboard and co-mingled recyclables consistent with its function as a municipal waste disposal and diversion facility.

With respect to Blue Box materials, responsibility for residential recycling programs has recently been transferred to producers under Ontario Regulation 391/21. As a result, municipalities are no longer responsible for the collection and processing of these materials unless registered with the Resource Productivity and Recovery Authority and partnered with a Producer Responsibility Organization such as Circular Materials.

The amount of materials brought to the Site, as provided by Napanee, is noted below:

Waste Type	Quantity
E-waste	Seven (7) 40-yard roll-off bins
Waste	45.98 tonnes
Scrap Metal	28.81 tonnes

3.4 Waste Footprint and Final Cover

Waste placement activities are focused within the active fill area located near the centre of the approved landfill footprint consistent with the sequencing outlined in the recent 2025 Fill Plan. Waste is periodically spread, compacted and covered with soil to minimize leachate generation and optimize airspace utilization. Segregated areas are maintained on-Site for recyclable materials and waste diversion activities while cover material stockpiles are managed to support ongoing operations. Based on recent survey data and fill plan evaluations, the Site continues to have substantial remaining capacity with long-term projections indicating an operational lifespan on the order of several decades assuming current fill rates are maintained. Routine Site inspections and housekeeping measures are completed to ensure compliance with ECA requirements and to minimize potential nuisance effects. Overall, Site operations

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remain consistent with approved design and operational practices. Final waste contours are shown in figure 4.

3.5 Site Capacity

The Site is approved under ECA No. A371001 for a maximum volumetric waste capacity of approximately 285,500 m³ within an approved landfill footprint of approximately 4.54 hectares (ha). Based on recent survey data and updated capacity assessments, the remaining available airspace at the Site is estimated to be approximately 226,638 m^3 as of January 2025.

Based on recent survey data and analysis presented in the Long-Term Waste Fill Plan, the average annual fill rate at the Site between 2020 and 2024 is estimated to be approximately 4,381 m^3 per year (m^3/year) with historical fill rates ranging from approximately 4,000 to 7,600 m^3/year per year depending on the period evaluated.

The remaining Site capacity and projected operational lifespan have been evaluated in the document entitled "*Long-Term Waste Fill Plan – South Fredericksburgh Waste Disposal Site"*, prepared by Pinchin Ltd. in 2026 (the 2025 Fill Plan). Based on the most recent five-year average annual fill rate of approximately 4,381 m^3/year (2020 to 2024), the remaining lifespan of the Site is estimated to be on the order of 50 years subject to confirmation through ongoing annual topographic surveys and operational conditions.

The 2025 Fill Plan outlines a long-term waste management strategy intended to optimize the use of available landfill capacity and extend the Site lifespan. This includes a sequenced approach to waste placement through the development of fifteen (15) individual landfill cells which are to be progressively filled to achieve the final approved Site contours. This cell-based approach is designed to facilitate controlled waste placement, improve compaction efficiency, support progressive closure and minimize potential impacts to groundwater and surface water.

The 2025 Fill Plan also establishes key design parameters, including target base elevations, a maximum waste elevation of approximately 111 metres above sea level (masl) and prescribed side slope gradients of 2H:1V for interim slopes and 4H:1V for final slopes; consistent with Ministry guidelines and the approved AECOM D&O Plan. Adherence to the proposed fill sequencing and grading requirements is critical to maximizing landfill airspace, maintaining Site stability and ensuring compliance with the approved design objectives.

Overall, implementation of the long-term fill plan is expected to support efficient Site operations, extend the usable lifespan of the landfill and provide a structured framework for ongoing waste management activities.

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4.0 ENVIRONMENTAL MONITORING PROGRAM

The environmental monitoring program for the Site evaluates groundwater and surface water quality conditions in the vicinity of the Site and to assess potential impacts associated with ongoing and historical waste disposal activities. Monitoring at the Site has been conducted since 2005 and has evolved in accordance with the requirements of ECA No. A371001 and applicable MECP guidance.

The primary objectives of the monitoring program are to:

- Assess groundwater quality within the overburden and bedrock systems and evaluate potential migration of landfill-derived constituents;
- Evaluate surface water quality within Site drainage features and local receiving environments in relation to potential Site influences;
- Identify temporal trends and distinguish between natural background conditions and potential Site-related impacts; and
- Support the implementation of the Site-specific trigger mechanism and contingency framework to ensure that any potential environmental impacts are identified and addressed in a timely manner.

The monitoring should also follow approved methods and protocols for sampling, analysis and recording as specified in the MECP document entitled “Monitoring and Reporting for Waste Disposal Sites Groundwater and Surface Water Technical Guidance Document”, dated November 2010.

4.1 Groundwater Monitoring

4.1.1 Groundwater Locations

The groundwater monitoring program for the Site comprises a network of shallow and deep monitoring wells installed between 2006 and 2013 supplemented by a downgradient private well (R1) used as a sentry location. The current groundwater monitoring network consists of eighteen (18) groundwater monitoring well locations as illustrated on Figure 5 and summarized in the following table.

Well ID	Location	Hydrogeological Position
MW1S	North end of waste footprint, near toe of fill area	Downgradient (near field)
MW1D		Downgradient (near field)
MW2S	Southwest end of waste footprint	Downgradient (near field)
MW2D		Downgradient (near field)
MW4S	Near eastern property boundary	Upgradient
MW4D		Upgradient

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Well ID	Location	Hydrogeological Position
MW5S	South of the waste cell, adjacent southern property boundary	Cross-gradient (background)
MW5D		Cross-gradient (background)
MW6S	Northeast of waste footprint	Downgradient (near field)
MW6D		Downgradient (near field)
MW7S	Near northeast property boundary; presumed lost	Cross-gradient
MW8	South of the waste footprint	Cross-gradient
MW9S	North end of waste footprint	Downgradient (far field)
MW9D		Downgradient (far field)
MW10S	Northwest end of waste footprint	Downgradient (far field)
MW10D		Downgradient (far field)
MW11S	Within limits of the waste cell footprint	Downgradient (near field)
MW11D		Downgradient (near field)
R1	Private well located at 701 Town Road 1, Napanee, Ontario	Downgradient

The monitoring network includes upgradient (e.g., monitoring well nest MW4), on-Site (monitoring well nests MW1, MW2, MW5, MW6, MW7 and MW8) and downgradient locations (MW9, MW10 and R1). Monitoring well nests MW5 S&D, MW6 S&D, MW7S and MW8 were initially installed by Trow in September 2010 for the purpose of a hydrogeological assessment for a biogas facility proposed for the Site. The Town later sought permission to incorporate these four wells as a part of landfill monitoring program. Since 2012, MW7S has not been successfully located. Monitoring locations MW9 and MW10, which were initially installed in September 2013 and reinstated in October 2018, are downgradient, north of the Site and close to the water-filled former quarry. Concrete was reportedly also added to the base of the protective steel casings at these locations in 2018.

Monitoring wells MW1, MW2 and MW3 were initially installed in 2006 inside the property limits. Each monitoring well comprises a shallow and deep monitoring piezometers installed at each location. The well depths are recorded as 7.38 m, 6.96 m and 9.69 m for the shallow monitors and 11.64 m, 11.05 m and 13.00 m for the deep monitors at MW-1, 2, and 3, respectively.

As a result of damage sustained during site operations in the summer of 2022, monitoring wells MW3S and MW3D were decommissioned and replaced with MW11S and MW11D on November 23, 2023; installed in close proximity to maintain continuity in monitoring coverage.

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Historically, monitoring well nests MW4, MW5, MW7S and MW8 were considered as background upgradient sentry monitoring locations that are generally situated outside of the Site. MW7, as previously mentioned located upgradient of the landfill, has either been lost or destroyed, and therefore, been excluded from the monitoring program due to this matter. Both of the deep and shallow wells at monitoring well nest MW4 are frequently observed as having an insufficient water volume for sampling. MW5S has generally been the preferred upgradient location for monitoring background conditions.

Groundwater monitoring wells MW1S&D, MW2 S&D, MW11S&D (formerly MW3 S&D) and MW6 S&D are either within the waste mound footprint (MW11S&D) or on the downgradient side adjacent the waste mound. Monitoring locations MW9 S&D and MW10 S&D are downgradient sentry locations utilized to determine potential for off-site impact.

A photographic log of the groundwater monitoring locations is provided in Appendix III.

4.1.2 Groundwater Parameters and Sampling Frequency

Groundwater monitoring occurs twice annually in May and October (spring and fall). Static water levels are to be measured concurrently with each sampling event to document hydraulic gradients and assess groundwater-surface water interaction. A summary of the current groundwater monitoring program for the Site is provided in the table below.

Sample Locations	Frequency	Parameters
MW1S, MW1D, MW2S, MW2D, MW4S, MW4D, MW5S, MW5D, MW6S, MW6D, MW8, MW9S, MW9D, MW10S, MW10D, MW11S, MW11D, R1	Twice per year (spring and fall)	General Chemistry: ammonia, TKN, nitrate, nitrite, biological oxygen demand (BOD), COD, conductivity, pH, TDS, dissolved organic carbon (DOC), total phosphorous, hardness, TSS, major ions (alkalinity, chloride, sodium, calcium, magnesium, potassium and sulphate), anion sum, cation sum, ion ratio, hardness Metals: arsenic, barium, boron, cadmium, chromium, copper, iron, lead, manganese, mercury, zinc

Groundwater was sampled by Pinchin during the spring and fall on the following dates in 2025:

- May 9, 2025; and
- October 21, 2025.

Typical sampling dates attempt to capture periods with an elevated groundwater table found to occur during the spring freshet and during recurring or heavy rainstorm events typically found to occur late in the fall. Winter sampling with temperatures below freezing or early spring with frost impacting shallow

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groundwater deposits is also not preferable as sampling locations are frozen which does not facilitate the ability to collect samples.

4.2 Surface Water Monitoring

A summary of the current surface water monitoring program for the Site is provided in the table below.

Sample Locations	Frequency	Parameters
SW1, SW2, SW3, SW5	Thrice Yearly: spring, summer, and fall	**General Chemistry:** alkalinity, ammonia, chloride, sodium, TDS, total suspended solids (TSS), sulphate, BOD, chemical oxygen demand (COD), hardness, pH, anion sum, cation sum, ion ratio **Metals:** arsenic, barium, boron, cadmium, chromium, copper, iron, lead, manganese, mercury, zinc

The 2025 surface water monitoring was completed on the following dates:

- May 13, 2025;
- August 27, 2025; and,
- October 21, 2025.

SW4 was abandoned in 2019, and its former location is not known.

A photographic log of the surface water monitoring stations is provided in Appendix III.

5.0 METHODOLOGY

5.1 Scope of Work

The objectives of the monitoring program as requested by the client were provided in the Pinchin proposal entitled "*Request for Proposal (RFP-ES-2024-01) for Waste Management Environmental Consulting Services*", dated December 5, 2024. The objectives of the current monitoring program included the following scope of work:

- Mobilization to the Site during the spring, summer (surface water only) and fall of 2025 and collection of groundwater and surface water samples from the existing groundwater monitoring well network and surface water monitoring locations; and,
- Submission of representative groundwater and surface water samples, where applicable, to an accredited analytical laboratory for analysis of the ECA-listed parameters (refer to Section 4.1 and 4.2 of this report).

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The investigation methodology was also conducted in general accordance with and reference is made to the following regulatory and guidance documents:

- MECP document entitled "Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario", dated December 1996 (MECP Sampling Guideline);
- MECP document entitled "Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act", dated March 9, 2004, amended July 1, 2011 (Analytical Methods);
- Ontario Regulation 169/03 "*Ontario Drinking Water Quality Standards*" under the Safe Drinking Water Act, dated 2002 (ODWQS);
- MECP document entitled "Technical Support Document for Ontario Drinking Water Standards, Objectives and Guidelines", dated June 2003 (ODWQS Guideline);
- MECP document entitled "*Determination of Contaminant Limits and Attenuation Zones, Procedure B-7-1*", (formerly referenced by 15-08), dated 2018 and updated in 2021;
- Ontario Regulation 903 R.R.O. 1990 "*Wells*", under the Ontario Water Resources Act as amended in 2019; and
- MECP document entitled "*Water Management Policies Guidelines Provincial Water Quality Objectives*" (PWQO), dated July 1994, revised February 1999.

5.2 Monitoring Procedures and Methods

5.2.1 Standard Operating Procedures

The following Pinchin Standard Operating Procedures (SOPs) were followed by Pinchin and Town field personnel for each portion of this project:

- Groundwater Sampling SOP; and
- Surface Water Sampling SOP.

All Pinchin monitoring SOPs have been developed in accordance with the MECP Sampling Document and are consistent with standard engineering practices.

5.2.2 Groundwater Monitoring Activities

To perform the groundwater monitoring activities, the following tasks were conducted:

- Pinchin notified the Client prior to field activities and subsequently mobilized staff from the Kingston office to the Site;

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- Static groundwater levels were collected using a Solinst™ water level tape. Measurements were collected from the top of riser pipe;
- During the monitoring events, groundwater from each monitoring well was purged prior to the collection of the sample using a moderate-flow sample methodology via high-density polyethylene (HDPE) or low-density polyethylene (LDPE) 3/8" tubing and a Waterra™ inertial foot valve system. The inertial pump system was chosen as an approved method to minimize sediment/particulate within each sample and to minimize sample agitation and well trauma in accordance with the MECP Sampling Document. Pinchin purged a minimum of three well volumes to a maximum of six well volumes using the inertial pump system until the well volume column was representative of the surrounding formation. During purging activities, additional groundwater monitoring parameters were collected from each monitoring well using a YSI-556 water quality meter for measurement of field parameters. Sample residual was disposed of onto the ground surface, on-Site and upgradient within the landfill confines;
- Groundwater samples were collected using the inertial pump system in accordance with the MECP Sampling Document. Dissolved metals were field-filtered using a dedicated in-line 0.45-micron disposable filter. Upon completion of field sampling and monitoring activities, all samples collected were submitted to the project laboratory, SGS Canada Inc. (SGS) in Lakefield, Ontario. All parameters were analyzed by the project laboratory using MECP approved procedures and are consistent with the analytical methods prescribed in the Analytical Methods document; and
- The groundwater samples collected were analyzed at the project laboratory for the parameters listed in Column 1 and 2 of Schedule 5 of the MECP Landfill Standards for the spring and fall events, respectively. Groundwater sample results were compared to the applicable ODWQS as applied in accordance with the ODWQS Guideline document. Groundwater sample results were also compared to the reasonable usage parameters and were assessed using Guideline B-7 and Site-specific trigger criteria to establish and determine levels of contaminant discharges to the groundwater formation; which would be considered acceptable by the MECP, from naturally attenuating landfill sites with respect to human consumption and potable considerations.

5.2.3 Surface Water Monitoring Activities

- All field activities at each monitoring location were initiated at downstream locations working upstream to avoid sediment disturbance and influencing sample integrity;

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- Care was taken during collection of surface water samples to ensure that a representative sample was collected, and that underlying sediments were not disturbed. For the surface water samples only, no filtration was done (in accordance with MECP surface water sampling protocols);
- Surface water samples were collected during each sampling event using a direct grab sampling methodology in accordance with the MECP Sampling Document. Upon completion of field sampling and monitoring activities, all samples collected were submitted to SGS. All parameters were analyzed by the project laboratories using MECP approved procedures and are consistent with the analytical methods prescribed in the Analytical Methods document;
- During sampling activities, surface water monitoring field parameters were collected at each surface water monitoring location using a Heron™ Water Level Tape (with temperature and conductivity capabilities); and
- Surface water samples were analyzed during the monitoring event at the pre-determined monitoring locations for parameters listed in the previous monitoring reports. Sample results were compared to the applicable PWQO criteria.

5.2.4 Groundwater and Surface Water Field Measurements

Prior to sampling groundwater in the wells, Pinchin monitored groundwater depth using a Solinst™ 100-metre electronic water level meter. The water level tape is calibrated in 1.0 mm increments. Reproducibility of the depth measurements is generally within 2.0 millimeters (mm) or less.

Subsequent to groundwater depth measurement and during purging activities, additional groundwater monitoring parameters were collected from each monitoring well using a YSI-556 water quality meter for measurement of field parameters. Field parameters at each surface water (i.e., Surface Water) monitoring location were also collected using the Heron™ Water Level Tape with temperature and conductivity reading capabilities. The following field parameters were measured during the 2025 monitoring program:

- *Dissolved Oxygen* (DO) refers to the relative quantity of oxygen molecules which are dissolved or carried within a quantity of water. Oxygen enters water as rooted aquatic plants and algae undergo photosynthesis and as oxygen is transferred across an air and water interface. Oxygen's solubility in water is indirectly correlated with water's temperature, salinity and pressure. DO concentrations have a significant effect on groundwater quality by regulating the valence state of trace of metals and constraining the bacterial metabolism of dissolved organic species;

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- *Conductivity* is the measurement of water's capacity to pass an electrical current. It is considered to be a reasonable indicator of ionic activity and dissolved solids concentration levels. It is affected by the presence of inorganic dissolved solids which carry a negative charge such as chloride, nitrate, sulphate and phosphate anions, or a positive charge such as sodium, magnesium, calcium, iron and aluminum cations. Organic compounds such as oil and phenol do not conduct an electrical current very well, and would therefore, have low conductivity in water. Conductivity is also directly correlated to the water temperature. Specific conductivity is a measurement of conductivity values which have been compensated to 25ºC;
- *pH* is a measure of water's acidic/basic properties on a logarithmic scale from 1 (strongly acidic) to 14 (strongly alkaline or basic). It determines the solubility and biological availability of chemical constituents such as nutrients and heavy metals. For example, in addition to affecting how much and what form of phosphorus is most abundant in the water, pH also determines whether aquatic life and use it. The degree to which heavy metals are soluble determines their toxicity. Metals tend to be more toxic at lower pH values because they are more soluble. Excessively high and low pHs can have serious environmental and health effects. A high pH may cause the release of iron, copper, or lead into potable water, corrosion on water pipes and water using appliances and reduces the effectiveness of water disinfection with chlorine. Low pH values corrode substances such as metals and plastics. Fluctuations in groundwater pH values may be indicative of groundwater contamination;
- *Temperature* has a dramatic influence on water quality. The rate of chemical reactions is generally correlated to temperature which in turn affects the biological availability of nutrients within the water. As previously mentioned, oxygen's solubility in water is indirectly correlated with its temperature. Declining concentrations of oxygen within warming water is magnified by aquatic plants increasing metabolism as water temperature increases. Low concentrations of DO weaken aquatic plants resistance to disease, parasites and other pollutants; and
- *Oxidation-reduction potential* (ORP) characterizes the oxidation-reduction state of the water on a scale from approximately -300mV (strongly reducing) up to +500mV (strongly oxidizing). The primary application of ORP is recording significant changes in the redox potential which is observed when purging a stagnant water column in piezometer and replacing it with "fresh" groundwater.

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5.3 Quality Assurance for Sampling and Analysis

Pinchin uses recognized industry standards, including the MECP's manual *Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario* for conducting environmental assessments. For quality assurance, all work is supervised and internally reviewed by senior staff members. As such, various QA/QC protocols were followed during the water quality sampling events to ensure that representative samples were obtained, and that representative analytical data were reported by the laboratory.

Field QA/QC protocols that were employed by Pinchin included the following:

- Clean, labelled and pre-preserved (when applicable) sample containers were provided by the laboratory;
- Water quality samples were placed in laboratory-supplied sample jars;
- The monitoring wells were purged to remove stagnant water prior to sample collection, so that representative groundwater samples could be obtained. Dedicated purging and sampling equipment was used for monitoring well development, purging and sampling to minimize the potential for cross-contamination;
- All water quality samples were placed in coolers on ice immediately upon collection with appropriate sample temperatures maintained prior submission to the laboratory;
- Dedicated and disposable Nitrile™ gloves were used for all sample handling;
- All non-dedicated monitoring and sampling equipment (i.e. water level meter and YSI-556) was cleaned before initial use and between uses to minimize the potential for cross-contamination by washing with an Alconox™/potable water mixture followed by a deionized water rinse;
- Field duplicate groundwater and surface water samples were collected during the spring and fall sampling event (1 in 10); and
- Sample collection and handling procedures were performed in general accordance with the MECP Sampling Guideline.

The SGS laboratory has an established QA/QC program and is a member of the Canadian Association for Laboratory Accreditation (CALA) and is accredited by the Standards Council of Canada (SCC) for specified environmental analyses.

SGS's internal laboratory QA/QC consisted of the analysis of laboratory duplicate, method blank, matrix spike and spiked blank samples, an evaluation of relative percent difference calculations for laboratory

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duplicate samples and an evaluation of surrogate recoveries for the method blank, matrix spike and spiked blank samples.

5.4 Data Quality Evaluation

In order to provide confidence in the data obtained, a comprehensive QA/QC component was included in the monitoring program. The QA/QC procedures developed for this monitoring program are prepared in accordance with MECP document entitled "*Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario*", dated December 1996 and in most cases, exceed the minimum requirements.

Relative per cent difference (RPD) values (the absolute difference between two values divided by the average value and expressed as a per cent) were calculated between the parent sample and the field duplicate as part of the QA/QC program. RPD results of sample and duplicate analyses that are less than 50 percent indicate an acceptable level of analytical uncertainty. RPD values calculated for measured analyte concentrations for sample and duplicate pairs that exceed 50 per cent generally warrant discussion because they may indicate the presence of elevated analytical uncertainty and a potential for making interpretive errors based on the analysis results. Use of calculated RPD values to assess analytical uncertainty when using measured analyte concentrations for sample and sample duplicate pairs is not appropriate when either measured analyte concentration is within a multiple of 5 of the method detection limit (a value designated as the practical quantification limit (PQL)) where analytical uncertainty is typically elevated.

All field instrumentation calibration checks were completed by Pinchin field staff prior to use at the Site. Field activities were conducted in accordance with standard equipment decontamination and sampling procedures. Minor sampling plan modifications to the sampling program were discussed in Section 6.1.1; however, these adjustments were operational in nature and are not considered to have adversely affected the quality or interpretability of the analytical data.

Each of the calculated RPDs met the corresponding performance standard for the groundwater samples during the 2025 monitoring period with the exception of conductivity, total dissolved solids (TDS), total phosphorus and total suspended solids in DUP-1 during the fall. Each of the calculated RPDs met the corresponding performance standard for the surface water samples during the 2025 monitoring period. groundwater and surface water duplicate data for 2025 are provided in Appendix VI.

The analytical laboratory employed to perform the laboratory analyses (SGS) is accredited by the Standards Council of Canada/Canadian Association for Laboratory Accreditation in accordance with ISO/IEC 17025:1999 – "*General Requirements for the Competence of Testing and Calibration Laboratories*" for the tested parameters and has met the standards for proficiency testing developed by

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the Standards Council of Canada for parameters set out in the Soil, Ground Water and Sediment Standards.

Sample analysis dates provided on the laboratory analytical reports issued by SGS indicate that all sample analyses were performed within the required sample/extract hold times with some exceptions noted above. The laboratory minimum detection limits were reported to be at or lower than the required MECP reporting detection limits for the parameters analyzed.

Upon review of the QA/QC results for the 2025 sampling programs, Pinchin has not identified any significant concerns that would warrant the invalidation of any of the field or laboratory data. All field instrumentation calibration checks were completed by Pinchin field staff members prior to use on-Site. All field operations conducted by Pinchin field staff members were completed using standard equipment decontamination and sampling procedures, and no deviations from the sampling plan were noted.

6.0 GROUNDWATER ASSESSMENT, INTERPRETATION AND DISCUSSION

Groundwater samples were collected from all applicable groundwater monitoring wells during the spring and fall 2025 monitoring events with the exception of monitoring well nest MW4 and MW2D during the spring, and monitoring wells MW2D, MW4S, MW4D, MW8, MW11S and MW11D during the fall due to insufficient volume or dry conditions during the respective sample events. Additionally, samples could not be collected from MW1 due to this well nest being buried by organic brush. During the spring, Pinching field personnel attempted to sample MW2D after a return visit to the Site several days following the groundwater sample event; however, sufficient sample volume was still not available. All sampled wells were inspected and found to be in good condition in compliance with O. Reg. 903.

Pinchin reviewed the historical water quality data and reporting. The following discussion of parameters documents the groundwater quality in comparison to the ODWQS and Site-specific trigger criteria/ Reasonable Use Criteria (RUC). The analytical data for each well in comparison to the applicable regulatory criteria is provided in Appendix VII. Copies of the laboratory analytical reports are presented in Appendix VIII.

6.1 Groundwater Flow Interpretation

There is an inferred groundwater divide under the landfill area with northerly flow towards the former quarry pond and southerly flow towards the MW4S/D well nest in the shallow and deeper wells. This may be a refection of groundwater mounding within the landfilling area. Static groundwater elevations are presented in Appendix IV. The inferred groundwater elevation contours and groundwater flow directions in the shallow and deep aquifers during the spring and fall 2025 monitoring events are presented on Figures 6 through 9.

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6.2 Groundwater Quality Monitoring

6.2.1 Ontario Drinking Water Quality Standards (ODWQS)

Through the establishment of the ODWQS, the province of Ontario has determined legally enforceable standards on contaminants in drinking water. The standards are designed to protect public health by restricting the quality of specific contaminants in drinking water. Three categories of contaminates are regulated under the O. Reg. 169/03 Drinking Water Standards:

- Microbiological – Originating from human and animals waste, coliforms and bacteria are common in the environment. Most are harmless; however, their presence may be indicative of other harmful bacteria in the water; and,
- Chemical – ODWQS regulates maximum quantities of organic and inorganic chemicals allowed in drinking water. Industrial discharges or agricultural runoff are not necessarily removed by drinking water treatment. Consuming water exhibiting a greater concentration of these chemicals than the ODWQS may cause serious health problems.
- Radiological – Naturally occurring radioactive elements (e.g., uranium, radon) may be present in groundwater depending on local geology. ODWQS establishes limits to protect human health from long-term exposure through drinking water consumption

The ODWQS Guideline Document is the MECP technical guidance document which provides guidance on the applicability of the ODWQS and also provides applicable interim guidelines where legal standards are absent.

6.2.1 Groundwater Trigger Assessment and Contingency Plan

The Site-specific groundwater trigger levels, response actions and contingency measures for the Site was outlined in the 2024 annual monitoring report by Egis Canada Limited (Egis); Egis states that their summary of the contingency program is based off of the summary previously defined within the 2017 and 2018 annual monitoring reports.

The trigger program is based on comparison of analytical results to established trigger criteria which have been derived from a combination of historical Site data background groundwater quality.

The trigger assessment for the Site is based on Guideline B-7, the “reasonable use concept” (RUC) approach, is the MECP’s groundwater management strategy for mitigating the effect of contamination on properties adjacent to its source.

It establishes procedures for determining the reasonable use of groundwater on a property adjacent to sources of contaminates and establishes limits on the discharge of contaminants from facilities which dispose of waste into the shallow subsurface.

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The application of "reasonable use" is outlined in Procedure B-7-1 "Determination of Contaminant Limits and Attenuation Zones." The procedure determines the maximum concentration (Cm) of a particular contaminant that would be acceptable in the groundwater beneath an adjacent property and is calculated in accordance with the relationship:

$$C_m = C_b + x(C_r - C_b)$$

C_b – This is the background concentration of the particular groundwater contaminant in consideration before it has been affected by human activities. From this, it is possible to calculate the extent of human activities impact on contaminant levels.

C_r – In accordance with the Ontario Water Management Guideline, this is the maximum concentration of a particular contaminant that should be present in the groundwater. This value is dependent on property's use of the groundwater as outlined in B-7. It also allows for the total amount of contamination. Pinchin conservatively assumes that the reasonable use of the groundwater on-site is potentially for potable drinking water purposes.

x – As determined by the MECP, this constant determines the extent which the contamination has on the groundwater's use. For drinking water, x is 0.5 for non-health related parameters or 0.25 for health-related parameters. For other reasonable uses, it is 0.5.

It is stated that if three (3) consecutive RUC exceedances for any trigger parameter are detected and are deemed as a result of the landfill at either of the sentry locations (monitoring well nests MW9 and MW10), two new bedrock monitoring nests should be installed at the property boundary in line with the established protocol. A contingency plan should be prepared and submitted to the MECP for approval after confirmation of the third exceedance. According to the 2018 Annual Report, the Contingency Plan should include recommendations for:

- Installation of low permeability soil or geotextile cap;
- Possible acquisition of additional land for buffer or contaminant attenuation;
- Timing for the implementation of the recommendations; and,
- Ongoing monitoring of water quality needed to confirm acceptable off-site groundwater impacts

6.3 Groundwater Results

6.3.1 Background Water Quality Review

Groundwater quality at the background monitoring well nest (MW5S and MW5D) is generally consistent with natural hydrogeochemical conditions and historical trends. Monitoring well nest MW5 met the ODWQS for all parameters analyzed with the exception of hardness (high), chloride and TDS at both

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locations, as well as sodium during both of the 2025 sample events at MW5D and manganese at the deep well during the spring.

The shallow overburden well (MW5S) exhibits stable concentrations and a calcium–magnesium bicarbonate-type signature indicative of minimal anthropogenic influence. The deeper bedrock well (MW5D) shows slightly greater variability and elevated concentrations for select parameters, including hardness, chloride, TDS and alkalinity. Elevated concentrations of the aforementioned parameters reflect naturally mineralized groundwater conditions associated with the underlying carbonate and shale bedrock formations. Previous investigations identified the Verulam Formation as saline in nature, and groundwater interaction with these units may reasonably result in elevated dissolved ions and hardness parameters independent of Site-related impacts. Thus, the MW5 well nest is interpreted to remain an overall suitable representation of background groundwater quality at the Site.

6.3.2 Downgradient Water Quality

Downgradient groundwater quality results indicate localized impacts consistent with the historical waste disposal area particularly at monitoring well nests MW1, MW2, MW6, MW9, MW10 and MW11. Elevated ammonia, alkalinity and total dissolved solids are present in shallow monitoring wells near the landfill while concentrations generally attenuate with distance from the waste mound. Deeper downgradient wells exhibit elevated dissolved mineral concentrations more consistent with natural bedrock groundwater chemistry associated with the underlying carbonate formations. Comparison of downgradient groundwater quality to the background conditions (historically assessed at monitoring wells MW5S and MW5D) indicates that several elevated parameters, including total dissolved solids, hardness, alkalinity, and portions of the observed chloride and sulphate concentrations are consistent with the natural groundwater chemistry of the Site and are interpreted to be largely a result of the groundwater interaction with the underlying carbonate and shale bedrock formations; which are known to produce naturally mineralized groundwater. The concentrations of these parameters can actually be higher in deep wells more distant from the landfill footprint (e.g. MW9D vs. MW6D) suggesting a possible sinking plume with distance. Accordingly, exceedances of these parameters should be interpreted in consideration of established background conditions rather than presumed to be solely Site-related. In addition, downgradient wells generally exhibit relatively low concentrations of other conventional leachate indicator parameters, including boron.

Metal concentrations across the monitoring network are also generally low with the exception of barium, iron and manganese which are considered representative of natural hydrogeochemical conditions. Shaly limestone of the Verulam Formation often contains trace amounts of barite (BaSO4), witherite (BaCO3), clay-bound barium, or barium substituted within carbonate minerals. Elevated concentrations of barium also occur naturally in soils associated with limestone and shale deposits (Canadian Council of Ministers of the Environment, 2013). Weathering and groundwater interaction within the Site carbonate and shale

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bedrock units can release dissolved barium over time; particularly where the geological formations exhibit naturally mineralized or saline characteristics resulting in elevated concentrations. While barium groundwater concentrations appear to exhibit a high degree of fluctuation, regular exceedances are observed at MW2D, MW4S, MW8, MW9D, MW10D, MW11S and MW11D.

Groundwater quality at MW2S indicates elevated dissolved constituents and ammonia relative to shallow background conditions at MW5S suggesting possible localized historical influence from the waste disposal area. In contrast, MW2D exhibits substantially elevated alkalinity and TDS consistent with mineralized deep groundwater associated with the underlying carbonate bedrock. While some historical Site influence cannot be excluded, the chemistry at MW2D appears strongly controlled by natural hydrogeochemical conditions given the relatively low metal concentrations that would be typical of groundwater that is impacted by waste facilities.

The MW4 well nest is relatively isolated from the remainder of the monitoring network and is situated outside the main cluster of wells surrounding the waste footprint. Groundwater quality results indicate that MW4S is closer to background conditions at the MW5 nest; whereas, MW4D reflects more mineralized deeper groundwater associated with the underlying carbonate bedrock.

Overall, the groundwater quality at the MW6 nest appears similar to background; however, relatively higher dissolved concentrations of chloride, sodium, TDS, hardness, alkalinity and ammonia are present possibly the result of localized natural differences. MW6D and MW8 display elevated dissolved constituents consistent with the more mineralized deeper bedrock groundwater chemistry across the Site; although there may be some localized landfill-derived influence.

MW9S and MW10S exhibit generally stable concentrations and mixed-type hydrogeochemical signatures suggesting attenuation of leachate-related parameters with distance from the landfill. The fall 2025 sample results for MW9S contained a concentration of lead above the ODWQS with sporadic exceedances observed throughout the monitoring record; however, lead concentrations in the sample results at this location are also regularly below the detectable limit. Due to lead concentrations not being consistently elevated, nor demonstrating any pattern of increase, the concentrations are not interpreted to be a concern related to landfill operations. MW9D and MW10D show greater variability and in some cases, elevated concentrations (e.g., TDS and alkalinity) which are interpreted to reflect localized conditions within the bedrock system rather than landfill-derived impact. Overall, downgradient groundwater quality remains consistent with historical trends with limited evidence of sustained increases in key landfill indicator parameters or plume expansion beyond the landfill footprint.

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6.3.3 *Groundwater Trend Analysis*

A series of time versus concentration graphs were developed to evaluate the concentrations of a select number of landfill indicator parameters (including alkalinity, ammonia, chloride, sulphate and TDS) at each monitoring well for the Site. Current and historical groundwater quality data was utilized to identify any apparent trends or inconsistencies in the water quality within the monitoring well network. The time versus concentration graphs are provided in Appendix IX.

Groundwater quality trends for the key indicator parameters indicate that conditions at the Site remain generally consistent with historical patterns with variability observed between the overburden and bedrock aquifers. In the overburden system, concentrations are typically moderate and exhibit periodic fluctuations with elevated alkalinity, TDS and ammonia observed at landfill proximal wells (e.g., MW6S); consistent with localized leachate influence. In contrast, downgradient wells (e.g., MW9S and MW10S) show lower and more stable concentrations with no sustained increasing trends in chloride or other indicator parameters suggesting attenuation of impacts with distance from the landfill. Within the bedrock aquifer, groundwater quality is more variable and in some cases, characterized by higher concentrations particularly for alkalinity and TDS at select wells (e.g., MW6D and MW10D), which may reflect a combination of leachate influence and/or longer groundwater residence times in the fractured bedrock system. Chloride concentrations in bedrock remain relatively low and do not exhibit consistent upward trends; while ammonia and sulphate concentrations show fluctuations at certain locations, but no clear long-term increase. Dissolved organic carbon tends to be higher in deeper bedrock groundwater; considered a reflection of organic content in the shaley bedrock. Overall, the observed trends indicate that elevated concentrations of alkalinity and ammonia in shallow groundwater are generally confined to landfill-proximal wells with the exception of the MW10D well. Landfill indicator parameters such as DOC, manganese, boron and ammonia are not increasing at shallow wells near the landfill area while downgradient locations remain stable, and there is no evidence of plume during the current monitoring period.

6.3.4 *Trigger Mechanism Assessment*

Tables 26 and 27 in Appendix VII present the RUC trigger concentrations for the 2025 monitoring period. The RUC trigger locations are the MW9S/D and MW10S/D locations near the northern property boundary of the Site. The trigger parameter concentrations complied with their respective trigger concentrations during the 2025 monitoring period with the exception of:

- Alkalinity (fall only), DOC (spring only), chloride, hardness, iron (spring only), manganese (spring only) and TDS (fall only) at MW9S;
- Chloride (spring only), iron, sodium, hardness, manganese (fall only) and TDS (spring only) at MW10S; and

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- Chloride, DOC, iron (spring only), pH, arsenic (spring only), barium, chromium (spring only) and TDS at MW9D.

It should also be noted that MW10D was dry during all 2025 monitoring events. Several of the aforementioned exceedances also exceeded in 2024. The above results constitute exceedances in the trigger program. However, the majority of these parameters are naturally elevated in the groundwater underlying the Site. The arsenic trigger exceedance was not repeated in the fall sample and is well below the ODWQS for this parameter. The results are consistent with the monitoring results from previous events.

6.4 Groundwater Major Ion Chemistry Analysis

The geochemical data for the groundwater monitoring wells were analyzed for the major ion composition to investigate impacts to groundwater quality at the Site. Piper (trilinear) diagrams were used to illustrate the relative proportions of major cations (Ca^{2+}, Mg^{2+}, Na^{+}, and K^{+}) and major anions (HCO_3^-/CO_3^{2-} ,Cl^-, and SO_4^{2-}) expressed as percentages of milliequivalents. The total cations and anions are each normalized to 100% and projected onto a grid to define the overall hydrogeochemical facies. The piper plot diagrams for the spring and fall 2025 groundwater results are presented Figures 10 and 11, respectively.

6.4.1 Background Wells

Groundwater at background monitoring locations reflects natural hydrogeochemical conditions with some variability between shallow and deep zones. MW5S plots within the calcium–magnesium bicarbonate field consistent with natural background groundwater. The dominance of alkaline earth metals and bicarbonate anions indicates groundwater influenced by carbonate dissolution and minimal anthropogenic impact. MW5D exhibits a shift toward a mixed-type signature with increased sodium and chloride contributions relative to the shallow well. This may reflect greater residence time, increased water–rock interaction, or minor mixing with more mineralized groundwater at depth.

6.4.2 Source Water Quality

Groundwater in wells located proximal to the waste disposal area exhibits geochemical characteristics consistent with landfill influence. These wells plot within the mixed-type to sodium chloride-type field with sodium and potassium dominant cations and chloride-dominant anions.

MW6S and MW6D, in particular, show strong chloride dominance (up to approximately 99%) and elevated Na+K proportions indicating a clear leachate signature. The elevated chloride concentrations and reduced bicarbonate contribution suggest increased residence time within impacted zones and limited buffering from natural carbonate processes.

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MW2S exhibits a more transitional signature with contributions from both bicarbonate and chloride anions indicating partial mixing between background groundwater and leachate-affected groundwater.

6.4.3 Downgradient Wells

Groundwater chemistry at downgradient monitoring wells reflects transitional conditions between background groundwater and landfill-influenced groundwater. MW9S exhibits a mixed-type signature with both bicarbonate and chloride contributions suggesting limited to moderate leachate influence and mixing processes. MW9D represents a significant outlier with extremely elevated ion concentrations and complete chloride dominance. The groundwater plots clearly within the sodium chloride-type field indicative of highly saline conditions. Given the acceptable charge balance error (CBE), this result is considered analytically reliable and may reflect localized leachate influence or a discrete hydrogeochemical zone. MW10S exhibits a bicarbonate-dominant mixed-type signature indicating limited landfill influence and stronger control from natural groundwater processes.

6.4.4 Summary and Interpretation

The major ion analysis indicates that groundwater chemistry across the Site reflects a continuum between natural background conditions and landfill influenced conditions. Background groundwater (e.g., MW5S) is characterized by a calcium–magnesium bicarbonate-type signature; whereas landfill proximal wells (e.g., MW6S and MW6D) exhibit mixed-type to sodium chloride-type signatures indicative of leachate influence.

Downgradient wells (e.g., MW2S, MW9S and MW10S) display mixed-type signatures reflecting varying degrees of mixing and natural attenuation. Localized anomalous conditions are observed at MW6D and MW9D which exhibit elevated salinity and strong sodium chloride-type signatures; however, MW6D results should be interpreted with caution due to an elevated charge balance error.

Overall, groundwater chemistry remains consistent with historical trends with no evidence of a widespread shift in hydrogeochemical facies or expansion of impacted groundwater conditions during the current monitoring period.

7.0 SURFACE WATER ASSESSMENT, INTERPRETATION AND DISCUSSION

During the 2025 monitoring program, Pinchin collected surface water samples from each of the established monitoring locations with the exception of SW1, SW2 and SW5 which were dry during the summer and fall events. A summary of the surface water quality monitoring data relative to the regulatory standards is presented in Appendix X. Copies of the laboratory analytical reports are presented in Appendix VIII.

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7.1.1 *Provincial Water Quality Standards*

The PWQO are numerical and narrative criteria which serve as chemical and physical indicators representing satisfactory levels for surface water and groundwater where it discharges to the surface. The PWQO are levels which are protective of the water quality for all forms of aquatic life during their indefinite exposures to the water. The PWQO levels include protection for anthropogenic recreational water uses where there is a high potential of exposure and are based on public health and aesthetic considerations.

In general, the PWQO guidance document states that the surface water quality of a water body shall be "free from contaminating levels of substances and materials attributable to human activities which in themselves, or in combination with other factors can: settle to form objectionable deposits; float as debris or scum or oil or other matter to form nuisances; product objectionable colour, odour, taste, or turbidity; injure, are toxic to, or produce adverse physiological or behavioural responses in humans, animals, or plants; or enhance the production of undesirable aquatic life or result in the dominance of nuisance species".

7.1.2 *Background Surface Water Quality*

Background quality for the Site is evaluated at surface water monitoring location SW5 and the former surface monitoring location SW4 located to the west and south of the Site, respectively. Surface water quality at SW4 and SW5 is characterized by low dissolved constituent concentrations and limited evidence of persistent impact. SW4 exhibited the lowest and most stable concentrations overall and is considered representative of ambient background conditions; however, it should be noted that this station was only sampled in 2011, 2012 and 2019. Since 2019, the location has been since been abandoned, and the precise location to the south of the Site is unknown. SW5 exhibits slightly greater variability in parameter concentrations compared to the former SW4; likely reflecting seasonal hydrologic influences and localized groundwater interaction. Historical phenol detections at SW5 were observed in 2020 and 2021, but have since declined to non-detectable levels. SW5 was dry during the summer and fall 2025 monitoring rounds.

7.1.3 *Downstream Surface Water Quality*

Downstream surface water monitoring quality is evaluated at surface water monitoring stations SW1, SW2 and SW3 situated north and northwest of the Site. Overall, the 2025 monitoring results generally indicate stable surface water quality conditions.

At SW1, several parameters (including boron, phosphorus and alkalinity) remained elevated relative to the background station (SW5) suggesting potential landfill-derived impacts; however, overall trends indicate stable or improving conditions compared to previous years.

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At SW2, historical exceedances of phenols, iron and total phosphorus have largely resolved with concentrations decreasing to levels below applicable criteria in the fall of 2024 and spring of 2025; the only event where a sample was collected in 2025. Chloride and boron concentrations have also declined although a minor anomalous spike in chromium was observed in the fall of 2024. Elevated ammonia has been reported historically, but are interpreted to reflect sediment interference and sample dilution rather than true water quality impacts.

At SW3, no exceedances of PWQO were observed in 2025 with exception of iron during all events and phosphorus during the summer. Overall water quality remains stable at SW3 with only minor fluctuations in landfill indicator parameters such as iron, phosphorous and ammonia.

7.1.4 Surface Water Trend Analysis

A series of time versus concentration graphs were developed to evaluate the concentrations of a select number of landfill indicator parameters (including alkalinity, ammonia, chloride, sulphate and TDS) at each monitoring well for the Site. Current and historical groundwater quality data was utilized to identify any apparent trends or inconsistencies in the water quality within the monitoring well network. The time versus concentration graphs are provided in Appendix XI.

Surface water quality trends for the aforementioned key indicator parameters suggest variable, but generally stable conditions across the monitoring network with no evidence of long-term deterioration. Alkalinity concentrations show moderate variability across all stations with higher and more fluctuating values observed at SW1 and SW2 while SW3 remains relatively stable within a narrower range. Chloride concentrations exhibit periodic increases particularly at SW2 and to a lesser extent SW1; however, these elevated concentrations are not sustained and have apparently declined in more recent monitoring events. TDS concentrations follow a similar pattern with elevated and variable concentrations historically at SW1 and SW2 followed by a notable reduction and stabilization in recent years at most stations. Ammonia concentrations are generally low across the network with occasional isolated spikes (e.g., SW4 and SW1), but no persistent increasing trend is evident. Sulphate concentrations show the greatest variability, particularly at SW1, where episodic spikes are observed; however, concentrations at other stations remain relatively low and stable. Overall, surface water quality appears to reflect localized variability and potential intermittent influences, but the data indicate that conditions remain consistent with historical trends with no clear evidence of sustained impacts or progressive degradation attributable to the Site.

8.0 ADEQUACY OF THE MONITORING PROGRAM

Pinchin concludes that the groundwater and surface water monitoring network is currently considered adequate for evaluating the South Fredericksburgh Waste Disposal Site with the respect to the characterization of Site conditions, the evaluation of Site performance and the assessment of Site

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compliance. All ECA Conditions with respect to inspection and reporting requirements were met during the reporting period.

9.0 CONCLUSIONS

Based on the work completed, the following is a summary of the findings of the 2025 water quality monitoring program:

1. There is an inferred groundwater divide under the landfill area with northerly flow towards the former quarry pond and southerly flow towards the MW4S/D well nest in the shallow and deeper wells. This may be a refection of groundwater mounding within the landfilling area;
2. Approximately 101.21 tonnes of waste and recyclable materials, in addition to multiple bins of electronic waste, were transferred off-Site during the reporting period;
3. Based on recent survey data and the long-term fill plan, the remaining landfill capacity is estimated to be approximately 226,638 m^3 with an estimated remaining Site lifespan of approximately 50 years assuming current fill rates;
4. The Site is underlain by carbonate and shaly limestone bedrock formations which are known to produce naturally mineralized groundwater characterized by elevated dissolved ions and hardness-related parameters. The concentrations of parameters such as alkalinity, TDS, sodium and chloride reflect the calcareous-shale bedrock composition, and concentrations are generally significantly higher in the deeper bedrock at this Site;
5. Groundwater quality across the Site ranges from natural background to landfill-influenced conditions. Background wells exhibit calcium–magnesium bicarbonate-type signatures, while a select few number of downgradient wells show mixed-type to sodium chloride-type signatures which could be indicative of leachate influence. Overall, downgradient wells display mixed-type signatures reflecting varying degrees of mixing with no evidence of a widespread shift in groundwater chemistry during the current monitoring period.
6. Overall, groundwater quality conditions at the Site remain consistent with historical trends, and no significant changes in groundwater quality or plume behaviour were identified during the 2025 monitoring program relative to results from 2024;
7. The downgradient wells also exhibit relatively low concentrations of traditional leachate indicator parameters such as boron and COD which suggests that the overall leachate signature within downgradient groundwater samples is limited.

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8. Based on the available data, the Site is interpreted to be operating in general accordance with the approved AECOM Design and Operations Plan and ECA requirements with no indication of off-Site migration of impacted groundwater.

10.0 RECOMMENDATIONS

Based on a review of the existing dataset and regulatory requirements to date, Pinchin recommends the following:

1. It is recommended that the existing groundwater monitoring program be continued at the current sampling frequency to maintain continuity in the long-term dataset and support ongoing assessment of groundwater quality trends.
2. It is recommended that groundwater quality at MW6D and MW9D continue to be closely monitored to further evaluate the observed elevated salinity conditions and confirm whether these results represent persistent localized conditions;
3. Where elevated charge balance errors are identified (e.g., MW6D), consideration should be given to confirmatory sampling or laboratory review to improve data reliability;
4. It is recommended that the Trigger Mechanism and Contingency Plan continue to be applied to assess groundwater quality results with exceedances evaluated in the context of historical trends, spatial distribution and data quality;
5. Annual topographic surveys should continue to be completed to refine estimates of remaining landfill capacity and Site lifespan in accordance with the long-term fill plan;
6. No modifications to the current Site operations or monitoring program are recommended at this time.

11.0 MONITORING AND SCREENING CHECKLIST

In accordance with the MECP Landfill Standards, the Monitoring and Screening Checklist for the Site completed by the Pinchin CEP is completed and provided in Appendix XII.

12.0 REFERENCES

- Canadian Council of Ministers of the Environment. 2013. Canadian Soil Quality Guidelines for Barium: Protection of Human Health. https://ccme.ca/en/res/2013-ba-csqg-scd-1493-en.pdf
- Ministry of the Environment, Conservation and Parks. July 1994, revised February 1999 *Water management: policies, guidelines, provincial water quality objectives*. https://www.ontario.ca/page/water-management-policies-guidelines-provincial-water-quality-objectives

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- Ministry of the Environment, Conservation and Parks. 2002. Ontario Regulation 169/03 *Ontario Drinking Water Quality Standards* under the *Safe Drinking Water Act* (ODWQS);
- Ministry of the Environment, Conservation and Parks. June 2003. Technical Support Document for Ontario Drinking Water Standards, Objectives and Guidelines (ODWQS Guideline);
- Ministry of the Environment, Conservation and Parks. April 15, 2011. *Soil, ground water and sediment standards for use under Part XV.1 of the Environmental Protection Act.* https://www.ontario.ca/page/soil-ground-water-and-sediment-standards-use-under-part-xv1-environmental-protection-act

13.0 TERMS AND LIMITATIONS

This work was performed subject to the Terms and Limitations presented or referenced in the proposal for this project.

Information provided by Pinchin is intended for Client use only. Pinchin will not provide results or information to any party unless disclosure by Pinchin is required by law. Any use by a third party of reports or documents authored by Pinchin or any reliance by a third party on or decisions made by a third party based on the findings described in said documents is the sole responsibility of such third parties. Pinchin accepts no responsibility for damages suffered by any third party as a result of decisions made or actions conducted. No other warranties are implied or expressed.

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APPENDIX I

Figures



PINCHIN

PROJECT NAME:	2025 WATER QUALITY MONITORING REPORT
CLIENT NAME:	TOWN OF GREATER NAPANEE
PROJECT LOCATION:	SOUTH FREDRICKSBURGH WASTE DISPOSAL SITE, GREATER NAPANEE, ONTARIO
FIGURE NAME:	KEY MAP
FIGURE NUMBER	1

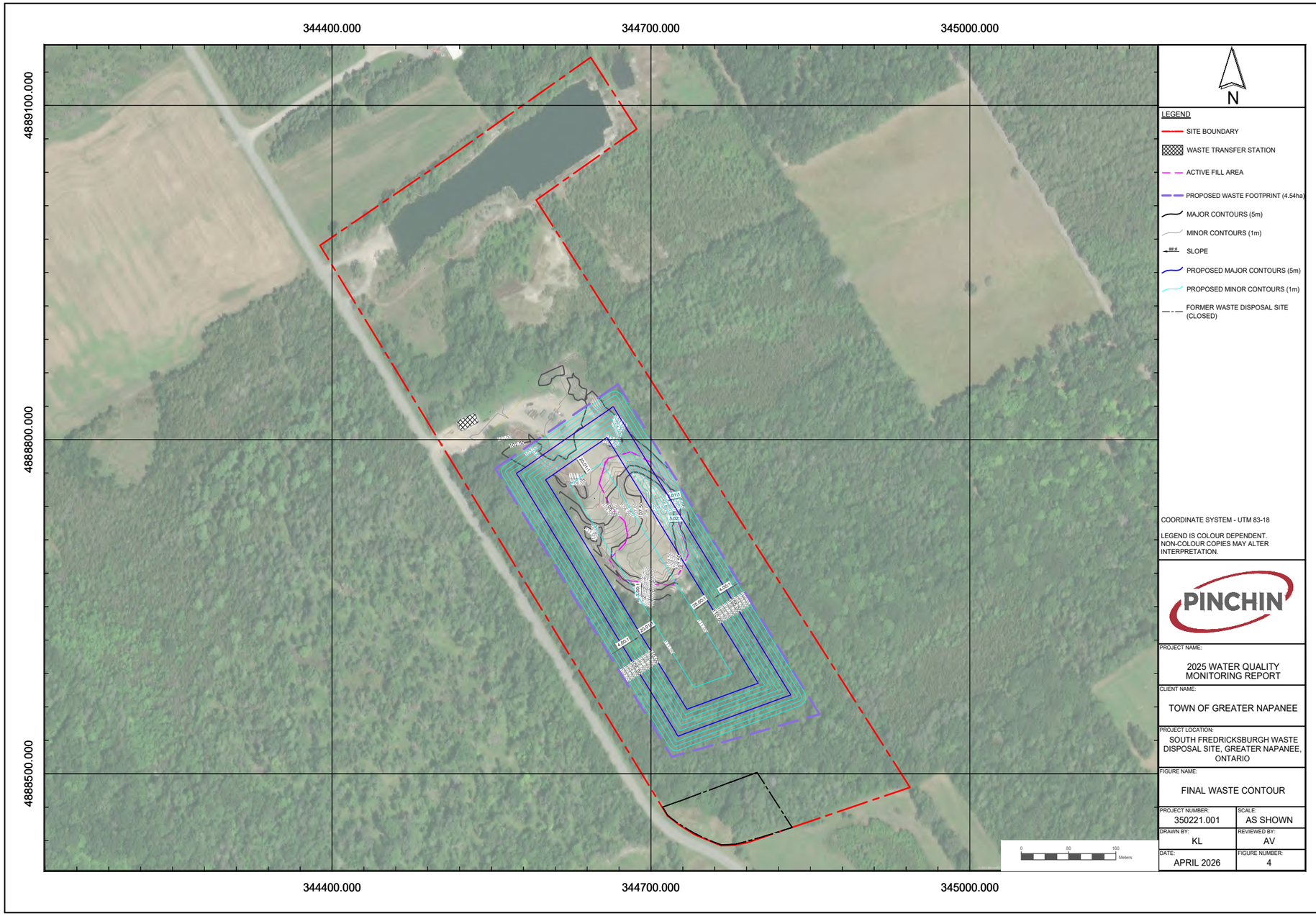
PROJECT NUMBER:	SCALE:	DRAWN BY:	REVIEWED BY:	DATE:
350221.001	1:100,000	KL	AV	APRIL 2026

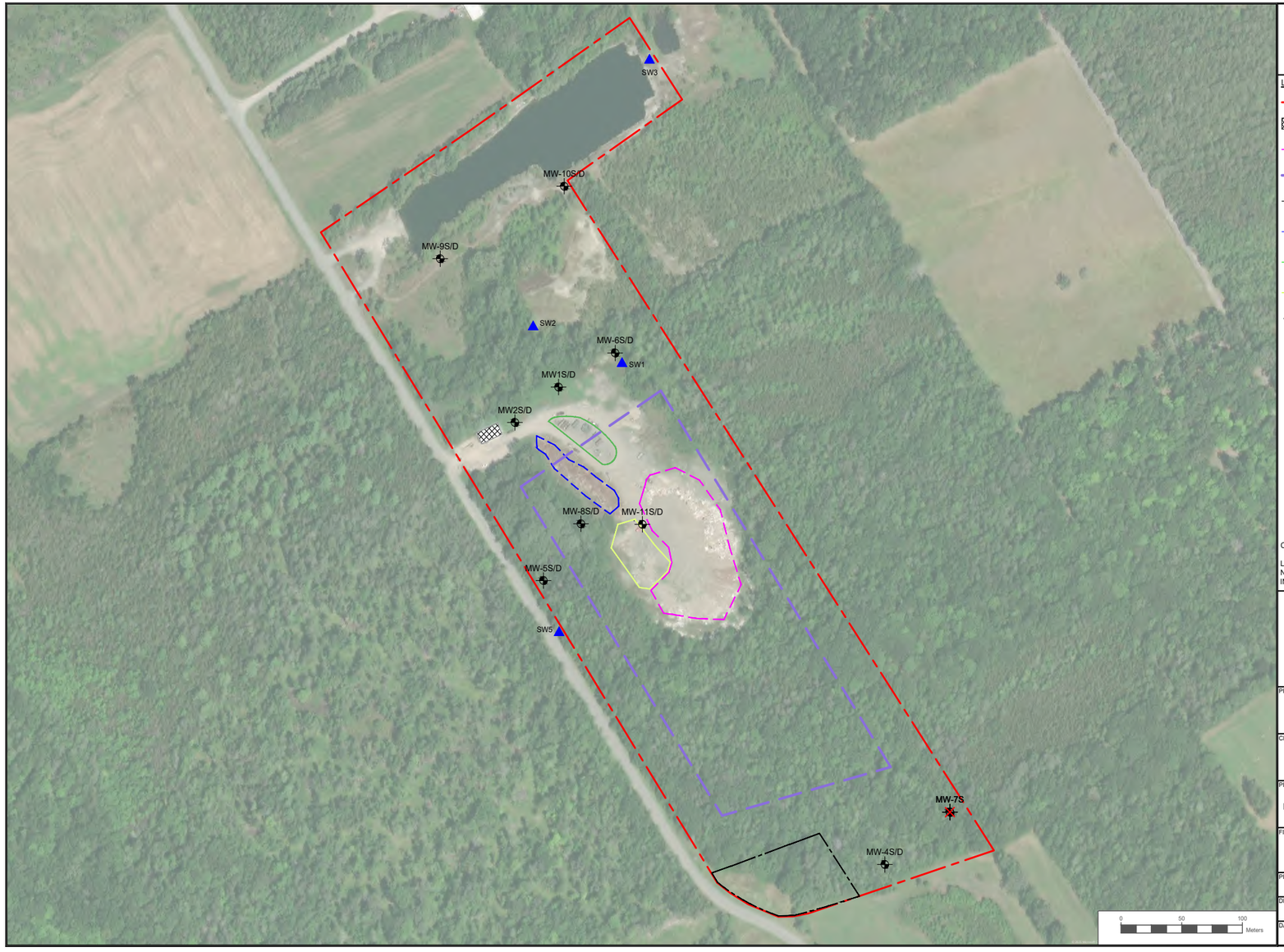

344400.000
344700.000
345000.000
4889100.000
4888800.000
4888500.000
N
LEGEND
SITE BOUNDARY
WASTE TRANSFER STATION
ACTIVE FILL AREA
PROPOSED WASTE FOOTPRINT (4.54ha)
FORMER WASTE DISPOSAL SITE (CLOSED)
BRUSH PILE
WASTE DIVERSION
COVER MATERIAL STOCKPILE AREA
0
50
100
Meters
COORDINATE SYSTEM - UTM 83-18
LEGEND IS COLOUR DEPENDENT. NON-COLOUR COPIES MAY ALTER INTERPRETATION.
PINCHIN
PROJECT NAME:
2025 WATER QUALITY MONITORING REPORT
CLIENT NAME:
TOWN OF GREATER NAPANEE
PROJECT LOCATION:
SOUTH FREDRICKSBURGH WASTE DISPOSAL SITE, GREATER NAPANEE, ONTARIO
FIGURE NAME:
SITE PLAN
PROJECT NUMBER:
350221.001
SCALE:
AS SHOWN
DRAWN BY:
KL
REVIEWED BY:
AV
DATE:
APRIL 2026
FIGURE NUMBER:
2

344700.000

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3.0(v):1
3.0(v):1
3.0(v):1


344400.000
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345000.000
4889100.000
4888800.000
4888500.000
N
LEGEND
SITE BOUNDARY
WASTE TRANSFER STATION
ACTIVE FILL AREA
PROPOSED WASTE FOOTPRINT (4.54ha)
MAJOR CONTOURS (5m)
MINOR CONTOURS (1m)
SLOPE
PROPOSED MAJOR CONTOURS (5m)
PROPOSED MINOR CONTOURS (1m)
FORMER WASTE DISPOSAL SITE (CLOSED)
0
80
160
Meters
COORDINATE SYSTEM - UTM 83-18
LEGEND IS COLOUR DEPENDENT. NON-COLOUR COPIES MAY ALTER INTERPRETATION.
PINCHIN
PROJECT NAME:
2025 WATER QUALITY MONITORING REPORT
CLIENT NAME:
TOWN OF GREATER NAPANEE
PROJECT LOCATION:
SOUTH FREDRICKSBURGH WASTE DISPOSAL SITE, GREATER NAPANEE, ONTARIO
FIGURE NAME:
FINAL WASTE CONTOUR
PROJECT NUMBER:
350221.001
SCALE:
AS SHOWN
DRAWN BY:
KL
REVIEWED BY:
AV
DATE:
APRIL 2026
FIGURE NUMBER:
4



N

LEGEND

- SITE BOUNDARY
- WASTE TRANSFER STATION
- ACTIVE FILL AREA
- PROPOSED WASTE FOOTPRINT (4.54ha)
- FORMER WASTE DISPOSAL SITE (CLOSED)
- BRUSH PILE
- WASTE DIVERSION
- COVER MATERIAL STOCKPILE AREA
- MONITORING WELL
- SURFACE WATER SAMPLING LOCATION
- MONITORING WELL COULD NOT BE LOCATED

COORDINATE SYSTEM - UTM 83-18

LEGEND IS COLOUR DEPENDENT. NON-COLOUR COPIES MAY ALTER INTERPRETATION.

PINCHIN

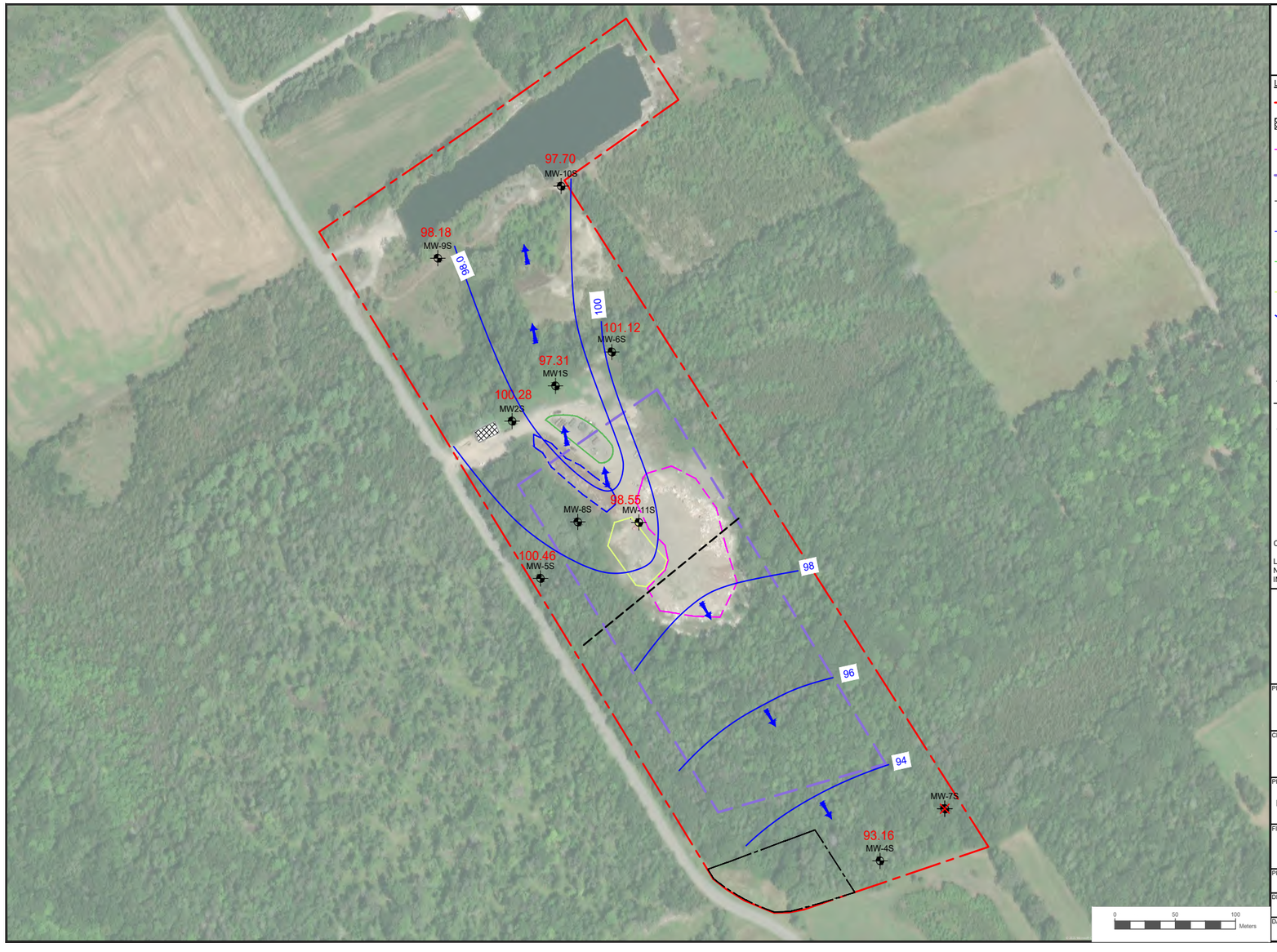
PROJECT NAME:
2025 WATER QUALITY MONITORING REPORT

CLIENT NAME:
TOWN OF GREATER NAPANEE

PROJECT LOCATION:
SOUTH FREDRICKSBURGH WASTE DISPOSAL SITE, GREATER NAPANEE, ONTARIO

FIGURE NAME:
WATERING LOCATION PLAN

PROJECT NUMBER:	SCALE:
350221.001	AS SHOWN
DRAWN BY: KL	REVIEWED BY: AV
DATE: APRIL 2026	FIGURE NUMBER: 5



N

LEGEND

- SITE BOUNDARY
- WASTE TRANSFER STATION
- ACTIVE FILL AREA
- PROPOSED WASTE FOOTPRINT (4.54ha)
- FORMER WASTE DISPOSAL SITE (CLOSED)
- BRUSH PILE
- WASTE DIVERSION
- COVER MATERIAL STOCKPILE AREA
- GROUNDWATER CONTOUR LINES
- GROUNDWATER FLOW DIRECTION
- xxx.xx GROUNDWATER ELEVATION
- MONITORING WELL
- INFERRED GROUNDWATER DIVIDE
- MONITORING WELL COULD NOT BE LOCATED

COORDINATE SYSTEM - UTM 83-18

LEGEND IS COLOUR DEPENDENT. NON-COLOUR COPIES MAY ALTER INTERPRETATION.

PINCHIN

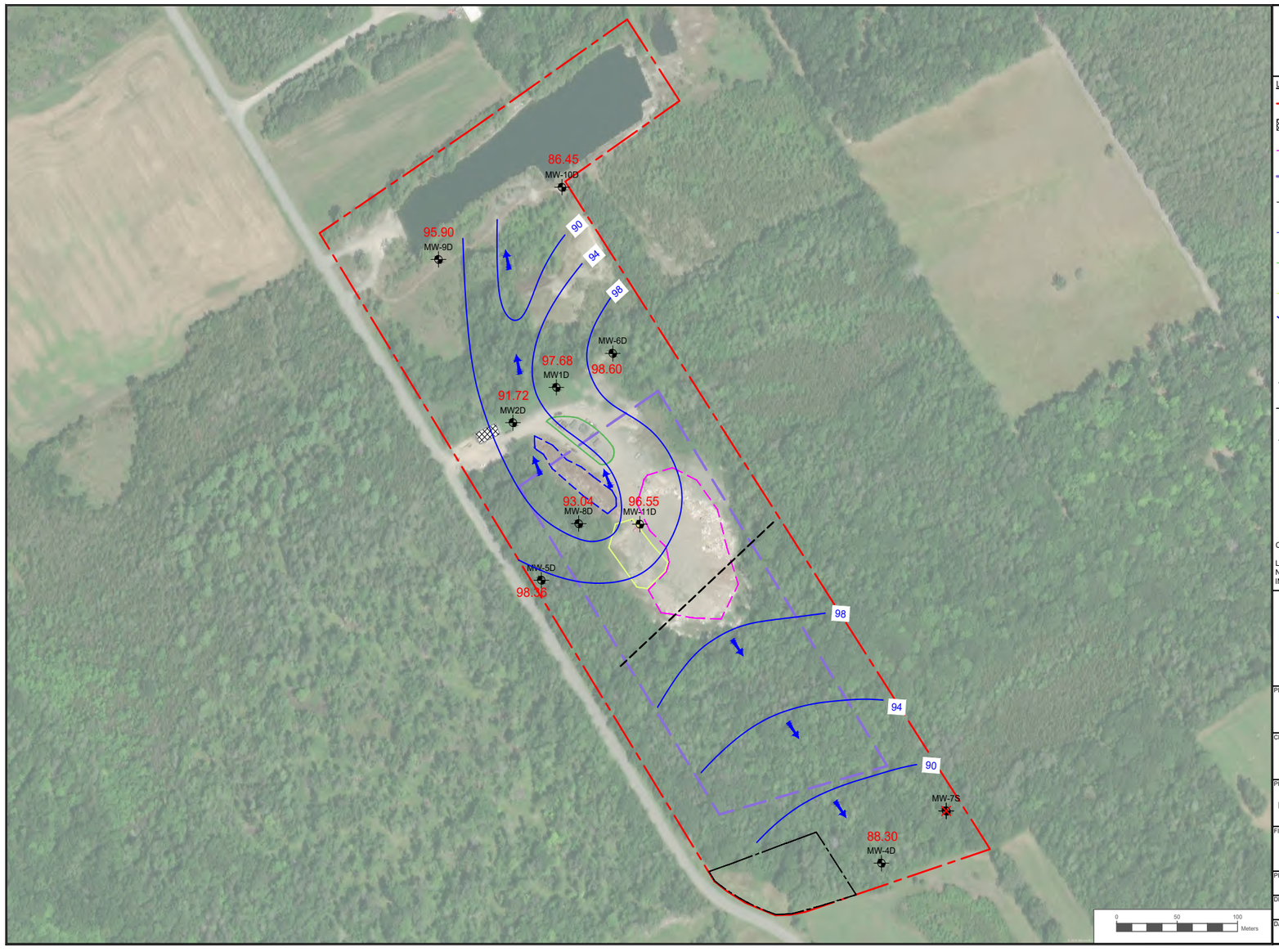
PROJECT NAME:
2025 WATER QUALITY MONITORING REPORT

CLIENT NAME:
TOWN OF GREATER NAPANEE

PROJECT LOCATION:
SOUTH FREDRICKSBURGH WASTE DISPOSAL SITE, GREATER NAPANEE, ONTARIO

FIGURE NAME:
SHALLOW GROUNDWATER CONTOURS SPRING 2025

PROJECT NUMBER:	SCALE:
350221.001	AS SHOWN
DRAWN BY:	REVIEWED BY:
KL	AV
DATE:	FIGURE NUMBER:
APRIL 2026	6



N

LEGEND

- SITE BOUNDARY
- WASTE TRANSFER STATION
- ACTIVE FILL AREA
- PROPOSED WASTE FOOTPRINT (4.54ha)
- FORMER WASTE DISPOSAL SITE (CLOSED)
- BRUSH PILE
- WASTE DIVERSION
- COVER MATERIAL STOCKPILE AREA
- GROUNDWATER CONTOUR LINES
- GROUNDWATER FLOW DIRECTION
- xxx.xx GROUNDWATER ELEVATION
- MONITORING WELL
- INFERRED GROUNDWATER DIVIDE
- MONITORING WELL COULD NOT BE LOCATED

COORDINATE SYSTEM - UTM 83-18

LEGEND IS COLOUR DEPENDENT. NON-COLOUR COPIES MAY ALTER INTERPRETATION.

PINCHIN

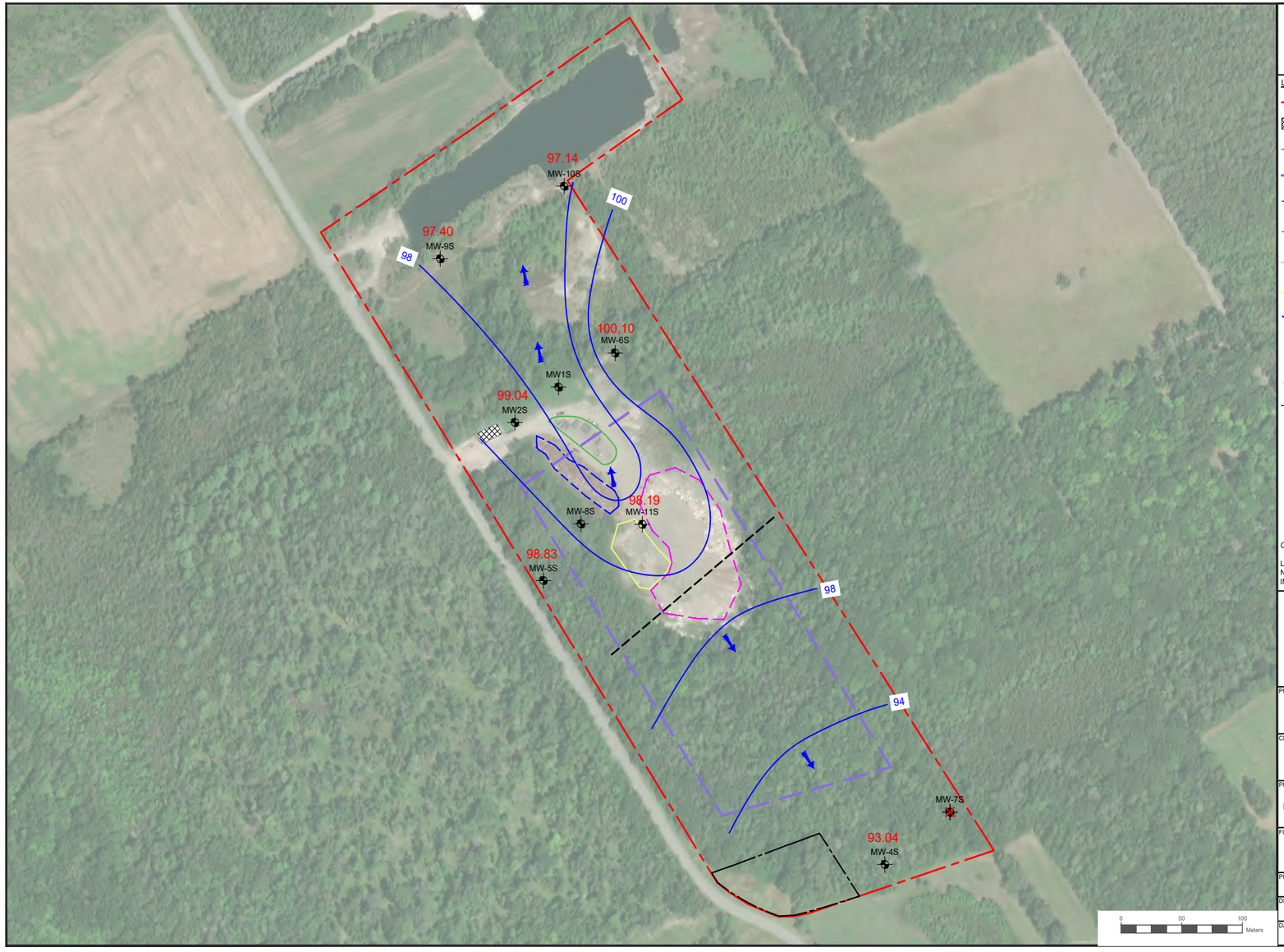
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2025 WATER QUALITY MONITORING REPORT

CLIENT NAME:
TOWN OF GREATER NAPANEE

PROJECT LOCATION:
SOUTH FREDRICKSBURGH WASTE DISPOSAL SITE, GREATER NAPANEE, ONTARIO

FIGURE NAME:
DEEP GROUNDWATER CONTOURS SPRING 2025

PROJECT NUMBER:	SCALE:
350221.001	AS SHOWN
DRAWN BY: KL	REVIEWED BY: AV
DATE: APRIL 2026	FIGURE NUMBER: 7



N

LEGEND

- SITE BOUNDARY
- WASTE TRANSFER STATION
- ACTIVE FILL AREA
- PROPOSED WASTE FOOTPRINT (4.54ha)
- FORMER WASTE DISPOSAL SITE (CLOSED)
- BRUSH PILE
- WASTE DIVERSION
- COVER MATERIAL STOCKPILE AREA
- GROUNDWATER CONTOUR LINES
- GROUNDWATER FLOW DIRECTION
- xxx.xx GROUNDWATER ELEVATION
- MONITORING WELL
- INFERRED GROUNDWATER DIVIDE
- MONITORING WELL COULD NOT BE LOCATED

COORDINATE SYSTEM - UTM 83-18

LEGEND IS COLOUR DEPENDENT. NON-COLOUR COPIES MAY ALTER INTERPRETATION.

PINCHIN

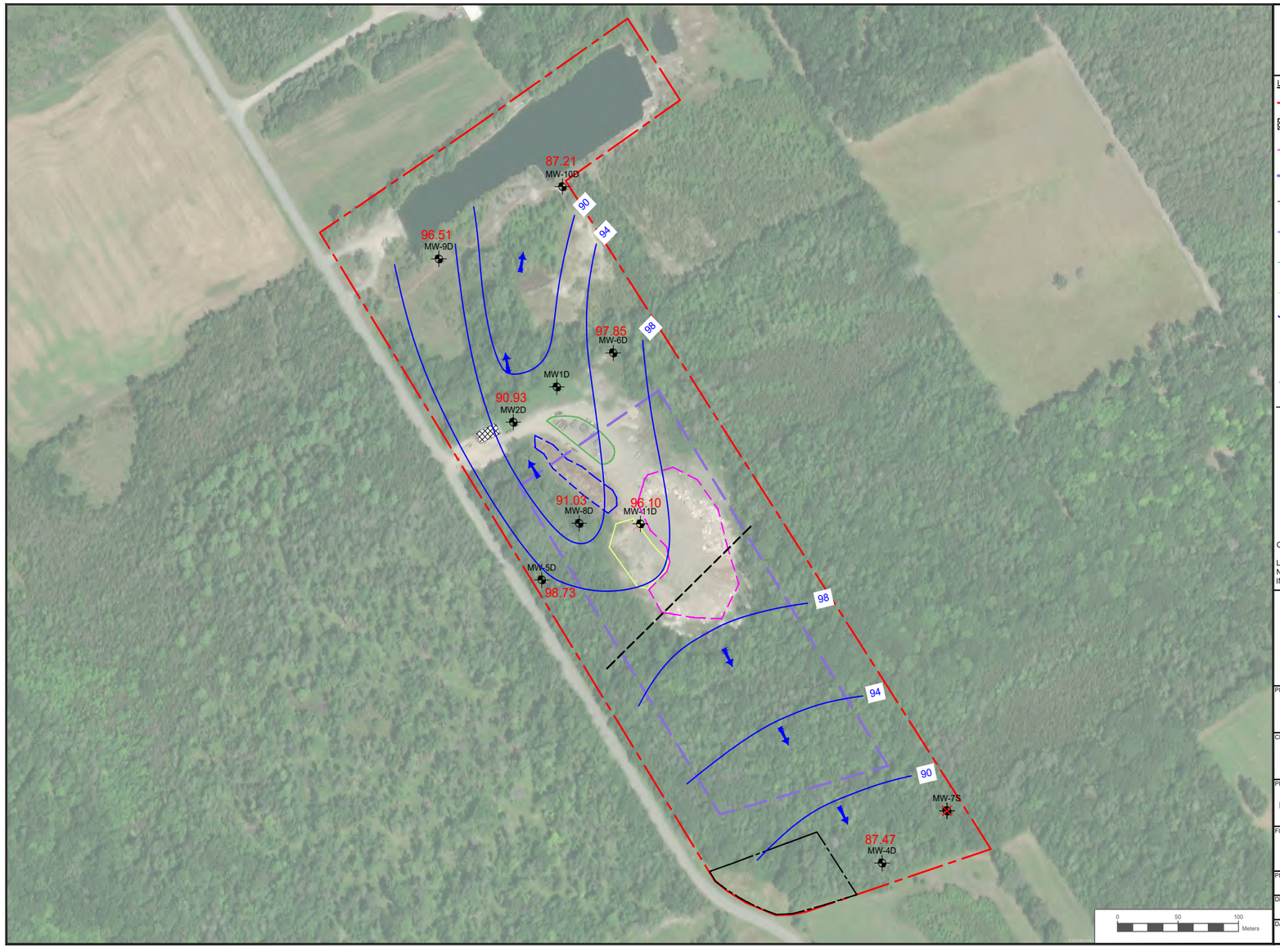
PROJECT NAME:
2025 WATER QUALITY MONITORING REPORT

CLIENT NAME:
TOWN OF GREATER NAPANEE

PROJECT LOCATION:
SOUTH FREDRICKSBURGH WASTE DISPOSAL SITE, GREATER NAPANEE, ONTARIO

FIGURE NAME:
SHALLOW GROUNDWATER CONTOURS FALL 2025

PROJECT NUMBER:	SCALE:
350221.001	AS SHOWN
DRAWN BY: KL	REVIEWED BY: AV
DATE: APRIL 2026	FIGURE NUMBER: 8



N

LEGEND

- SITE BOUNDARY
- WASTE TRANSFER STATION
- ACTIVE FILL AREA
- PROPOSED WASTE FOOTPRINT (4.54ha)
- FORMER WASTE DISPOSAL SITE (CLOSED)
- BRUSH PILE
- WASTE DIVERSION
- COVER MATERIAL STOCKPILE AREA
- GROUNDWATER CONTOUR LINES
- GROUNDWATER FLOW DIRECTION
- xxx.xx GROUNDWATER ELEVATION
- MONITORING WELL
- INFERRED GROUNDWATER DIVIDE
- MONITORING WELL COULD NOT BE LOCATED

COORDINATE SYSTEM - UTM 83-18

LEGEND IS COLOUR DEPENDENT. NON-COLOUR COPIES MAY ALTER INTERPRETATION.

PINCHIN

PROJECT NAME:
2025 WATER QUALITY MONITORING REPORT

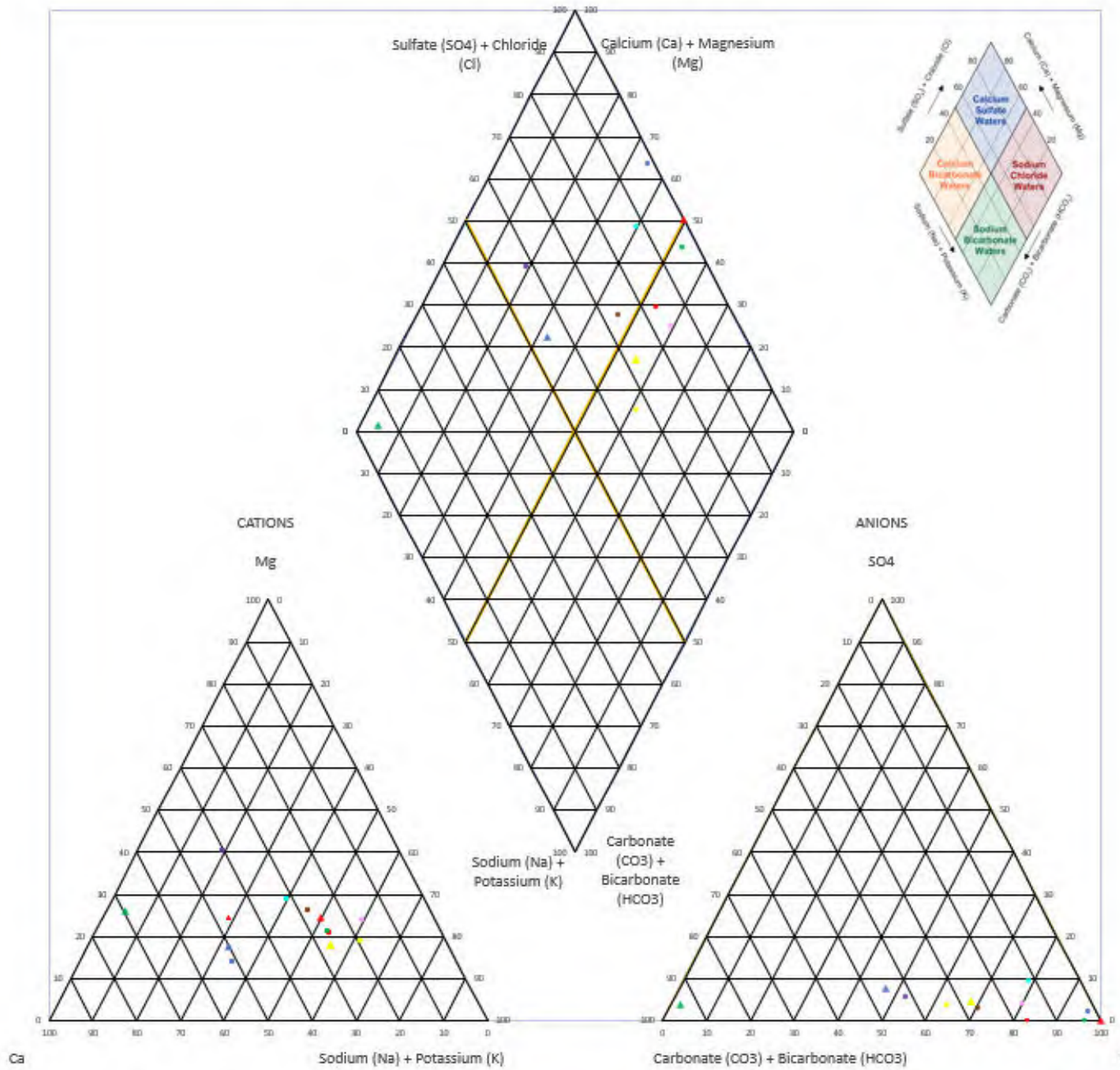
CLIENT NAME:
TOWN OF GREATER NAPANEE

PROJECT LOCATION:
SOUTH FREDRICKSBURGH WASTE DISPOSAL SITE, GREATER NAPANEE, ONTARIO

FIGURE NAME:
DEEP GROUNDWATER CONTOURS FALL 2025

PROJECT NUMBER:	SCALE:
350221.001	AS SHOWN
DRAWN BY: KL	REVIEWED BY: AV
DATE: APRIL 2026	FIGURE NUMBER: 9

Spring 2025 - Combined Piper Plot (in % meq/L)



N

LEGEND

- MW1S
- MW1D
- MW2S
- MW11D
- MW5S
- MW5D
- MW6S
- MW6D
- MW9S
- MW9D
- MW10S
- R1

COORDINATE SYSTEM - UTM 83-18

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PINCHIN

PROJECT NAME: 2025 WATER QUALITY MONITORING REPORT

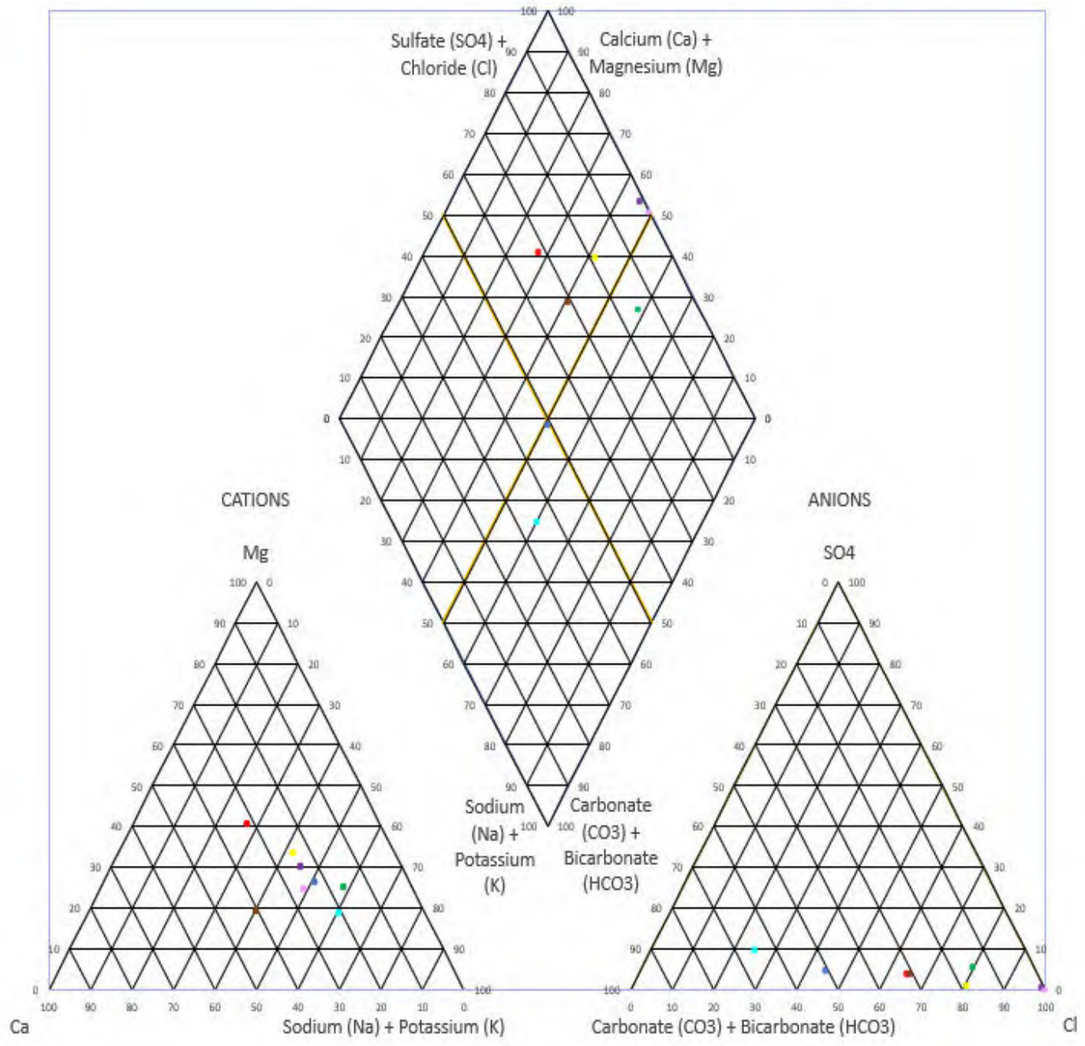
CLIENT NAME: TOWN OF GREATER NAPANEE

PROJECT LOCATION: SOUTH FREDRICKSBURGH WASTE DISPOSAL SITE, GREATER NAPANEE, ONTARIO

FIGURE NAME: GROUNDWATER PIPER PLOT - SPRING 2025

PROJECT NUMBER:	SCALE:
350221.001	AS SHOWN
DRAWN BY: KL	REVIEWED BY: AV
DATE: APRIL 2026	FIGURE NUMBER: 10

Fall 2025 - Combined Piper Plot (in % meq/L)



N

LEGEND

- MW2S
- MW5S
- MW5D
- MW6S
- MW6D
- MW9S
- MW9D
- MW10S

COORDINATE SYSTEM - UTM 83-18

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PINCHIN

PROJECT NAME:	2025 WATER QUALITY MONITORING REPORT
CLIENT NAME:	TOWN OF GREATER NAPANEE
PROJECT LOCATION:	SOUTH FREDRICKSBURGH WASTE DISPOSAL SITE, GREATER NAPANEE, ONTARIO
FIGURE NAME:	GROUNDWATER PIPER PLOT - FALL 2025
PROJECT NUMBER: 350221.001	SCALE: AS SHOWN
DRAWN BY: KL	REVIEWED BY: AV
DATE: APRIL 2026	FIGURE NUMBER: 11

APPENDIX II

Environmental Compliance Approval No. A371001

RECEIVED FEB 0 9 2015

Ontario

Ministry of the Environment and Climate Change
Ministère de l'Environnement et de l'Action en matière de changement climatique

AMENDED ENVIRONMENTAL COMPLIANCE APPROVAL
NUMBER A371001
Issue Date: January 26, 2015

The Corporation of the Town of Greater Napanee
124 John St , P.O. Box 97
Greater Napanee, Ontario
K7R 3L4

Site Location: South Fredericksburgh Waste Disposal Site
Lot 1, Concession 2
Town of Greater Napanee (in the former Township of South Frederickburg), County of Lennox and Addington
K7R 3L1

You have applied under section 20.2 of Part II.1 of the Environmental Protection Act, R.S.O. 1990, c. E. 19 (Environmental Protection Act) for approval of:

a 8.9 ha landfilling site being known as the South Fredericksburgh Waste Disposal Site

For the purpose of this environmental compliance approval, the following definitions apply:

"Act" and ***"EPA"*** means the *Environmental Protection Act, R.S.O. 1990, C.E-19* as amended;

*"**Adverse Effect**"* means the same as the definition in the EPA;

"Blue Box Recyclables" *or* ***"Blue Box Waste"*** means commingled containers (tin, aluminium, steel, plastic, mixed glass) and mixed fibres only for the operations approved in this *Approval;*

"Director" means any *Ministry* employee appointed in writing by the Minister pursuant to section 5 of the EPA as a Director for the purposes of Part V of the EPA;

"District Manager" refers to the District Manager in the Ministry of the Environment and Climate Change's Kingston District Office;

"District Office " refers to the Ministry of the Environment and Climate Change Kingston District Office;

"EAB" refers to the *Environmental Approvals Branch* of the *Ministry of the Environment;*

"Environmental Compliance Approval" or "ECA" or ***"Approval"*** means this entire provisional Environmental Compliance Approval document, issued in accordance with *Section 20.2* of the *EPA* , and includes any schedules to it, the application and the supporting documentation listed in Schedule "A";

"EPA" means *Environmental Protection Act* , *R.S.O. 1990* , c. E. 19, as amended from time to time;

"*MOECC* " or **"*Ministry* "** refers to the Ontario Ministry of the Environment and Climate Change;

"*Operator* " has the same meaning as "operator" as defined in *s.25* of the *EPA* ;

"*Owner* " means the Town of Greater Napanee;

"O. Reg. 101/94" means *Ontario Regulation 101/94* as amended from time to time;

"*PA* " means the *Pesticides Act* , R.S.O. 1990, c. P-11, as amended from time to time;

***"Provincial Officer* "** means any person designated in writing by the Minister as a provincial officer pursuant to *Section 5* of the *OWRA* or section 5 of the *EPA* or section 17 of *PA;*

"Regional Director" refers to the Director of the Ministry of the Environment and Climate Change's Eastern Regional Office;

"*Regulation 347* " or "*Reg. 347* " or "O. Reg. 347" means Regulation 347, R.R.O. 1990, made under the *EPA* , as amended from time to time;

"RUPO" means the Ministry of the Environment and Climate Change Reasonable Use Policy Objectives (Guideline B-7);

"Site" or ***"WDS"*** refers to the South Fredericksburgh Waste Disposal Site and lands owned by the Owner described as:

i. Lot 1, Concession 2 in the Town of Greater Napanee (in the Former Township of South Frederickburg), County of Lennox and Addington.

You are hereby notified that this environmental compliance approval is issued to you subject to the terms and conditions outlined below:

TERMS AND CONDITIONS

1.0 General

1.1 The Requirements specified in this ECA are the requirements under the *Environmental Protection Act, R.S.O. 1990* . The issuance of this Approval in no way abrogates the Applicant's legal obligations to take all reasonable steps to avoid violating other applicable provisions of this legislation and other legislation and regulations.

1.2 The Applicant shall ensure that all communications/correspondence made pursuant to this ECA includes reference to the ECA approval number A 371001.

1.3 The obligations imposed by the terms and conditions of this ECA are obligations of due diligence.

Compliance

1.4 The *Owner* shall ensure that any person authorized to carry out work on or operate any aspect of the *Site* is notified of the *ECA* and the conditions herein and shall take all reasonable measures to ensure the person complies with the same.

1.5 Any person authorized to carry out work on or operate any aspect of the *Site* shall comply with the conditions of this *ECA* .

In Accordance

1.6 Except as otherwise provided for in this *ECA* , the *Site* shall be operated and maintained in accordance with the application for *Environmental Compliance Approval for a Waste Disposal Site* and the supporting documentation listed in Schedule "A".

Other Legal Obligations

1.7 The issuance of, and compliance with, this *ECA* does not:

(a) relieve any person of any obligation to comply with any provision of the *EPA* or any other applicable statute, regulation or other legal requirement; or
(b) limit in any way the authority of the *Ministry* to require certain steps be taken or to request that any further information related to compliance with this *ECA* be provided to the *Ministry* ;

unless a provision of this *ECA* specifically refers to the other requirement or authority and clearly states that the other requirement or authority is to be replaced or limited by this *ECA* .

Adverse Effect

1.8 The *Owner* or *Operator* remain responsible for any contravention of any other condition of this *ECA* or any applicable statute, regulation, or other legal requirement resulting from any act or omission that caused the adverse effect or impairment of air and/or water quality.

Furnish Information

1.9 Any information requested by the *Director* or a *Provincial Officer* concerning the *Site* and its operation under this *ECA* , including but not limited to any records required to be kept by this

ECA shall be provided in a timely manner.

1.10 The receipt of any information by the *Ministry* or the failure of the *Ministry* to prosecute any person or to require any person to take any action, under this *ECA* or under any statute, regulation or subordinate legal instrument, in relation to the information, shall not be construed as:

i. an approval, waiver, or justification by the *Ministry* of any act or omission of any person that contravenes any condition of this *ECA* or any statute, regulation or other subordinate legal requirement; or
ii.. acceptance by the *Ministry* of the information's completeness or accuracy.

1.11 Any information related to this *ECA* and contained in *Ministry* files may be made available to the public in accordance with the provisions of the Freedom of Information and Protection of Privacy Act, RSO 1990, CF-31.

Interpretation

1.12 Where there is a conflict between a provision of any document, including the application, referred to in this *ECA* , and the conditions of this *ECA,* the conditions in this *ECA* shall take precedence.

1.13 Where there is a conflict between the application and a provision in any documents listed in Schedule "A", the application shall take precedence, unless it is clear that the purpose of the document was to amend the application and that the *Ministry* approved the amendment in writing.

1.14 Where there is a conflict between any two documents listed in Schedule "A", other than the application, the document bearing the most recent date shall take precedence.

1.15 The conditions of this *ECA* are severable. If any condition of this *ECA* , or the application of any condition of this *ECA* to any circumstance, is held invalid or unenforceable, the application of such condition to other circumstances and the remainder of this *ECA* shall not be affected thereby.

Certificate of Requirement

1.16 Pursuant to Section 197 of the *EPA* , no person having an interest in the *Site* shall deal with the *Site* in any way without first giving a copy of this *ECA* to each person acquiring an interest in the *Site* as a result of the dealing.

1.17 In the event any additional land is acquired for the *Site* , then two (2) copies of a completed Certificate of Requirement, containing a registerable description of the additional lands for the *Site* , shall be submitted to the Director for the Director's signature within sixty (60) calendar days of any amendment to this *ECA* that incorporates the land into the *ECA* .

1.18 In the event any additional land is acquired for the *Site* , then the Certificate of Requirement shall be registered in the appropriate land registry office on title to the *Site* and a duplicate registered copy shall be submitted to the *Director* within ten (10) calendar days of receiving the Certificate of Requirement signed by the *Director* .

No Transfer or Encumbrance

1.19 No portion of this *Site* shall be transferred or encumbered prior to or after closing of the *Site* unless the *Director* is notified in advance and is satisfied with the arrangements made to ensure that all conditions of this *ECA* will be carried out and that sufficient financial assurance is deposited with the *Ministry* to ensure that these conditions will be carried out.

Change of Owner

1.20 The *Owner* shall notify the *Director* , in writing, and forward a copy of the notification to the *District Manager* , within 30 days of the occurrence of any changes in the following information:

i. the ownership of the *Site* ;
ii. the Operator of the *Site* ;
iii. the address of the *Owner* or *Operator* ;
iv. the partners, where the *Owner* or *Operator* is or at any time becomes a partnership and a copy of the most recent declaration filed under the *Business Names Act* , R. S. O. 1990, c. B.17, shall be included in the notification;
v. the name of the corporation where the *Owner* or *Operator* is or at any time becomes a corporation, other than a municipal corporation, and a copy of the most current information filed under the *Corporations Information Act* , R. S. O. 1990, c. C.39, shall be included in the notification.

1.21 In the event of any change in the ownership of the *Site* , other than a change to a successor municipality, the *Owner* shall notify in writing the succeeding owner of the existence of this *ECA* , and a copy of such notice shall be forward to the *Director* and *District Manager* .

Inspections

1.22 No person shall hinder or obstruct a *Provincial Officer* from carrying out any and all inspections authorized by the *EPA* or the *PA* , of any place to which this *ECA* relates, and without limiting the foregoing:

i. to enter upon the premises where the approved works are located, or the location where the records required by the conditions of this *ECA* are kept;
ii. to have access to, inspect, and copy any records required to be kept by the conditions of this *ECA* ;
iii. to inspect the *Site,* related equipment and appurtenances;

iv. to inspect the practices, procedures, or operations required by the conditions of this *ECA* ; and

v. to sample and monitor for the purposes of assessing compliance with the terms and conditions of this *ECA* or the *EPA* or the *PA* .

2.0 GENERAL OPERATIONS

Proper Operation

2.1 The *Site* shall be properly operated and maintained at all times. All waste shall be managed and disposed of in accordance with the *EPA* and *Regulation* 347 and the requirements of this *ECA*. At no time shall the discharge of a contaminant that causes or is likely to cause an *Adverse Effect* be permitted.

Design and Operations Plan

2.2 The operations and procedures manual shall be:

i. retained at the *Site* ;
ii. reviewed on an annual basis and updated by the *Owner,* as required; and
iii. be available for inspection by *Ministry* staff.

Capacity

2.3 (1) The volumetric capacity approved under this ECA based on Design and Operations Plan for the *Site* is **285,500 cubic metres** (including waste and daily cover material);

(2) The theoretical capacity of the *Site* is **460,000 cubic metres** (including waste and daily cover material); and

(3) The total capacity as identified in Condition No. 2.3 (1) does not include the final cover.

Service Area

2.4 Only solid non hazardous waste that is generated in the within the boundaries of the Town of Greater Napanee shall be accepted at the *Site* . No waste shall be received for disposal and/or transfer at this *Site* from outside the approved service area.

Hours of Operation

2.5 (1) Waste shall only be accepted at the *Site* during the following time periods:

i. Wednesday - 4:00 p.m. to 8:00 p.m.; and

ii. Saturday - 8:00 a.m to 3:00 p.m.

(2) Amending the hours of operation requires *Director* 's Approval.

2.6 With the prior written approval of the *District Manager* , the time periods may be extended to accommodate seasonal or unusual quantities of waste.

2.7 The *Owner* may provide limited hours of operation provided that the hours are posted at the landfill gate and that suitable notice is provided to the public of any change in operating hours.

2.8 Upon reasonable notice to the *Director,* contingency actions may take place outside normal hours of operation. Emergency response may occur at any time as required.

Signage

2.9 (1) Signs shall be placed at the landfill *Site* entrance/exit indicating, at a minimum, the following:

(a) Name of the landfill and name of the *Owner/Operator* ;
(b) *MOECC ECA* Number;
(c) Days and hours of operation and public use;
(d) Contact telephone number at the Town of Greater Napanee;
(e) Service area for the *Site* ;
(f) Types of waste accepted and prohibited;
(g) Overview of landfill complaints procedure, including a phone number for registering a complaint;
(h) Unauthorized entry is prohibited; and
(i) A warning against dumping wastes outside the *Site* .

(2) The *Owner* shall install and maintain signs to direct vehicles to the landfill working face and transfer station for waste and recyclables.

(3) The *Owner* shall provide signs at recycling depot informing users what materials are acceptable and directing users to appropriate storage area.

Site Security

2.10 During non-operating hours, the *Site* entrance and exit gates shall be locked and the *Site* shall be secured against access by unauthorized persons

On-Site Roads

2.11 On-*Site* roads shall be provided and maintained in a manner that vehicles hauling waste to and on the *Site* may travel readily and safely on any operating day. During winter months, when the *Site* is in operation, roads must be maintained to ensure safe access to the landfill working face

and transfer station. On-*Site* roads must be clear of mud, ice and debris which may create hazardous conditions.

Waste Inspection Procedures

2.12 The *Operator* shall develop and implement a program to inspect waste to ensure that the waste is of a type approved for acceptance under this *ECA* .

Waste Inspection and Deposition

2.13 All loads of waste must be properly inspected by trained site personnel prior to acceptance at the *Site* and waste vehicles must be diverted to appropriate areas for waste disposal and transfer.

Litter Control

2.14 The *Owner* shall take all practical steps to prevent escape of litter from the *Site* . The *Owner* shall inspect and collect litter from the *Site* on a monthly basis from April to November and as needed between December and March. All loose, windblown litter shall be collected and disposed of at the landfill working face if applicable, or transported off-*Site* to be disposed of at an approved facility.

Vermin, Scavenging, Dust, Litter, Odour, Noise, etc.

2.15 The *Site* shall be operated and maintained such that the vermin, vectors, dust, litter, odour, noise and traffic do not create a nuisance.

2.16 No scavenging is to occur at the *Site.*

2.17 The *Owner* shall control fugitive dust emissions from on site sources including but not limited to on-*Site* roads, stockpiled cover material and, closed landfill area prior to seeding especially during times of dry weather conditions. If necessary, major sources of dust shall be treated with water and/or dust suppression materials to minimize the overall dust emissions from the *Site.*

2.18 The *Owner* shall comply with noise criteria in MOECC Guideline entitled *"Noise Guidelines for Landfill Sites."*

Overall Surface Water Management

2.19 (1) The *Owner* shall take all appropriate measures to minimize surface water from coming in contact with waste. Temporary berms and ditches shall be constructed around active waste disposal areas to prevent extraneous surface water from coming in contact with the active working face.

(2) The *Owner* shall not discharge surface water to receiving water bodies without an approval under the *EPA* .

Landfill Gas

2.20 All buildings are to be free of any landfill gas accumulation. The *Owner* shall provide adequate ventilation systems to relieve landfill gas accumulations in buildings if necessary.

3.0 LANDFILL SITE OPERATIONS

Landfill Operations

3.1 Except as otherwise provided by these Conditions, the landfilling operations at the *Site* shall be conducted in accordance with the Application for an *Environmental Compliance Approval* for a Waste Disposal Site for the Town of Greater Napanee and the supporting documentation, plans and specifications listed in Schedule "A".

Acceptable Waste

3.2 The Site is permitted to accept solid non-hazardous waste.

Unacceptable Waste

3.3 (1) The *Owner* shall conduct appropriate inspections and ensure that appropriate controls are in place to prevent the acceptance and landfilling of liquid industrial waste and hazardous waste and to prevent the acceptance of waste from outside the approved service area.

(2) The *Owner* shall record in the daily records for the *Site* operations any occurrence of unacceptable waste delivered to the *Site* , the name of the waste hauler delivering the waste to the *Site* and waste generator (if known).

(3) The *Owner* shall forthwith notify the *District Manager* of any and all waste load refusals at the *Site* related to requirements in this *ECA* , including service area and waste types.

Burning of Waste

3.4 (1) Burning of waste is not permitted at the *Site* with the exception of waste under Condition 3.4 (2)(i).

(2) (i) Only clean wood and brush shall be permitted for burning. Burning of the materials shall be completed as per the Ministry of the Environment Guideline C-7 (Burning at Landfill Sites);

(ii) The clean wood/brush area shall be clearly marked with a sign(s) that prohibits the public from approaching the area when burning operations are occurring.

(iii) The *Owner* shall ensure there is a designated area for ash material.

Waste Placement

3.5 No waste shall be landfilled outside of the **limit of fill area** for the *Site* as shown in Item 5 in Schedule "A" attached to this *ECA* .

3.6 No waste shall be landfilled at any time above the **final waste grades** as shown in Item 5 in Schedule "A" attached to this *ECA* ; and

3.7 Final slopes above grade at the time of *Site* closure within the waste fill area shall be within the range of 4H:1V (25%) and 20H:1V (5%).

3.8 Waste placement shall occur at a minimum 1 meter above the highest groundwater table elevation at the *Site* .

3.9 No waste shall be landfilled in the buffer area.

3.10 The *Owner* shall deposit waste in a manner that minimizes exposure area at the landfill working face and all waste shall be compacted before cover is applied.

Cover Material

3.11 (1) Daily Cover

(a) Summer - The entire working face shall be compacted and covered with a minimum thickness of 150 mm of soil cover or an approved thickness of alternative cover material at least once per week (more frequent as required to address issues under Condition 2.15). Alternative cover approved by this ECA includes Soil mixed with Compost (generated at other Sites).

(b) Winter -The entire working face shall be compacted and covered with a minimum thickness of 150 mm of soil cover or an approved thickness of alternative cover material at least once per month (more frequent as required to address issues under Condition 2.15). Alternative cover approved by this ECA includes Soil mixed with Compost (generated at other Sites).

(2) Intermediate Cover - In areas where landfilling has been temporarily discontinued for six (6) months or more, a minimum thickness of 300 mm of soil cover or an approved thickness of alternative cover material shall be placed.

Landfill Surface Water Management

3.12 Stormwater runoff generated from the active waste fill area shall be considered contaminated and treated as leachate. Operational methods shall ensure that any precipitation falling onto active

waste fill areas, not under final cover, shall be directed into the waste mound to ensure this potentially impacted surface water is not discharged to the natural environment.

4.0 BLUE BOX WASTE/RECYCLING TRANSFER STATION

4.1 The maximum storage capacity for the *Waste Transfer Facility* and for each type of material is as follows:

Material	Total Volume (m^3)
Blue Box Recyclable – Commingled Containers	80
Blue Box Recyclable – Mixed Fibres	80
Plastics	20
Tires	50
Scrap Metal	50
Propane Tanks	20
Clean Wood and Brush	200
E-Waste	40
Matresses	40
Reuse Centre	50
SSO	200

Operations

4.2 Recycling activities shall be completed as per *Ontario Regulation 101/94* .

4.3 Recyclable materials shall be properly separated and each area properly identified. The areas shall be kept in a neat and tidy manner.

4.4 The operating hours of the *Waste Transfer Facility* shall in as those in *Condition 2.6* in this *ECA* .

4.5 All waste types shall be segregated either into bins with locks and doors, or in designated areas defined by barriers. All bins and designated waste storage areas shall be clearly labelled.

4.6 No waste shall be received at the *Waste Transfer Station* except during operating hours when the *Waste Transfer Station* is under the supervision of the trained personnel.

5.0 TRAINING

Employees and Training

5.1 A training plan for all employees that operate any aspect of the site shall be developed and implemented by the *Operator*. Only trained employees shall operate any aspect of the *Site* or

carry out any activity required under this *ECA* . For the purpose of this *ECA* "trained" means knowledgeable either through instruction or practice in:

i. the relevant waste management legislation *including EPA, O. Reg. 347* , regulations and guidelines;
ii. major environmental *and occupational health and safety* concerns pertaining to the waste to be handled;
iii. the proper handling of wastes;
iv. the management procedures including the use and operation of equipment for the processes and wastes to be handled;
v. the emergency response procedures;
vi. the specific written procedures for the control of nuisance conditions;
vii. the *terms, conditions and operating* requirements of this *ECA* and,
viii. proper inspection, receiving and recording procedures and the activities to be undertaken during and after a load rejection.

6.0 INSPECTIONS AND RECORD KEEPING

Daily Inspections and Log Book

6.1 An inspection of the entire *Site* and all equipment on the *Site* shall be conducted each day the *Site* is in operation to ensure that the site is being operated in compliance with this *ECA* . Any deficiencies discovered as a result of the inspection shall be remedied immediately, including temporarily ceasing operations at the *Site* if needed.

6.2 A record of the inspections shall be kept in a daily log book *or a dedicated electronic file* that includes:

i. the name and signature of person that conducted the inspection;
ii. the date and time of the inspection;
iii. the list of any deficiencies discovered;
iv. the recommendations for remedial action; and
v. the date, time and description of actions taken.

6.3 A record shall be kept in the daily log book of all the following:

i. the type, date and time of arrival, hauler, and estimated quantity (i.e. cubic metres) of all waste received at the *Site* ; and,
ii. a list of the refusal of waste shipments, the reason(s) for refusal, and the origin of the waste, if known.

Site Inspections

6.4 During *Site* operations, the *Owner* shall inspect the *Site* monthly for the following items but not

limited to these items:

i. General settlement areas or depressions on the waste mound;
ii. Shear and tension cracks on the waste mound;
iii. Condition of surface water drainage works;
iv. Erosion and sedimentation in surface water drainage system;
v. Presence of any ponded water on the waste mound;
vi. Evidence of vegetative stress, distressed poplars or side slope plantings on or adjacent to the waste mound; and
vii. Condition of fence surrounding the *Site*.

6.5 The *Owner* shall inspect the waste mound and surrounding areas weekly for presence of leachate seeps. Any leachate seeps that are discovered shall be repaired within 48 hours of notice by the *Owner* .

Record Retention

6.6 Except as authorized in writing by the *Director* , all records required by this *ECA* shall be retained at the *Municipal OfficeSite* for a minimum of two (2) years from their date of creation.

6.7 The *Owner* shall retain all documentation listed in Schedule "A" for as long as this *ECA* is valid.

6.8 All monthly summary reports are to be kept at the *Site* until they are included in the Annual Report.

6.9 The *Owner* shall retain employee training records as long as the employee is working at the *Site* .

6.10 The *Owner* shall make all of the above documents available for inspection upon request of *Ministry* staff.

7.0 MONITORING

Groundwater Monitors

7.1 The *Owner* shall ensure all groundwater monitoring wells are properly capped, locked and protected from damage.

7.2 In areas where landfilling is to proceed around monitoring wells, suitable extensions shall be added to the wells and they shall be properly re-secured.

7.3 All groundwater monitoring wells whether included in the monitoring program or not shall be assessed, repaired, replaced or decommissioned as required. Any well being decommissioned shall be decommissioned in accordance with good standard practice that will prevent

contamination through the abandoned well and in accordance with Ontario Regulation 903.

7.4 The *Owner* shall repair or replace any monitoring well included in the monitoring program which is destroyed or in any way made inoperable for sampling such that no more than one sampling event is missed.

7.5 Any monitoring well included in the monitoring program that is no longer required as part of the groundwater monitoring program may be decommissioned provided its removal from the monitoring program has been approved by the *Director* . A report on the decommissioning shall be provided in the annual monitoring report for the period during which the well was decommissioned.

Monitoring Programs

7.6. The *Owner* shall conduct the environmental monitoring program at the frequencies and for the parameters specified in Schedule "B"

7.7 (1) For any changes to the monitoring program, the *Owner* shall in a cover letter request the acceptance of the changes by the *District Manager* .

(2) Within fourteen (14) days of receiving the writing correspondence from the *District Manager* confirming that the *District Manager* is in agreement with the proposed changes to the monitoring program, the *Owner* shall forward a letter identifying the proposed changes and a copy of the correspondences from the *District Manager* , to the *Director* requesting the *ECA* be amended to approve the proposed changes prior to implementation.

Compliance Criteria

7.8 The *Owner* shall ensure the *Site* is in compliance with MOECC Guideline B-7 Reasonable Use Concept is applied and met at all points on the property line which are impacted by leachate from the *Site.*

8.0 TRIGGER MECHANISMS AND CONTINGENCY PLANS

Trigger Mechanisms

8.1 In the event of a confirmed exceedance of a *Site* -specific trigger level for groundwater impacts due to leachate or gas levels, the *Owner* shall complete the following:

i. immediately notify the *District Manager* ; and
ii. an investigation into the cause and the need for implementation of remedial or contingency actions shall be carried out by the *Owner* in accordance with the approved trigger mechanisms and associated contingency plans described in Item 5 of Schedule "A".

Contingency Plans

8.2 If monitoring results, investigative activities and/or trigger mechanisms indicate the need to implement contingency measures, the *Owner* shall ensure that the following steps are taken:

(a) The *Owner* shall notify the *Director* and *District Manager* , in writing, of the need to implement contingency measures, no later than 30 days after confirmation of the exceedances;

(b) Detailed plans, specifications and descriptions for the design, operation and maintenance of the contingency measures shall be prepared and submitted by the *Owner* to the *Director* for approval with copies to the *District Manager* within 90 days after confirmation of the exceedances; and

(c) The contingency measures shall be implemented by the *Owner* upon approval by the *Director* .

8.3 The *Owner* shall ensure that any proposed changes to the *Site* -specific trigger levels for leachate impacts to the groundwater shall be approved in advance by the *Director* prior to implementation.

9.0 COMPLAINTS PROCEDURE

9.1 If at any time, the *Owner* receives complaints regarding the operation of the *Site* , the *Owner* shall respond to these complaints according to the following procedure:

(a) The *Owner* shall record and number each complaint, either electronically or in a log book, and shall include the following information: the nature of the complaint, the name, address and the telephone number of the complainant if the complainant will provide this information and the time and date of the complaint;

(b) The *Owner* , upon notification of the complaint, shall initiate appropriate steps to determine all possible causes of the complaint, proceed to take the necessary actions to eliminate the cause of the complaint and forward a formal reply to the complainant; and

(c) The *Owner* shall complete a report written within one (1) week of the complaint date, listing the actions taken to resolve the complaint and any recommendations for remedial measures, and managerial or operational changes to reasonably avoid the recurrence of similar incidents. A copy of the report shall be retained on-site.

9.2 The *Owner* shall post site complaints procedure at site entrance along with the name and phone number of a suitable, local contact to receive complaints or questions related to the *Site* . All

complaints and the *Owner* 's actions taken to remedy the complaints must be summarized in the Annual Report.

10.0 EMERGENCY SITUATIONS

10.1 In the event of a fire or discharge of a contaminant to the environment, *Site* staff shall contact the *MOECC* Spills Action Centre (1-800-268-6060) and the *District Office* of the *MOECC* .

10.2 The *Owner* shall submit to the *District Manager* a written report within 3 days of the spill or incident, outlining the nature of the incident, remedial measures taken and measures taken to prevent future occurrences at the Site.

10.3 The *Owner* shall prepare an Emergency Response Manual for the *Site* and submit to the *District Manager* within 60 days of the issuance of this amendment, in consultation with local emergency response agencies. The Emergency Response Manual should indicate the responsibility of each of the stakeholders with respect to handling possible emergency situations.

10.4 The Emergency Response Manual shall be updated on a regular basis and be provided to the *District Manager* within one month of the revision date.

10.5 The *Owner* shall ensure that adequate fire fighting and contingency spill clean up equipment is available and that emergency response personnel are familiar with its use and location.

11.0 ANNUAL REPORTING

11.1 A written report on the development, operation, monitoring and closure of the *Site* , shall be completed annually (the "Annual Report"). The Annual Report shall be submitted to the *Regional Director* and the *District Manager* by **April 30th** of each year and shall cover the year ending the preceding December 31st.

11.2 The Annual Report shall include the following:

i. the results and an interpretive analysis of the results of environmental monitoring program, including an assessment of the need to amend the monitoring program;

ii. an assessment with regards to compliance of the groundwater quality at the property boundary and compliance point with regards to Guideline B-7 - Reasonable Use Concept;

iii. an assessment of the operation and performance of all engineered facilities, the need to amend the design or operation of the *Site* , and the adequacy of and need to implement the contingency plans;

iv. an assessment of the efficiency of the leachate management at the *Site* ;

v. site plans showing the existing contours of the *Site;*

vi. areas of landfilling operation during the reporting period;

vii. areas of intended operation during the next reporting period;

viii. areas of excavation during the reporting period;

ix. the progress of final cover, vegetative cover, and any intermediate cover application;

x. previously existing site facilities;

xi. facilities installed during the reporting period;

xii. *Site* preparations and facilities planned for installation during the next reporting period;

xiii. calculations of the volume of waste, daily and intermediate cover, and final cover deposited or placed at the *Site* during the reporting period and a calculation of the total volume of Site capacity used during the reporting period;

xiv. a summary of the quantity of any leachate or pre-treated leachate removed from the *Site* during each operating week;

xv. a summary of the weekly, maximum daily and total annual quantity (cubic metres) of waste received at the Site.

xvi. a summary of any complaints received and the responses made;

xvii. a discussion of any operational problems encountered at the *Site* and corrective action taken;

xviii. a summary of the amount of wastes refused for acceptance at the *Site* , the reasons for refusal and the carrier who brought the waste to the *Site* ;

xix. a report on the status of all monitoring wells and a statement as to compliance with Ontario Regulation 903;

xx. any other information with respect to the site which the *District Manager or Regional Director may require from time to time;*

xxi. a statement of compliance with all conditions of this *ECA* and other relevant *Ministry* groundwater and surface water requirements;

xxii. a confirmation that the site inspection program as required by this *ECA* has been complied with by the *Owner* ;

xxiii. any changes in operations, equipment or procedures employed at the *Site* ; and

xxiv. recommendations regarding any proposed changes in operations of the *Site* .

12.0 SITE CLOSURE

12.1 At least two (2) year prior to the anticipated date of closure of this *Site* or the date 90 per cent of the total waste disposal volume is reached, whichever occurs first, the *Owner* shall submit to the *Director* for approval, with copies to the *District Manager* , a detailed *Site* Closure Plan pertaining to the termination of landfilling operations at this *Site* , post-closure inspection, maintenance and monitoring, and end use.

SCHEDULE "A"

1. Letter from D.G. Kimber, Ministry of the Environment to E.P. Millward (Mrs), Clerk, dated 8/19/75.

2. Site Plan entitled "Proposed Expanded Bulky Waste Site A371001".

3. Application for a Certificate of Approval for a Waste Disposal Site (Landfill) signed by Patricia Culhane, Clerk-Treasurer, dated May 5, 1983.

4. Proposed Plan to Upgrade the Disposal Site, December 21, 1982 as conveyed to R.L. Worthington, Ministry of the Environment from (Mrs.) Patricia Culhane, Clerk-Treasuer, December 21, 1982.

5. Environmental Compliance Approval Application submitted by the Town of Greater Napanee, signed by Meaghan Davey, Manager of Environmental Compliance dated November 15, 2013.

6. Report entitled "Town of Greater Napanee - South Frederickburgh Waste Disposal Site Design and Operations Plan" prepared by AECOM (Project No, 60286193) dated November 2013.

7. Letter dated May 27, 2014 addressed to Mr. Peter Dafoe, Town of Greater Napanee from Mr. Dale Gable, Ministry of the Environment requesting clarification information on the Design and Operations Plan.

8. Letter dated October 28, 2014 addressed to Mr. Dale Gable, Ministry of the Environment from Mr. Guy Laporte, AECOM providing additional information on the Design and Operations Reports pertaining to monitoring location, updated drawings, SSO and hours of operations.

9. Addendum No. 1 dated December 4, 2014 to the Design and Operations Plan - South Fredericksburgh Waste Disposal Site prepared by AECOM (signed by Mr. Guy Laporte) providing an overview of the Reuse Center.

SCHEDULE "B"

Location	Frequency	Parameters
GroundWater		
All Existing Monitors	Fall and Spring	Water Levels
MW1S, MW1D, MW2S, MW2D, MW3S, MW3D, MW4S, MW4D, MW5S, MW5D, MW6S, MW6D, MW8, MW9S, MW9D, MW10S, MW10D, R1 2 QA/QC	Twice (2) annually in the Spring (April/May/June) and Fall (September/October/ November) Field Measurements (pH, Conductivity, Temperature)	Field Measurements (pH, Conductivity, Temperature) Anion Sum, Cation Sum, Ion Ratio, % Difference, Hardness Ammonia, TKN, Nitrite, Nitrate, BOD, COD, Conductivity, pH, TDS, DOC, Total Phosphorous, TSS, Major Ions (alkalinity, Chloride, Sodium, calcium, Magnesium, Potassium and Sulpahte) Arsenic, Barium, Boron, Cadnium, Chromium, Copper, Iron, Lead, Manganese, Mercury and Zinc (Fall)
Surface Water		
SW1, SW2, SW3 and SW5	Three times per year (Spring, Summer and Fall)	Field Measurements (pH, Conductivity, Temperature) Anion Sum, Cation Sum, Ion Ratio, % Difference, Hardness Ammonia, TKN, Nitrite, Nitrate, BOD, COD, Conductivity, pH, TDS, DOC, Total Phosphorous, TSS, Major Ions (alkalinity, Chloride, Sodium, calcium, Magnesium, Potassium and Sulphate) Arsenic, Barium, Boron, Cadnium, Chromium, Copper, Iron, Lead, Manganese, Mercury and Zinc (Fall)

The reasons for the imposition of these terms and conditions are as follows:

1. *The reason for Condition 1.1, 1.2, 1.3, 1.4 and 1.5 is to ensure that the Site is designed, operated, monitored and maintained in accordance with the application and supporting documentation submitted by the Owner, and not in a manner which the Director has not been asked to consider.*

2. *The reason for Conditions 1.6, 1.7, 1.8, 1.12, 1.13, 1.14 and 1.15 is to clarify the legal rights and responsibilities of the Owner under this ECA.*

3. *Conditions 1.9, 1.10 and 1.11 are included to ensure that the appropriate Ministry staff have ready access to information and the operations of the Site, which are approved under this ECA.*

4. *Conditions 1.16, 1.17 and 1.18 are included, pursuant to subsection 197(1) of the EPA, to provide that any persons having an interest in the Site are aware that the land has been approved and used for the purposes of waste disposal.*

5. *The reasons for Condition 1.19 are to restrict potential transfer or encumbrance of the Site without the approval of the Director and to ensure that any transfer of encumbrance can be made only on the basis that it will not endanger compliance with this ECA.*

6. *The reasons for Condition 1.20 and 1.21 are to ensure that the Site is operated under the corporate name which appears on the application form submitted for this approval and to ensure that the Director is informed of any changes.*

7. *The reason for Condition 1.22 is to ensure that appropriate Ministry staff have ready access to the Site for inspection of facilities, equipment, practices and operations required by the conditions in this ECA. This condition is supplementary to the powers of entry afforded a Provincial Officer pursuant to the EPA and OWRA.*

8. *Conditions 2.1 and 3.1 are included in order to ensure that waste disposal, waste transfer operations at the site is undertaken in accordance with applicable Ministry of the Environment regulations and guidelines. Compliance with these regulations and guidelines will ensure that the site does not cause and adverse effect on the environment.*

9. *Condition 2.2 is to ensure the Owner has a operations plans for the site that details all current operations at the site and that a copy is kept on site for the Owner, the Owner's staff and/or operator. This is to ensure the site is operating is a safe manner and the environment and human health are protected.*

10. *Condition 2.3 specifies the maximum amount of waste that may be received at the site based*

on the previously approved Environmental Assessment for the Site.

11. *The reason for Conditions 2.4, 3.4 and 4.5 is to specify the approved areas from which waste may be accepted at the Site and the types and amounts of waste that may be accepted for disposal at the Site, based on the Owner's application and supporting documentation.*

12. *The reasons for Conditions 2.5, 2.6, 2.7 and 2.8 are to specify the normal hours of operation for the landfill Site and a mechanism for amendment of the hours of operation.*

13. *The reason for Conditions 2.9 inclusive is to ensure that users of the Site are fully aware of important information and restrictions related to Site operations under this ECA.*

14. *The reason for Condition 2.10 are to specify site access to/from the Site and to ensure the controlled access and integrity of the Site by preventing unauthorized access when the Site is closed and no site attendant is on duty.*

15. *The reason condition 2.11 has been included is to ensure that access roads are clear and do not pose a safety hazard to the general public.*

16. *Condition 2.12 is needed in order to make certain that the waste received at the site is in accordance with the ECA and O. Reg. 347.*

17. *Condition 2.13 is necessary in order to ensure that all waste loads are inspected and waste that is disposed of at the site is in accordance with the terms and conditions in this ECA.*

18. *The reasons for Conditions 2.14, 2.16 and 2.17 are to ensure that the Site is operated, inspected and maintained in an environmentally acceptable manner and does not result in a hazard or nuisance to the natural environment or any person.*

19. *The reasons for Condition 2.15 are the protection of public health and safety and minimization of the potential for damage to environmental control, monitoring and other works at the landfill Site. Scavenging is the uncontrolled removal of material from waste at a landfill site.*

20. *The reason for Condition 2.18 is to ensure that noise from or related to the operation of the landfill is kept to within Ministry limits and does not result in a hazard or nuisance to any person.*

21. *The reason for Condition 2.19 is to ensure that appropriate measures are taken in order to prevent surface water from contacting waste so as not to cause an adverse effect on the environment.*

22. *Condition 2.20 has been inserted in order to ensure that concentrations of landfill gas do not pose a hazard to human health or the environment.*

23. *The reason for Condition 3.4 is that open burning of municipal waste is unacceptable because of concerns with air emissions, smoke and other nuisance affects, and the potential fire hazard.*

24. *The reason for Condition 3.5, 3.6, 3.7, 3.8, 3.9 and 3.10 is to specify restrictions on the extent of landfilling at this Site based on the Owner's application and supporting documentation. These limits define the approved volumetric capacity of the site. Approval to landfill beyond these limits would require an application with supporting documentation submitted to the Director.*

25. *The reason for Condition 3.12 is to ensure that landfilling operations are conducted in an environmentally acceptable manner. Daily and intermediate cover is used to control potential nuisance effects, to facilitate vehicle access on the site, and to ensure an acceptable site appearance is maintained. The proper closure of a landfill site requires the application of a final cover which is aesthetically pleasing, controls infiltration, and is suitable for the end use planned for the site.*

26. *The reason for Condition 3.12 is to ensure impacted surface water at the site is handled in a manner that does not impact the environment or human health.*

27. *The reasons for Conditions 4.1 through 4.6 are to ensure the site operation completed in accordance with Ministry standards, and to ensure long-term protection of the health and safety of the public and the environment.*

28. *The reason for Condition 5.1 is to ensure that the Site is supervised and operated by properly trained staff in a manner which does not result in a hazard or nuisance to the natural environment or any person.*

29. *The reasons for Conditions 6.1, 6.2, 6.3, 6.4 and 6.5 are to provide for the proper assessment of effectiveness and efficiency of site design and operation, their effect or relationship to any nuisance or environmental impacts, and the occurrence of any public complaints or concerns. Record keeping is necessary to determine compliance with this ECA, the EPA and its regulations.*

30. *The reason for Conditions 6.6 through 6.10 is to ensure that accurate waste records are maintained to ensure compliance with the conditions in this ECA (such as fill rate, site capacity, record keeping, annual reporting, and financial assurance requirements), the EPA and its regulations.*

31. *The reason for Conditions 7.1 through 7.5 inclusive is to ensure protection of the natural environment and the integrity of the groundwater monitoring network.*

32. *The reason for Conditions 7.6, 7.7 and 7.8 inclusive is to demonstrate that the landfill site is performing as designed and the impacts on the natural environment are acceptable. Regular monitoring allows for the analysis of trends over time and ensures that there is an early*

warning of potential problems so that any necessary remedial/contingency action can be taken.

33. *The reason for Conditions 8.1 through 8.3 is to ensure that the Owner follows a plan with an organized set of procedures for identifying and responding to unexpected but possible problems at the Site. A remedial action / contingency plan is necessary to ensure protection of the natural environment. A leachate contingency plan is a specific requirement of Reg. 232.*

34. *The reason for Conditions 9.1 and 9.2 is to establish a forum for the exchange of information and public dialogue on activities carried out at the landfill Site. Open communication with the public and local authorities is important in helping to maintain high standards for site operation and environmental protection.*

35. *Conditions 10.1 through 10.5 are contained in the ECA to guarantee that appropriate measures are taken by the County to prevent future occurrences of spills or fires at the site and to protect public health and safety and the environment.*

36. *The reasons for Conditions 11.1 and 11.2 are to ensure that regular review of site development, operations and monitoring data is documented and any possible improvements to site design, operations or monitoring programs are identified. An annual report is an important tool used in reviewing site activities and for determining the effectiveness of site design.*

37. *The reason for Condition 12.1 is to ensure that final closure of the Site is completed in an aesthetically pleasing manner and to ensure the long-term protection of the natural environment.*

Upon issuance of the environmental compliance approval, I hereby revoke Approval No(s). A371001 issued on September 26, 1983

In accordance with Section 139 of the Environmental Protection Act, you may by written Notice served upon me and the Environmental Review Tribunal within 15 days after receipt of this Notice, require a hearing by the Tribunal. Section 142 of the Environmental Protection Act provides that the Notice requiring the hearing shall state:

1. The portions of the environmental compliance approval or each term or condition in the environmental compliance approval in respect of which the hearing is required, and;
2. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

Pursuant to subsection 139(3) of the Environmental Protection Act, a hearing may not be required with respect to any terms and conditions in this environmental compliance approval, if the terms and conditions are

substantially the same as those contained in an approval that is amended or revoked by this environmental compliance approval.

The Notice should also include:

3. The name of the appellant;
4. The address of the appellant;
5. The environmental compliance approval number;
6. The date of the environmental compliance approval;
7. The name of the Director, and;
8. The municipality or municipalities within which the project is to be engaged in.

And the Notice should be signed and dated by the appellant.

This Notice must be served upon:

The Secretary*
Environmental Review Tribunal
655 Bay Street, Suite 1500
Toronto, Ontario
M5G 1E5

AND

The Director appointed for the purposes of
Part II.1 of the Environmental Protection Act
Ministry of the Environment
2 St. Clair Avenue West, Floor 12A
Toronto, Ontario
M4V 1L5

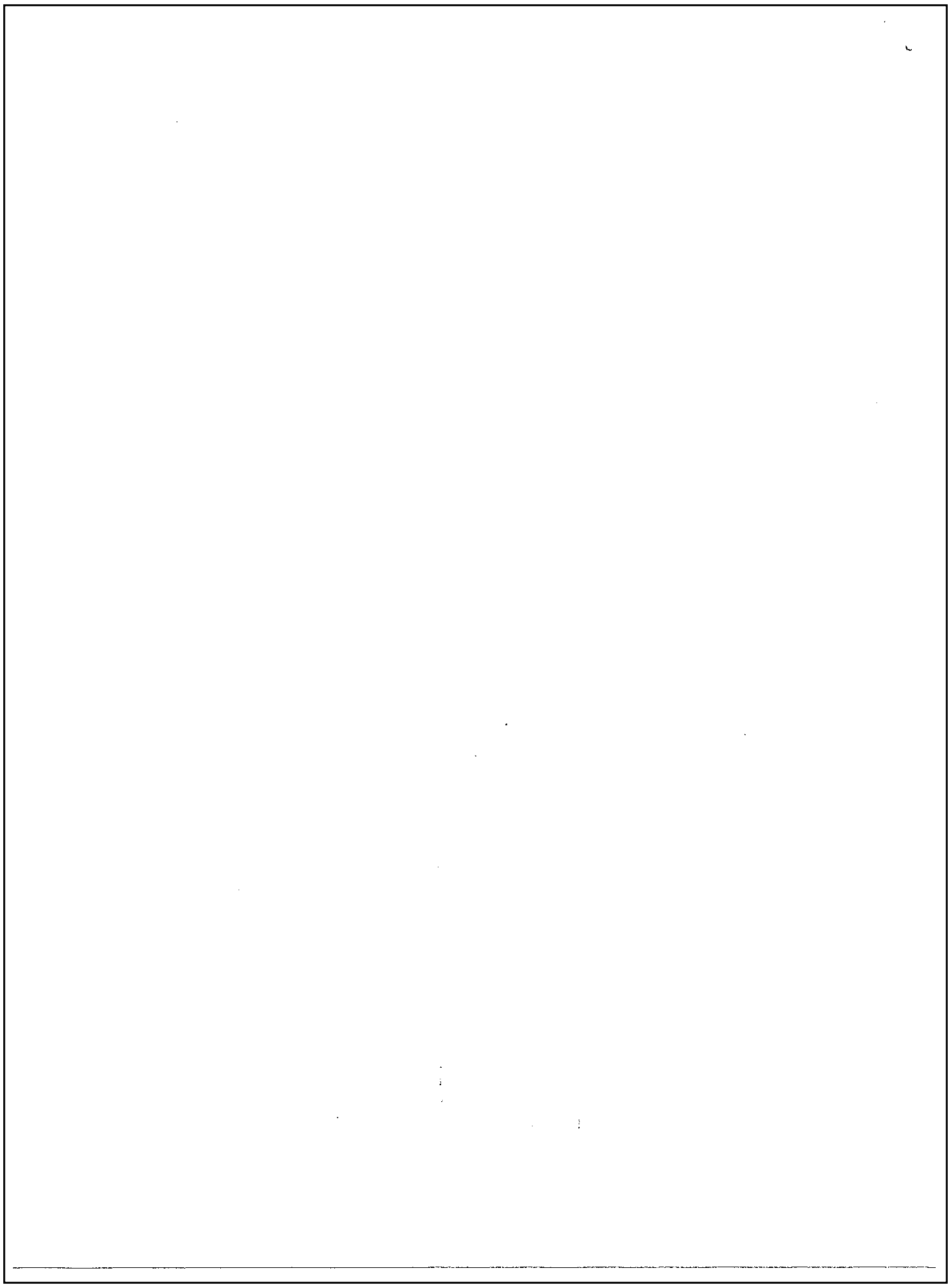
*** Further information on the Environmental Review Tribunal's requirements for an appeal can be obtained directly from the Tribunal at: Tel: (416) 212-6349, Fax: (416) 314-3717 or www.ert.gov.on.ca**

The above noted activity is approved under s.20.3 of Part II.1 of the Environmental Protection Act.

DATED AT TORONTO this 26th day of January, 2015

Tesfaye Gebrezghi, P.Eng.
Director
appointed for the purposes of Part II.1 of the
Environmental Protection Act

DG/
c: District Manager, MOE Kingston - District
Guy Laporte, AECOM Canada Ltd.



Content Copy Of Original

Ontario

Ministry of the Environment, Conservation and Parks
Ministère de l'Environnement, de la Protection de la nature et des Parcs

AMENDMENT TO ENVIRONMENTAL COMPLIANCE APPROVAL
NUMBER A371001
Notice No. 1
Issue Date: May 14, 2020

The Corporation of the Town of Greater Napanee
124 John St
Greater Napanee, Ontario
K7R 3L4

Site Location: South Fredericksburgh Waste Disposal Site
Lot 1, Concession 2
Greater Napanee Town, County of Lennox and Addington
K7R 3L1

You are hereby notified that I have amended Approval No. A371001 issued on January 26, 2015 for a 8.9 ha landfilling site being known as the South Fredericksburgh Waste Disposal Site , as follows:

The following Conditions are hereby added to this Environmental Compliance Approval:

13.0 COMMUNICATION TOWER

13.1 The communications tower as described in Items 10, 11, and 12 of Schedule A may be installed and operated at the Site.
13.2 During the construction of the communications tower, if any groundwater is intercepted and is required to be dewatered then the groundwater must be sampled and disposed of in a safe manner.
The following Items are hereby added to Schedule "A"

SCHEDULE "A"

10. Memorandum, Re: ECA Amendment - Addition of Communications Tower. From The Town of Greater Napanee (Thru McIntosh Perry Consulting Engineers), dated April 15, 2020.
11. Geotechnical Investigation Report, Proposed 45 m Self Support Tower, Sandhurst Shores, Ontario (ON7636). Lawrence, Flemming & Associated Limited. March 26, 2020.
12. Engineering Drawings: Project Title: 150' 78" A.W. SELF SUPPORT TOWER, Sandhurst Shores, ON. Allan Pipe Fab Inc. May 6, 2020.

The reasons for the imposition of these terms and conditions are as follows:

38. The reason for Condition 13.1 and 13.2 is to allow the construction of a communications tower for the benefit of the local residents and to ensure that the tower is constructed in accordance with the application and supporting documentation.

This Notice shall constitute part of the approval issued under Approval No. A371001 dated January 26, 2015

In accordance with Section 139 of the Environmental Protection Act, you may by written Notice served upon me and the Environmental Review Tribunal within 15 days after receipt of this Notice, require a hearing by the Tribunal. Section 142 of the Environmental Protection Act provides that the Notice requiring the hearing shall state:

a. The portions of the environmental compliance approval or each term or condition in the environmental compliance approval in respect of which the hearing is required, and;

b. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

Pursuant to subsection 139(3) of the Environmental Protection Act, a hearing may not be required with respect to any terms and conditions in this environmental compliance approval, if the terms and conditions are substantially the same as those contained in an approval that is amended or revoked by this environmental compliance approval.

The Notice should also include:

1. The name of the appellant;
2. The address of the appellant;
3. The environmental compliance approval number;
4. The date of the environmental compliance approval;
5. The name of the Director, and;
6. The municipality or municipalities within which the project is to be engaged in.

And the Notice should be signed and dated by the appellant.

This Notice must be served upon:

The Secretary*
Environmental Review Tribunal
655 Bay Street, Suite 1500
Toronto, Ontario
M5G 1E5

AND

The Director appointed for the purposes of Part II.1 of the Environmental Protection Act
Ministry of the Environment, Conservation and Parks
135 St. Clair Avenue West, 1st Floor
Toronto, Ontario
M4V 1P5

*** Further information on the Environmental Review Tribunal's requirements for an appeal can be obtained directly from the Tribunal at: Tel: (416) 212-6349, Fax: (416) 326-5370 or** www.ert.gov.on.ca

The above noted activity is approved under s.20.3 of Part II.1 of the Environmental Protection Act.

DATED AT TORONTO this 14th day of May, 2020

Mohsen Keyvani, P.Eng.
Director
appointed for the purposes of Part II.1 of the *Environmental Protection Act*

CM/
c: District Manager, MECP Kingston - District
Fraser Armstrong P.Eng.
f.armstrong@mcintoshperry.com, MacIntosh Perry

APPENDIX III

Borehole Log

WELL NUMBER MW11S

PAGE 1 OF 1

egis

CLIENT Town of Greater Napanee
PROJECT NAME 2023 Annual Monitoring Report
PROJECT NUMBER 0KM-18-7001
PROJECT LOCATION South Fredericksburgh Waste Disposal Site
DATE STARTED 23-11-24 **COMPLETED** 23-11-24
GROUND ELEVATION 105.85 masl **HOLE SIZE** 0.05
DRILLING CONTRACTOR CANEDC
GROUND WATER LEVELS:
DRILLING METHOD Hollow stem
AT TIME OF DRILLING ---
LOGGED BY S.J. **CHECKED BY**
AT END OF DRILLING ---
NOTES
240hrs AFTER DRILLING 5.05 mbTOC and 4.15 mbgs

DEPTH (m)	SAMPLE TYPE NUMBER	GRAPHIC LOG	MATERIAL DESCRIPTION		WELL DIAGRAM
					Casing Top Elev: 106.75 (m)
			SILTY CLAY Some sand and gravel, trace cobbles, dark brown, slightly moist, no odours		Sand pack
			1.20	104.65	
			SILTY CLAY Some sand and gravel, trace cobbles, dark grey to black, slightly moist, landfill odours		Bentonite
			4.40	101.45	
5			BEDROCK		Sand pack
			Becomes wet at 6.7 mbgs		Screen
			9.22	96.64	

Bottom of hole at 9.22 m.

GENERAL BH / TP / WELL BH LOGS - S.FRED MW11.GPJ GINT STD CANADA LAB.GDT 24-4-10

WELL NUMBER MW11D

PAGE 1 OF 1

egis

CLIENT Town of Greater Napanee
PROJECT NAME 2023 Annual Monitoring Report
PROJECT NUMBER 0KM-18-7001
PROJECT LOCATION South Fredericksburgh Waste Disposal Site
DATE STARTED 23-11-24 **COMPLETED** 23-11-24
GROUND ELEVATION 105.85 masl **HOLE SIZE** 0.05
DRILLING CONTRACTOR CANEDC
GROUND WATER LEVELS:
DRILLING METHOD Hollow stem
AT TIME OF DRILLING ---
LOGGED BY S.J. **CHECKED BY**
AT END OF DRILLING ---
NOTES
240hrs AFTER DRILLING ---

DEPTH (m)	SAMPLE TYPE NUMBER	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
				Casing Top Elev: 106.7 (m)
			SILTY CLAY Some sand and gravel, trace cobbles, dark brown, slightly moist, no odours	Sand pack
			2.10 / 103.75	
			SILTY CLAY Some sand and gravel, trace cobbles, trace debris, dark grey to black, slightly moist, landfill odours	
			4.30 / 101.55	
5			BEDROCK	Bentonite
10				Sand pack
15			Becomes very moist at 14.6 mbgs	Screen
			17.60 / 88.25	
			Bottom of hole at 17.60 m.	

GENERAL BH / TP / WELL BH LOGS - S.FRED MW11.GPJ GINT STD CANADA LAB.GDT 24-4-10

APPENDIX IV

Monitoring Elevations and Details

TABLE 1
Groundwater Elevation Data
South Fredricksburgh Waste Disposal Site
Town of Napanee, Ontario

Well ID Number	Date (dd/mm/yyyy)	Ground Surface Elevation (masl)	TOC Elevation (masl)	Height of TOC from Ground Surface (m)	Water Level Measurement from TOC (m)	Total Well Depth from TOC (m)	Depth to Groundwater (mbgs)	Calculated Water Level Elevation (masl)	Comments
MW1S	5/17/2024	101.75	102.60	0.85	5.13	7.34	4.28	97.47	ND
	11/12/2024			0.85	4.79	7.34	3.94	97.81	ND
	5/9/2025			0.85	5.29	7.50	4.44	97.31	Brown, no odour, low yield
	10/8/2025			0.85	-	-	ND	ND	Dry
MW1D	2024/05/17	101.75	102.60	0.85	4.97	11.64	4.12	97.63	ND
	2024/11/12			0.85	5.17	11.64	4.32	97.43	ND
	2025/05/09			0.85	4.92	11.70	4.07	97.68	Foggy, No odour, Low yield
	2025/10/08			0.85	-	-	ND	ND	Dry
MW2S	2024/05/17	101.40	102.10	0.70	2.18	6.96	1.48	99.92	ND
	2024/11/12			0.70	2.54	6.96	1.84	99.56	ND
	2025/05/09			0.70	1.82	6.70	1.12	100.28	
	2025/10/08			0.70	3.06	7.02	2.36	99.04	
MW2D	2024/05/17	101.40	102.10	0.70	10.19	11.05	9.49	91.91	ND
	2024/11/12			0.70	10.37	11.05	9.67	91.73	ND
	2025/05/09			0.70	10.38	11.08	9.68	91.72	
	2025/10/08			0.70	11.17	11.17	10.47	90.93	
MW3S	Decommissioned								
MW3D	Decommissioned								
MW4S	2024/05/17	99.99	100.64	0.65	6.87	8.60	6.22	93.77	ND
	2024/11/12			0.65	7.70	8.60	7.05	92.94	ND
	2025/05/09			0.65	7.48	8.53	6.83	93.16	
	2025/10/08			0.65	7.60	7.60	6.95	93.04	
MW4D	2024/05/17	99.83	100.77	0.94	10.95	13.03	10.01	89.82	ND
	2024/11/12			0.94	12.30	13.03	11.36	88.47	ND
	2025/05/09			0.94	12.47	13.10	11.53	88.30	
	2025/10/08			0.94	13.30	13.30	12.36	87.47	
MW5S	2024/05/17	100.91	101.53	0.62	1.00	4.87	0.38	100.53	ND
	2024/11/12			0.62	1.89	4.87	1.27	99.64	ND
	2025/05/09			0.62	1.07	4.53	0.45	100.46	
	2025/10/08			0.62	2.70	4.93	2.08	98.83	
MW5D	2024/05/17	100.58	101.36	0.78	2.69	11.42	1.91	98.67	ND
	2024/11/12			0.78	2.36	11.42	1.58	99.00	ND
	2025/05/09			0.78	3.00	11.14	2.22	98.36	
	2025/10/08			0.78	2.63	11.25	1.85	98.73	
MW6S	2024/05/17	101.97	102.70	0.73	1.95	5.19	1.22	100.75	ND
	2024/11/12			0.73	2.68	5.19	1.95	100.02	ND
	2025/05/09			0.73	1.58	5.17	0.85	101.12	
	2025/10/08			0.73	2.60	5.23	1.87	100.10	
MW6D	2024/05/17	100.73	101.66	0.93	3.15	11.54	2.22	98.51	ND
	2024/11/12			0.93	ND	11.54	ND	ND	ND
	2025/05/09			0.93	3.06	11.53	2.13	98.60	
	2025/10/08			0.93	3.81	11.69	2.88	97.85	
MW7S	2024/05/17	ND	ND	ND	ND	ND	ND	ND	ND
	2024/11/12			ND	ND	ND	ND	ND	ND
	2025/05/09			ND	ND	ND	ND	ND	
	2025/10/08			ND	ND	ND	ND	ND	
MW8	2024/05/17	102.86	103.78	0.92	11.30	15.94	10.38	92.48	ND
	2024/11/12			0.92	10.25	15.94	9.33	93.53	ND
	2025/05/09			0.92	10.74	15.96	9.82	93.04	
	2025/10/08			0.92	12.75	16.00	11.83	91.03	
MW9S	2024/05/17	99.60	100.64	1.04	2.65	8.18	1.61	97.99	ND
	2024/11/12			1.04	3.25	8.18	2.21	97.39	ND
	2025/05/09			1.04	2.46	7.93	1.42	98.18	
	2025/10/08			1.04	3.24	8.07	2.20	97.40	
MW9D	2024/05/17	99.85	100.80	0.95	4.67	14.53	3.72	96.13	ND
	2024/11/12			0.95	4.46	14.53	3.51	96.34	ND
	2025/05/09			0.95	4.90	14.53	3.95	95.90	
	2025/10/08			0.95	4.29	14.56	3.34	96.51	
MW10S	2024/05/17	98.63	99.65	1.02	2.15	8.29	1.13	97.50	ND
	2024/11/12			1.02	2.24	8.29	1.22	97.41	ND
	2025/05/09			1.02	1.95	8.13	0.93	97.70	
	2025/10/08			1.02	2.51	8.50	1.49	97.14	
MW10D	2024/05/17	98.79	99.79	1.00	11.98	14.51	10.98	87.81	ND
	2024/11/12			1.00	13.48	14.57	12.48	86.31	ND
	2025/05/09			1.00	13.34	14.30	12.34	86.45	
	2025/10/08			1.00	12.58	14.82	11.58	87.21	
MW11S	2024/05/17	105.84	106.75	0.91	8.22	10.12	7.31	98.53	ND
	2024/11/12			0.91	7.76	10.12	6.85	98.99	ND
	2025/05/09			0.91	8.20	10.00	7.29	98.55	
	2025/10/08			0.91	8.56	10.00	7.65	98.19	
MW11D	2024/05/17	105.93	106.75	0.82	11.04	18.45	10.22	95.71	ND
	2024/11/12			0.82	10.73	18.45	9.91	96.02	ND
	2025/05/09			0.82	10.20	18.58	9.38	96.55	
	2025/10/08			0.82	10.65	18.67	9.83	96.10	

Notes:

mbgs	Meters below ground surface
masl	Meters above sea level
m	Meters
TOC	Top of casing
ND	No data available

Pinchin Project No. 350221.001

APPENDIX V

Photographic Log



MW-1

(May 9, 2025)



MW-1

(May 9, 2025)

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MW-2

(May 9, 2025)



MW-2

(May 9, 2025)

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MW-4

(May 9, 2025)



MW-4

(May 9, 2025)

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MW-5

(May 9, 2025)



MW-5

(May 9, 2025)

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MW-6

(October 8, 2025)



MW-6

(May 9, 2025)

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MW-8

(October 8, 2025)



MW-8

(May 9, 2025)

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MW-9

(October 8, 2025)



MW-10

(October 8, 2025)

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SW2

(May 13, 2025)



SW3

(October 8, 2025)

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SW3

(October 8, 2025)

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APPENDIX VI

QA/QC Duplicate Data

TABLE 2
Groundwater Duplicate Data - Spring 2025
South Fredricksburgh Waste Disposal Site
Town of Greater Napanee, Ontario

Parameter	Units	RDL	PQL	MW5D	DUP-1	Relative Percent Difference (%)	MW5S	DUP-2	Relative Percent Difference (%)
pH	mg/L	0.05	0.25	8.05	8.01	0.50	8.03	8.02	0.12
Conductivity	mg/L	2	10	3900	4330	10.45	1790	1800	0.56
Alkalinity	mg/L	2	10	402	408	1.48	387	394	1.79
Hardness	mg/L	0.05	0.25	1040	1010	2.93	777	783	0.77
TDS	mg/L	30	150	1960	2220	12.44	934	943	0.96
Chloride	mg/L	1	5	770	790	2.56	350	340	2.90
Sodium	mg/L	0.01	0.05	398	403	1.25	83.7	83	0.84
Calcium	mg/L	0.01	0.05	214	208	2.84	156	154	1.29
Magnesium	mg/L	0.001	0.005	122	120	1.65	94.2	97	2.93
Potassium	mg/L	0.009	0.045	19.7	19.2	2.57	6.64	6.59	0.76
Sulphate	mg/L	2	10	40	40	0.00	48	52	8.00
Ammonia	as N mg/L		0			NC			NC
Nitrate	mg/L	0.06	0.3	< 0.06	< 0.06	NC	< 0.06	< 0.06	NC
Nitrite	mg/L	0.03	0.15	< 0.3	< 0.3	NC	< 0.03	< 0.03	NC
Total Kjehdal Nitrogen	mg/L		0	1.49	1.53	2.65	0.39	0.42	7.41
DOC	mg/L	1	5	2	2	NC	2	2	NC
COD	mg/L	8	40	27	27	NC	13	17	NC
Biochemical Oxygen Demand (BOD5)	mg/L	2	10	8	< 4	NC	< 4	< 4	NC
Iron	mg/L	0.007	0.035	0.258	0.269	4.17	0.018	0.016	NC
Manganese	mg/L	0.00001	0.00005	0.0602	0.0603	0.17	0.0488	0.0484	0.82
Total Phosphorus	mg/L	0.3	1.5	2.08	2.08	0.00	0.39	0.4	NC
Total Suspended Solids	mg/L	2	10	178	239	29.26	112	104	7.41
Arsenic	mg/L	0.0002	0.001	0.0017	0.0018	5.71	< 0.0002	< 0.0002	NC
Boron	mg/L	0.002	0.01	0.364	0.357	1.94	0.28	0.278	0.72
Barium	mg/L	0.00008	0.0004	0.868	0.836	3.76	0.258	0.265	2.68
Cadmium	mg/L	0.00003	0.00015	0.000004	< 0.000003	NC	< 0.000003	< 0.000003	NC
Chromium	mg/L	0.00008	0.0004	0.00018	0.0002	NC	0.0002	0.00015	NC
Copper	mg/L	0.001	0.005	< 0.001	< 0.001	NC	< 0.001	< 0.001	NC
Mercury	mg/L	0.00001	0.00005	< 0.00001	< 0.00001	NC	< 0.00001	< 0.00001	NC
Lead	mg/L	0.00009	0.00045	< 0.00009	< 0.00009	NC	< 0.00009	< 0.00009	NC
Zinc	mg/L	0.002	0.01	< 0.002	< 0.002	NC	< 0.002	< 0.002	NC

RDL	laboratory reportable detection limit
PQL	practical quantification limit (PQL = 5 x RDL).
NC	not calculable due to one or more of the concentrations being quantified over the reasonable detection limit (RDL) or the practical quantification limit (PQL).
BOLD	bolded and shaded entries indicates that the relative percent difference (RPD) exceeds the industry standard of 50%.
BLANK CELLS	Bbank cells indicate no data available.

Pinchin Project No. 350221.001

TABLE 3
Groundwater Duplicate Data - Fall 2025
South Fredricksburgh Waste Disposal Site
Town of Greater Napanee, Ontario

Parameter	Units	RDL	PQL	MW6D	DUP-1	Relative Percent Difference (%)	MW5D	DUP-2	Relative Percent Difference (%)
pH	mg/L	0.05	0.25	7.81	7.38	5.66	7.89	7.89	0.00
Conductivity	mg/L	2	10	11400	57700	**134.01**	4000	4270	6.53
Alkalinity	mg/L	2	10	429	327	26.98	423	437	3.26
Hardness	mg/L	0.05	0.25	1300	1320	1.53	765	775	1.30
TDS	mg/L	30	150	7290	44400	**143.59**	2060	2270	9.70
Chloride	mg/L	1	5	31000	30000	3.28	1300	1300	0.00
Sodium	mg/L	0.01	0.05	493	522	5.71	248	262	5.49
Calcium	mg/L	0.01	0.05	233	239	2.54	130	135	3.77
Magnesium	mg/L	0.001	0.005	174	176	1.14	107	106	0.94
Potassium	mg/L	0.009	0.045	16.3	17.3	5.95	12.5	13	3.92
Sulphate	mg/L	2	10	140	140	0.00	19	20	5.13
Ammonia	as N mg/L		0			NC			NC
Nitrate	mg/L	0.06	0.3	< 0.06	< 0.06	NC	< 0.06	< 0.06	NC
Nitrite	mg/L	0.03	0.15	< 0.03	< 0.03	NC	< 0.03	< 0.03	NC
Total Kjehdal Nitrogen	mg/L		0	24	28	15.38	6	6	0.00
DOC	mg/L	1	5	2	2	NC	2	2	NC
COD	mg/L	8	40	128	112	13.33	34	33	NC
Biochemical Oxygen Demand (BOD5)	mg/L	2	10	22	25	12.77	6	8	NC
Iron	mg/L	0.007	0.035	0.045	0.044	2.25	0.095	0.117	20.75
Manganese	mg/L	0.00001	0.00005	0.0391	0.0399	2.03	0.0299	0.0334	11.06
Total Phosphorus	mg/L	0.3	1.5	7.2	2.8	**88.00**	4.4	4	9.52
Total Suspended Solids	mg/L	2	10	557	186	**99.87**	96	77	21.97
Arsenic	mg/L	0.0002	0.001	< 0.0002	< 0.0002	NC	0.0006	0.0006	NC
Boron	mg/L	0.002	0.01	0.313	0.341	8.56	0.241	0.255	5.65
Barium	mg/L	0.00008	0.0004	0.829	0.732	12.43	0.729	0.611	17.61
Cadmium	mg/L	0.00003	0.00015	0.000003	< 0.000003	NC	0.000015	0.000013	NC
Chromium	mg/L	0.00008	0.0004	0.00029	0.00034	NC	0.00016	0.00036	NC
Copper	mg/L	0.001	0.005	< 0.001	< 0.001	NC	< 0.001	< 0.001	NC
Mercury	mg/L	0.00001	0.00005	< 0.00001	< 0.00001	NC	< 0.00001	< 0.00001	NC
Lead	mg/L	0.00009	0.00045	< 0.00009	< 0.00009	NC	< 0.00009	< 0.00009	NC
Zinc	mg/L	0.002	0.01	< 0.002	< 0.002	NC	0.007	0.006	NC

RDL	laboratory reportable detection limit
PQL	practical quantification limit (PQL = 5 x RDL).
NC	not calculable due to one or more of the concentrations being quantified over the reasonable detection limit (RDL) or the practical quantification limit (PQL).
BOLD	bolded and shaded entries indicates that the relative percent difference (RPD) exceeds the industry standard of 50%.
BLANK CELLS	Bbank cells indicate no data available.

Pinchin Project No. 350221.001

TABLE 4
Surface Water Duplicate Data - 2025
South Fredricksburgh Waste Disposal Site
Town of Greater Napanee, Ontario

Parameter	Units	RDL	PQL	SW1	DUP3	Relative Percent Difference (%)	SW3	DUP	Relative Percent Difference (%)	SW3	DUP	Relative Percent Difference (%)
				5/13/2025	*5/13/2025*		*8/27/2025*	*8/27/2025*		*10/8/2025*	*10/8/2025*	
pH	mg/L	0.05	0.25	7.36	7.44	1.08	7.89	7.89	0.00	7.81	7.8	0.13
Conductivity	mg/L	2	10	358	359	0.28	4000	4270	6.53	362	401	10.22
Alkalinity	mg/L	2	10	200	199	0.50	423	437	3.26	192	187	2.64
Hardness	mg/L	0.05	0.25	214	206	3.81	765	775	1.30	205	203	0.98
TDS	mg/L	30	150	243	254	4.43	2060	2270	9.70	243	217	11.30
Chloride	mg/L	1	5	21	21	0.00	1300	1300	0.00	24	24	0.00
Sodium	mg/L	0.01	0.05	9.92	9.28	6.67	248	262	5.49	10.9	11.1	1.82
Calcium	mg/L	0.01	0.05	56.6	54.5	3.78	130	135	3.77	53.5	52.5	1.89
Magnesium	mg/L	0.001	0.005	17.8	16.9	5.19	107	106	0.94	17.2	17.6	2.30
Potassium	mg/L	0.009	0.045	3.37	3.2	5.18	12.5	13	3.92	2.85	2.79	2.13
Sulphate	mg/L	2	10	< 2	< 2	NC	19	20	5.13	< 2	< 2	NC
Ammonia	as N mg/L		0	< 0.1	< 0.1	NC			NC	< 0.1	< 0.1	NC
Nitrate	mg/L	0.06	0.3	< 0.06	< 0.06	NC	< 0.06	< 0.06	NC	< 0.06	< 0.06	NC
Nitrite	mg/L	0.03	0.15	< 0.03	< 0.03	NC	< 0.03	< 0.03	NC	< 0.03	< 0.03	NC
Total Kjehdal Nitrogen	mg/L		0	0.8	0.6	28.57	6	6	0.00	0.8	0.8	0.00
DOC	mg/L	1	5	9	9	0.00	2	2	NC	9	9	0.00
COD	mg/L	8	40	24	26	NC	34	33	NC	26	24	NC
Biochemical Oxygen Demand (BOD5)	mg/L	2	10	< 4	< 4	NC	6	8	NC	< 4	< 4	NC
Iron	mg/L	0.007	0.035	0.728	0.748	2.71	0.095	0.117	20.75	0.892	0.976	8.99
Manganese	mg/L	0.00001	0.00005	0.334	0.341	2.07	0.0299	0.0334	11.06	0.304	0.281	7.86
Total Phosphorus	mg/L	0.3	1.5	< 0.03	< 0.03	NC	4.4	4	9.52	0.04	0.03	NC
Total Suspended Solids	mg/L	2	10	6	6	NC	96	77	21.97	3	4	NC
Arsenic	mg/L	0.0002	0.001	0.0005	0.0005	NC	0.0006	0.0006	NC	0.0003	0.0003	NC
Boron	mg/L	0.002	0.01	0.0472	0.0461	2.36	0.241	0.255	5.65	0.0398	0.0402	1.00
Barium	mg/L	0.00008	0.0004	0.035	0.033	5.88	0.729	0.611	17.61	0.046	0.045	2.20
Cadmium	mg/L	0.00003	0.00015	< 0.000003	0.000004	NC	0.000015	0.000013	NC	0.000003	0.000003	NC
Chromium	mg/L	0.00008	0.0004	0.00026	0.00026	NC	0.00016	0.00036	NC	< 0.00008	< 0.00008	NC
Copper	mg/L	0.001	0.005	< 0.001	< 0.001	NC	< 0.001	< 0.001	NC	< 0.001	< 0.001	NC
Mercury	mg/L	0.00001	0.00005	< 0.00001	< 0.00001	NC	< 0.00001	< 0.00001	NC	< 0.00001	< 0.00001	NC
Lead	mg/L	0.00009	0.00045	< 0.00009	0.00011	NC	< 0.00009	< 0.00009	NC	< 0.00009	< 0.00009	NC
Zinc	mg/L	0.002	0.01	< 0.002	< 0.002	NC	0.007	0.006	NC	< 0.002	< 0.002	NC

RDL	laboratory reportable detection limit
PQL	practical quantification limit (PQL = 5 x RDL).
NC	not calculable due to one or more of the concentrations being quantified over the reasonable detection limit (RDL) or the practical quantification limit (PQL).
BOLD	bolded and shaded entries indicates that the relative percent difference (RPD) exceeds the industry standard of 50%.
BLANK CELLS	Bbank cells indicate no data available.

Pinchin Project No. 350221.001

APPENDIX VII

Groundwater Summary Tables

TABLE 5
Overburden Groundwater Quality Results - MW1S
South Fredricksburgh Waste Disposal Site
Town of Greater Napanee, Ontario

Parameter	Units	Sample Designation														ODWQS
		Sample Collection Date (dd/mm/yyyy)														
		MW1S														
		25/10/2016	*02/11/2017*	*16/04/2019*	*22/04/2020*	*29/10/2020*	*26/05/2021*	*29/10/2021*	*20/04/2022*	*23/11/2022*	*09/05/2023*	*13/10/2023*	*13/11/2024*	*09/05/2025*	*21/10/2025*	
pH	pH	**5.81**	7.04	-	7.06	7.45	6.70	7.39	DRY	6.77	7.52	7.55	7.17	**6.27**	NOT ACCESSIBLE	6.5-8.5
Conductivity	uS/cm	1690	2680	-	2840	3000	2070	2010	-	2870	2890	2330	2140	1920		-
Alkalinity	mg/L	<3.00	63	152	68	94	45	101	-	128	118	134	68	**14**	-	30-500
Hardness	mg/L	**423**	**451**	**483**	**469**	**509**	**430**	**470**	-	**465**	**454**	**486**	**495**	**541**	-	80-100
Total Dissolved Solids	mg/L	**927**	**1470**	**2720**	**1850**	**1950**	**1350**	**1310**	-	**1870**	**1880**	**1510**	**1390**	**1260**	-	500.00
Chloride	mg/L	**672**	**638**	**1200**	**653**	**887**	**590**	**560**	-	**833**	**840**	**663**	**641**	**570**	-	250.00
Sodium	mg/L	**296**	**336**	**648**	**318**	**377**	**214**	174	-	**402**	**416**	**283**	**228**	128	-	200.00
Calcium	mg/L	89	103	91	125	123	113	129	-	117	101	132	139	170	-	-
Magnesium	mg/L	48.5	47.0	62.0	38.0	49.0	36.0	36.0	-	42.0	49.0	38.0	36.0	28.2	-	-
Potassium	mg/L	14.5	11.4	21.0	11.0	14.0	11.0	11.0	-	12.0	14.0	12.0	14.0	11.1	-	-
Sulphate	mg/L	53.00	66.00	175.00	77.00	90.00	40.00	30.00	-	97.00	67.00	53.00	24.00	14.00	-	500.00
Ammonia	mg/L	1.39	1.90	1.93	1.78	2.00	1.52	1.33	-	1.82	1.94	1.00	1.69	1.42	-	-
Nitrate	mg/L	<0.1	<0.05	0.14	<0.10	<1.0	<1.0	<2.5	-	0.17	<0.10	<1.0	<0.50	< 0.06	-	10.00
Nitrite	mg/L	<0.1	<0.05	<0.10	<0.10	<1.0	<1.0	<2.5	-	<0.10	<0.10	<1.0	<0.50	< 0.3	-	1.00
Total Kjehdal Nitrogen	mg/L	2.30	2.40	2.10	2.29	2.18	1.69	1.46	-	2.08	1.93	1.66	2.00	1.43	-	-
Phenols	mg/L	<0.001	-	-	-	-	-		-	-	-	-	-	-	-	-
Dissolved Organic Carbon	mg/L	0.80	0.90	3.10	4.00	4.30	4.60	4.80	-	**8.30**	5.00	**6.40**	**6.60**	5.00	-	5.00
Chemical Oxygen Demand	mg/L	28.00	70.00	56.00	34.00	19.00	8.00	12.00	-	53.00	13.00	13.00	48.00	30.00	-	-
BioChemical Oxygen Demand	mg/L	5.00	-	5.00	<1	3.00	4.00	2.00	-	8.00	4.00	3.00	6.00	< 4	-	-
Iron	mg/L	**29.90**	0.19	**12.10**	**42.30**	**0.71**	**33.50**	**4.20**	-	**13.40**	**20.10**	**2.72**	**23.90**	**40.00**	-	0.30
Manganese	mg/L	**0.70**	**1.00**	**0.63**	**3.02**	**1.83**	**3.18**	**1.10**	-	**1.77**	**1.06**	**0.62**	**1.94**	**2.24**	-	0.05
Total Phosphorus	mg/L	0.06	0.37	0.05	0.08	0.11	0.05	0.12	-	0.01	0.07	0.03	0.03	< 0.03	-	-
Total Suspended Solids	mg/L	250.00	590.00	1150.00	146.00	869.00	146.00	361.00	-	1080.00	991.00	254.00	151.00	179.00	-	-
Bicarbonate	mg/L	<3	63.00	152.00	68.00	94.00	45.00	101.00	-	128.00	118.00	134.00	68.00	-	-	-
Carbonate	mg/L	423.00	451.00	483.00	469.00	509.00	430.00	470.00	-	465.00	454.00	486.00	495.00	-	-	-
Anion Sum	meq/L	20.10	20.60	40.60	21.40	28.80	18.40	18.40	-	28.10	27.40	22.50	19.90	16.6500	-	-
Cation Sum	meq/L	23.40000	24.10000	38.50000	23.60000	27.10000	18.30000	17.30000	-	27.20000	27.70000	22.40000	20.30000	16.65000	-	-
Ion Ratio	AS/CS	0.86	7.79	0.95	1.10	0.94	1.00	0.94	-	0.97	1.01	1.00	1.02	1.14	-	-
% Difference	%	7.66	0.86	2.59	4.93	3.06	0.22	3.07	-	1.58	0.38	0.19	0.87	-	-	-
Arsenic	mg/L	0.00	<0.01	<0.001	<0.001	<0.001	<0.001	<0.001	-	<0.001	<0.001	<0.001	<0.001	0.00	-	0.01
Boron	mg/L	0.35	0.31	0.36	0.18	0.22	0.12	0.28	-	0.19	0.30	0.30	0.24	0.18	-	5.00
Barium	mg/L	0.26	0.22	0.25	0.29	0.28	0.200	0.23	-	0.27	0.24	0.22	0.30	0.27	-	1.00
Cadmium	mg/L	0.00	0.00	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	-	<0.0001	<0.0001	<0.0001	<0.0001	< 0.000003	-	0.01
Chromium	mg/L	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	<0.001	<0.001	<0.001	0.00	0.00	-	0.05
Copper	mg/L	0.00	<0.02	<0.001	<0.001	0.00	<0.001	0.00	-	<0.001	<0.001	<0.001	<0.001	< 0.001	-	1.00
Mercury	mg/L	0.00	<0.00002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	-	<0.0001	<0.0001	<0.0001	<0.0001	< 0.00001	-	0.00
Lead	mg/L	0.00	<0.005	<0.001	<0.001	<0.001	<0.001	<0.001	-	<0.001	<0.001	<0.001	<0.001	< 0.00009	-	0.01
Zinc	mg/L	<0.005	<0.05	<0.01	<0.01	0.01	<0.01	<0.01	-	<0.01	<0.01	<0.01	<0.01	< 0.002	-	5.00
Langeliers Index 4° C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Saturation pH 4°C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Field Parameters																
Temperature	C	12.10	11.80	-	16.01	13.22	13.82	-	-	-	10.22	13.60	-	10.8	-	-
pH	pH	7.86	7.09	-	8.40	7.28	6.85	-	-	-	7.52	7.69	-	7.5	-	-
Conductivity	uS/cm	1486	2199	-	2	3	2	-	-	-	2150	2601	-	158.0	-	-
Total Dissolved Solids	mg/L	-	-	-	-	-	1.25	-	-	-	1.37	1.37	-	1.4	-	-
Dissolved Oxygen	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	12.0	-	-
Oxidation Reduction Potential	mV	-	-	-	-	-	-	-	-	-	-	-	-	-107.0	-	-

Notes:

ODWQS	Ontario Drinking Water Quality Standards - Ontario Regulation 169/03 "Ontario Drinking Water Quality Standards" under the Safe Drinking Water Act", dated 2002, and "Technical Support Document for Ontario Drinking Water Standards, Objectives and Guidelines", dated June 2003.
BOLD	Exceeds ODWQS
Units	All Units in mg/L Unless Otherwise Noted.

Pinchin Project No. 350221.001

TABLE 6
Bedrock Groundwater Quality Results - MW1D
South Fredricksburgh Waste Disposal Site
Town of Greater Napanee, Ontario

Parameter	Units	Sample Designation																	ODWQS
		Sample Collection Date (dd/mm/yyyy)																	
		MW1D																	
		25/10/2016	*02/11/2017*	*16/04/2019*	*07/10/2019*	*22/04/2020*	*29/10/2020*	*26/05/2021*	*29/10/2021*	*20/04/2022*	*23/11/2022*	*09/05/2023*	*09/05/2023*	*13/10/2023*	*13/10/2023*	*13/11/2024*	*09/05/2025*	*21/10/2025*	
pH	pH	7.75	7.52	-	Unable to Locate	DRY	7.76	7.63	7.50	7.54	7.50	7.79	7.82	7.50	7.48	7.75	8.04	NOT ACCESSIBLE	6.5-8.5
Conductivity	uS/cm	4500.0000	8640.0000	-	-	-	5140	3160	5050	3490	5050	4950	5030	3460	3710	5240	4340		-
Alkalinity	mg/L	303.00	346.00	280.00	-	-	434	406	395	446	371	425	426	411	422	402	394	-	30-500
Hardness	mg/L	**719.00**	**1320.00**	**3430.00**	-	-	**862**	**613**	**856**	**660**	**850**	**900**	**916**	**707**	**749**	**960**	**1210**	-	80-100
Total Dissolved Solids	mg/L	**2480.0**	**4750.0**	**11300.0**	-	-	**3340**	**2050**	**3280**	**2270**	**3090**	**3220**	**3270**	**2250**	**2410**	**3410**	**2300**	-	500.00
Chloride	mg/L	**1130.00**	**1930.00**	**6670.00**	-	-	**1380**	**890**	**1320**	**900**	**1500**	**1420**	**1450**	**930**	**1030**	**1540**	**1400**	-	250.00
Sodium	mg/L	**538.00**	**1040.00**	**2460.00**	-	-	**702**	**468**	**598**	**478**	**643**	**698**	**695**	**510**	**569**	**767**	**631**	-	200.00
Calcium	mg/L	125.00	204.00	567.00	-	-	139	102	140	111	144	146	149	115	122	157	267	-	-
Magnesium	mg/L	98.80	198.00	489.00	-	-	125	87	123	93	119	130	132	102	108	138	131	-	-
Potassium	mg/L	16.50	30.50	82.00	-	-	27.00	19.00	22.00	22.00	24.00	25.00	26.00	20.00	21.00	31.00	29.80	-	-
Sulphate	mg/L	<5	<30	2.00	-	-	<25	60.00	<50	2.00	<1	<1	<1	<20	<20	<1	< 2	-	500.00
Ammonia	mg/L	2.65	8.95	9.64	-	-	3.40	1.34	3.17	2.06	3.82	3.07	3.22	2.15	2.24	3.63	3.01	-	
Nitrate	mg/L	0.70	<1	<0.10	-	-	<2.5	<1.0	<5.0	0.46	<0.10	0.12	0.13	<0.10	<2.0	<0.10	0.12	-	10.00
Nitrite	mg/L	<0.5	<1	<0.10	-	-	<2.5	<1.0	<5.0	<0.10	<0.10	<0.10	<0.10	<0.10	<2.0	<0.10	< 0.3	-	1.00
Total Kjehdal Nitrogen	mg/L	3.90	10.80	7.60	-	-	3.99	5.96	3.28	5.52	4.05	4.14	4.60	2.54	2.78	4.08	1.72	-	-
Phenols	mg/L	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Organic Carbon	mg/L	0.60	1.30	2.80	-	-	1.80	2.60	2.00	2.00	2.90	2.10	2.10	2.00	2.00	2.50	2.00	-	5.00
Chemical Oxygen Demand	mg/L	25.00	248.00	566.00	-	-	<5	61.00	25.00	20.00	96.00	41.00	33.00	16.00	13.00	30.00	33.00	-	-
BioChemical Oxygen Demand	mg/L	5.00	-	6.00	-	-	9.00	7.00	8.00	3.00	3.00	5.00	3.00	4.00	5.00	7.00	< 4	-	-
Iron	mg/L	**5.35**	0.09	**22.40**	-	-	0.04	**2.57**	**5.21**	**3.23**	**5.78**	**9.72**	**9.21**	**4.68**	**4.71**	**11.30**	**6.50**	-	0.30
Manganese	mg/L	**0.39**	**0.15**	**0.38**	-	-	**0.18**	0.04	**0.10**	**0.07**	**0.75**	**0.14**	**0.14**	**0.08**	**0.08**	**0.14**	**0.11**	-	0.05
Total Phosphorus	mg/L	0.08	0.10	<0.01	-	-	0.15	0.14	0.18	0.03	0.02	0.27	0.27	0.089	0.10	0.04	0.03	-	-
Total Suspended Solids	mg/L	118.00	130.00	401.00	-	-	109.00	46.00	195.00	26.00	100.00	122.00	100.00	71.00	18.00	71.00	51.00	-	-
Bicarbonate	mg/L	303.00	346.00	280.00	-	-	434.00	406.00	395.00	446.00	371.00	425.00	426.00	411.00	422.00	402.00	-	-	-
Carbonate	mg/L	719.00	1320.00	3430.00	-	-	862.00	613.00	856.00	660.00	850.00	900.00	916.0000	707.00	749.00	960.00	-	-	-
Anion Sum	meq/L	38.20	61.50	194.00	-	-	47.60	34.50	45.10	34.40	49.70	48.60	49.4000	34.50	37.50	51.50	47.33	-	-
Cation Sum	meq/L	38.70000	70.20000	178.00000	-	-	48.70000	33.20000	43.90000	34.70000	45.80000	49.20000	49.40000	37.00000	40.40000	53.60000	47.33000	-	-
Ion Ratio	AS/CS	0.99	6.62	0.92	-	-	1.02	0.96	0.97	1.01	0.92	1.01	1.00	1.07	1.08	1.04	1.12	-	-
% Difference	%	0.68	0.88	4.17	-	-	1.12	1.91	1.39	0.44	4.09	0.64	0.020	3.530	3.75	2.01	-	-	-
Arsenic	mg/L	0.00	<0.01	<0.005	-	-	<0.001	<0.001	0.00	0.00	0.00	<0.001	<0.001	0.00	0.00	0.00	0.00	-	0.01
Boron	mg/L	0.46	0.66	0.72	-	-	0.56	0.51	0.59	0.49	0.45	0.51	0.50	0.49	0.49	0.57	0.53	-	5.00
Barium	mg/L	0.22	0.45	**1.89**	-	-	0.26	0.17	0.37	0.17	0.20	0.31	0.29	0.21	0.21	0.27	0.31	-	1.00
Cadmium	mg/L	0.00	0.00	<0.0005	-	-	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.00	-	0.01
Chromium	mg/L	<0.02	0.00	<0.005	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.00	-	0.05
Copper	mg/L	0.01	<0.02	<0.005	-	-	0.00	<0.001	0.00	0.00	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	< 0.001	-	1.00
Mercury	mg/L	<0.00002	<0.00002	<0.0005	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	< 0.00001	-	0.00
Lead	mg/L	<0.00002	<0.005	<0.005	-	-	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	< 0.00009	-	0.01
Zinc	mg/L	<0.05	<0.05	<0.05	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.00	-	5.00
Langeliers Index 4° C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Saturation pH 4°C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Field Parameters																			
Temperature	C	11.80	11.10	-	-	12.00	11.62	14.74	-	12.03	-	11.17	11.17	12.10	12.10	-	11.02	-	-
pH	pH	7.90	7.23	-	-	8.33	7.47	7.03	-	7.24	-	7.64	7.64	7.47	7.47	-	7.37	-	-
Conductivity	uS/cm	3606	5510	-	-	6	5	5	-	6	-	5190	5190	3861	3861	-	72	-	-
Total Dissolved Solids	mg/L	-	-	-	-	-	-	3.42	-	3.72	-	3.20	3.20	3.60	3.60	-	2.20	-	-
Dissolved Oxygen	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9.90	-	-
Oxidation Reduction Potential	mV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-119.00	-	-

Notes:

ODWQS	Ontario Drinking Water Quality Standards - Ontario Regulation 169/03 "Ontario Drinking Water Quality Standards" under the Safe Drinking Water Act", dated 2002, and "Technical Support Document for Ontario Drinking Water Standards, Objectives and Guidelines", dated June 2003.
BOLD	Exceeds ODWQS
Units	All Units in mg/L Unless Otherwise Noted.

Pinchin Project No. 350221.001

TABLE 7
Overburden Groundwater Quality Results - MW2S
South Fredricksburgh Waste Disposal Site
Town of Greater Napanee, Ontario

Parameter	Units	Sample Designation																			ODWQS
		Sample Collection Date (dd/mm/yyyy)																			
		MW2S																			
		07/05/2015	*03/11/2015*	*01/06/2016*	*25/10/2016*	*02/11/2017*	*29/05/2018*	*31/10/2018*	*16/04/2019*	*08/10/2019*	*22/04/2020*	*29/10/2020*	*27/05/2021*	*19/10/2021*	*20/04/2022*	*23/11/2022*	*09/05/2023*	*16/10/2023*	*17/11/2024*	*09/05/2025*	
pH	pH	7.87	7.99	7.98	7.88	7.77	8.01	7.99	-	-	8.03	7.98	7.86	7.76	7.76	7.50	7.97	7.69	7.84	8.19	8.34	6.5-8.5
Conductivity	uS/cm	2620.00	2580.00	2880.00	3270.00	5110.00	4360.00	2420.00	-	-	2950.00	4420.00	3020.00	3010.00	3010.00	1800.00	2540.00	2320.00	2360.00	3160.00	1720.00	-
Alkalinity	mg/L	286.00	312.00	273.00	287.00	309.00	355.00	400.00	322.00	398.00	372.00	397.00	415.00	488.00	473.00	376.00	412.00	418.00	405.00	382.00	416.00	30-500
Hardness	mg/L	**574**	**622**	**549**	**623**	**799**	**654**	**583**	**496**	**722**	**479**	**629**	**629**	**651**	**573**	**508**	**548**	**521**	**536**	**670**	**516**	80-100
Total Dissolved Solids	mg/L	**1440**	**1420**	**1580**	**1800**	**2810**	**2830**	**1570**	**1540**	**2800**	**1920**	**2870**	**1960**	**1960**	**1590**	**1170**	**1650**	**1510**	**1530**	**1690**	**831**	500.00
Chloride	mg/L	**875**	**575**	**776**	**864**	**1210**	**1090**	**564**	**579**	**1140**	**706**	**1090**	**800**	**630**	**530**	**351**	**610**	**520**	**588**	**520**	**260**	250.00
Sodium	mg/L	**319**	**317**	**350**	**376**	**616**	-	**281**	**275**	**590**	**383**	**647**	**463**	**383**	**311**	170	**350**	**337**	**315**	**489**	**239**	200.00
Calcium	mg/L	87.60	96.00	81.90	89.80	114.00	97.00	90.00	80.00	106.00	83.00	92.00	100.00	114.00	99.00	98.00	94.00	95.00	96.00	135.00	95.40	-
Magnesium	mg/L	86.40	92.90	83.80	97.00	125.00	100.00	87.00	72.00	111.00	66.00	97.00	92.00	89.00	79.00	64.00	76.00	69.00	72.00	80.70	67.50	-
Potassium	mg/L	14.10	13.70	14.10	16.30	24.00	20.00	16.00	15.00	24.00	14.00	16.00	15.00	12.00	14.00	11.00	13.00	13.00	15.00	18.80	12.50	-
Sulphate	mg/L	81.00	98.00	92.00	68.00	85.00	100.00	86.00	61.00	80.00	71.00	92.00	70.00	75.00	48.00	36.00	45.00	30.00	38.00	37.00	37.00	500.00
Ammonia	mg/L	1.28	1.28	1.03	1.84	2.81	2.54	1.03	0.62	2.40	1.16	2.05	1.37	1.23	0.94	0.77	1.00	1.07	1.54	0.64	1.10	-
Nitrate	mg/L	0.20	0.20	1.20	<0.1	<0.5	0.24	0.22	0.13	<0.10	<0.10	<2.5	<1.0	<0.10	<0.10	<0.10	<0.10	0.15	<0.50	0.10	< 0.06	10.00
Nitrite	mg/L	<0.1	<0.1	<1	<0.1	<0.5	<0.10	<0.10	<0.10	<0.10	<0.10	<2.5	<1.0	<0.10	<0.10	<0.10	<0.10	<0.10	<0.50	< 0.3	< 0.03	1.00
Total Kjehdal Nitrogen	mg/L	2.00	1.80	1.00	2.40	3.20	3.20	3.50	0.80	2.70	1.14	2.07	1.50	2.06	1.12	0.98	1.37	1.34	1.62	0.74	9.00	-
Phenols	mg/L	<0.001	<0.001	<0.001	<0.001	-					-		-		-	-	-	-	-	-	-	-
Dissolved Organic Carbon	mg/L	2.30	0.40	0.60	0.80	0.70	4.50	**5.10**	3.50	4.20	4.60	3.80	**6.00**	**5.50**	**7.00**	**7.90**	**6.70**	**9.40**	**12.10**	**6.00**	**6.00**	5.00
Chemical Oxygen Demand	mg/L	33	9	13	14	104	31	14	6	23	20	10	13	45	30	29	25	19	30	28	18	-
BioChemical Oxygen Demand	mg/L	4.00	<2	<2	5.00	-	4.00	6.00	6.00	4.00	4.00	6.00	8.00	12.00	2.00	2.00	5.00	<1	2.00	5.00	< 4	-
Iron	mg/L	**0.44**	**2.80**	**1.57**	**2.81**	**4.51**	**3.10**	**6.42**	0.29	**4.68**	**0.39**	**1.34**	**0.74**	**0.97**	**0.80**	**2.16**	**0.64**	**1.44**	**4.87**	**1.48**	**1.10**	0.30
Manganese	mg/L	0.04	**0.20**	0.03	**0.10**	**0.07**	**0.06**	**0.12**	0.03	**0.08**	0.03	**0.06**	0.04	**0.09**	**0.06**	**0.20**	**0.06**	**0.12**	**0.38**	**0.07**	0.04	0.05
Total Phosphorus	mg/L	0.19	0.04	0.04	0.04	0.11	0.45	0.08	0.03	0.13	0.04	0.08	0.03	0.18	0.03	0.01	0.05	0.073	0.03	< 0.03	2.40	-
Total Suspended Solids	mg/L	244.00	122.00	70.00	96.00	360.00	282.00	183.00	106.00	209.00	336.00	112.00	386.00	351.00	97.00	23.00	89.00	86.00	29.00	81.00	13.00	-
Bicarbonate	mg/L	286.00	312.00	273.00	287.00	309.00	355.00	400.00	322.00	398.00	372.00	397.00	415.00	488.00	473.00	376.00	412.00	418.00	405.00	-	-	-
Carbonate	mg/L	574.00	622.00	549.00	623.00	799.00	654.00	583.00	496.00	722.00	479.00	629.00	629.00	651.00	573.00	508.00	548.0000	521.00	536.00	-	-	-
Anion Sum	meq/L	32.10	24.50	29.30	31.50	42.10	40.00	25.70	24.00	41.80	28.80	40.60	32.30	29.10	25.40	18.20	26.4000	23.70	25.50	23.19	16.36	-
Cation Sum	meq/L	25.80000	26.80000	26.80000	29.50000	43.80000	37.00000	24.40000	22.30000	40.90000	26.70000	41.30000	33.20000	30.10000	25.40000	17.90000	26.60000	25.50000	24.90000	23.19000	21.14000	-
Ion Ratio	AS/CS	1.24	0.91	1.09	1.07	1.98	0.93	0.95	0.93	0.98	0.92	1.02	1.03	1.03	1.00	0.98	1.01	1.08	0.98	1.52	1.29	-
% Difference	%	10.80	4.53	4.44	3.34	0.96	3.85	2.73	3.77	1.11	3.90	0.81	1.30	1.64	0.04	0.79	0.350	3.700	1.13	-	12.75	-
Arsenic	mg/L	<0.01	<0.005	<0.01	0.00	<0.01	<0.005	0.00	<0.001	0.00	<0.001	0.00	0.00	<0.001	<0.001	0.0010	<0.001	0.0010	0.0020	0.0014	0.0011	0.01
Boron	mg/L	0.50	0.51	0.47	0.53	0.71	0.70	0.40	0.36	0.73	0.30	0.34	0.35	0.20	0.33	0.24	0.23	0.26	0.20	0.41	0.25	5.00
Barium	mg/L	0.408	0.477	0.385	0.43	0.50	0.40	0.38	0.32	0.410	0.30	0.43	0.40	0.36	0.34	0.40	0.31	0.33	0.39	0.34	0.31	1.00
Cadmium	mg/L	0.00	0.00	<0.00002	0.00	<0.001	<0.0005	0.00	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	< 0.000003	0.00	0.01
Chromium	mg/L	<0.002	<0.002	<0.002	**0.13**	0.00	<0.005	0.00	<0.001	0.00	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.00	0.00	0.05
Copper	mg/L	<0.002	0.00	<0.002	0.00	<0.002	<0.005	0.00	<0.001	0.00	<0.001	<0.001	0.00	0.00	<0.001	<0.001	0.00	<0.001	0.00	< 0.001	< 0.001	1.00
Mercury	mg/L	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	< 0.00001	< 0.00001	0.00
Lead	mg/L	<0.00002	0.00	<0.00002	0.00	<0.005	<0.005	0.00	<0.001	0.01	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	< 0.00009	< 0.00009	0.01
Zinc	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.05	0.03	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	< 0.002	< 0.002	5.00
Langeliers Index 4° C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.93	
Saturation pH 4°C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.41	
Field Parameters																						
Temperature	C	11.90	15.00	13.20	12.40	11.20	-	-	-	-	9.02	13.39	11.99	-	11.37	-	9.77	9.77	-	9.88	13.81	-
pH	pH	7.79	7.89	7.65	7.33	6.58	-	-	-	-	9.13	8.00	8.00	-	7.91	-	8.04	8.04	-	6.78	8.57	-
Conductivity	uS/cm	1952	1887	3260	18420	48701	-	-	-	-	2	2	2	-	2	-	2810	2770	-	36	2	-
Total Dissolved Solids	mg/L	-	-	-	-	-	-	-	-	-	-	-	1.64	-	1.49	-	1.81	1.77	-	1.38	1.33	-
Dissolved Oxygen	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.88	6.88	-
Oxidation Reduction Potential	mV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	127.00	151.00	-

Notes:

ODWQS	Ontario Drinking Water Quality Standards - Ontario Regulation 169/03 "Ontario Drinking Water Quality Standards" under the Safe Drinking Water Act", dated 2002, and "Technical Support Document for Ontario Drinking Water Standards, Objectives and Guidelines", dated June 2003.
BOLD	Exceeds ODWQS
Units	All Units in mg/L Unless Otherwise Noted.

Pinchin Project No. 350221.001

TABLE 8
Bedrock Groundwater Quality Results - MW2D
South Fredricksburgh Waste Disposal Site
Town of Greater Napanee, Ontario

Parameter	Units	Sample Designation														ODWQS
		Sample Collection Date (dd/mm/yyyy)														
		MW2D														
		02/11/2017	*16/04/2019*	*07/10/2019*	*22/04/2020*	*28/10/2020*	*26/05/2021*	*22/10/2021*	*20/04/2022*	*23/11/2022*	*09/05/2023*	*13/10/2023*	*17/05/2024*	*09/05/2025*	*21/10/2025*	
pH	pH	7	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	7.83	DRY	DRY	6.5-8.5
Conductivity	uS/cm	47600.0000	-	-	-	-	-	-	-	-	-	-	3470.0000	-	-	-
Alkalinity	mg/L	106.00	-	-	-	-	-	-	-	-	-	-	400.00	-	-	30-500
Hardness	mg/L	**17600**	-	-	-	-	-	-	-	-	-	-	**588**	-	-	80-100
Total Dissolved Solids	mg/L	**26200**	-	-	-	-	-	-	-	-	-	-	**2260**	-	-	500.00
Chloride	mg/L	**23800**	-	-	-	-	-	-	-	-	-	-	**841**	-	-	250.00
Sodium	mg/L	**9790**	-	-	-	-	-	-	-	-	-	-	**524**	-	-	200.00
Calcium	mg/L	2840.00	-	-	-	-	-	-	-	-	-	-	97.00	-	-	-
Magnesium	mg/L	2560.00	-	-	-	-	-	-	-	-	-	-	84.00	-	-	-
Potassium	mg/L	192.00	-	-	-	-	-	-	-	-	-	-	17.00	-	-	-
Sulphate	mg/L	471.00	-	-	-	-	-	-	-	-	-	-	50.00	-	-	500.00
Ammonia	mg/L	0.82	-	-	-	-	-	-	-	-	-	-	1.99	-	-	
Nitrate	mg/L	<5	-	-	-	-	-	-	-	-	-	-	<1	-	-	10.00
Nitrite	mg/L	<5	-	-	-	-	-	-	-	-	-	-	<1	-	-	1.00
Total Kjehdal Nitrogen	mg/L	0.20	-	-	-	-	-	-	-	-	-	-	2.23	-	-	-
Phenols	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Organic Carbon	mg/L	0.20	-	-	-	-	-	-	-	-	-	-	**12.70**	-	-	5.00
Chemical Oxygen Demand	mg/L	4000.00	-	-	-	-	-	-	-	-	-	-	32.00	-	-	-
BioChemical Oxygen Demand	mg/L	-	-	-	-	-	-	-	-	-	-	-	5.00	-	-	-
Iron	mg/L	0.03	-	-	-	-	-	-	-	-	-	-	**3.60**	-	-	0.30
Manganese	mg/L	**1.07**	-	-	-	-	-	-	-	-	-	-	**0.24**	-	-	0.05
Total Phosphorus	mg/L	0.02	-	-	-	-	-	-	-	-	-	-	0.31	-	-	-
Total Suspended Solids	mg/L	160.00	-	-	-	-	-	-	-	-	-	-	144.00	-	-	-
Bicarbonate	mg/L	106.00	-	-	-	-	-	-	-	-	-	-	400.00	-	-	-
Carbonate	mg/L	17600.00	-	-	-	-	-	-	-	-	-	-	588.00	-	-	-
Anion Sum	meq/L	684.00	-	-	-	-	-	-	-	-	-	-	32.80	-	-	-
Cation Sum	meq/L	783.00000	-	-	-	-	-	-	-	-	-	-	35.10000	-	-	-
Ion Ratio	AS/CS	6.74	-	-	-	-	-	-	-	-	-	-	1.07	-	-	-
% Difference	%	0.87	-	-	-	-	-	-	-	-	-	-	3.47	-	-	-
Arsenic	mg/L	<0.01	-	-	-	-	-	-	-	-	-	-	<0.005	-	-	0.01
Boron	mg/L	0.87	-	-	-	-	-	-	-	-	-	-	1.66	-	-	5.00
Barium	mg/L	0.779	-	-	-	-	-	-	-	-	-	-	**1.88**	-	-	1.00
Cadmium	mg/L	0.00	-	-	-	-	-	-	-	-	-	-	<0.0005	-	-	0.01
Chromium	mg/L	0.00	-	-	-	-	-	-	-	-	-	-	0.01	-	-	0.05
Copper	mg/L	<0.002	-	-	-	-	-	-	-	-	-	-	0.01	-	-	1.00
Mercury	mg/L	<0.00002	-	-	-	-	-	-	-	-	-	-	<0.0005	-	-	0.00
Lead	mg/L	<0.005	-	-	-	-	-	-	-	-	-	-	<0.005	-	-	0.01
Zinc	mg/L	0.01	-	-	-	-	-	-	-	-	-	-	<0.05	-	-	5.00
Langeliers Index 4° C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Saturation pH 4°C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Field Parameters																
Temperature	C	12.10	-	-	-	-	-	-	-	-	-	-	-	-	-	-
pH	pH	7.44	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Conductivity	uS/cm	4391	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Dissolved Solids	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Oxygen	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oxidation Reduction Potential	mV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Notes:

ODWQS	Ontario Drinking Water Quality Standards - Ontario Regulation 169/03 "Ontario Drinking Water Quality Standards" under the Safe Drinking Water Act", dated 2002, and "Technical Support Document for Ontario Drinking Water Standards, Objectives and Guidelines", dated June 2003.
BOLD	Exceeds ODWQS
Units	All Units in mg/L Unless Otherwise Noted.

Pinchin Project No. 350221.001

PINCHIN

TABLE 9
Overburden Groundwater Quality Results - MW3S
South Fredricksburgh Waste Disposal Site
Town of Greater Napanee, Ontario

Parameter	Units	Sample Designation																						ODWQS
		Sample Collection Date (dd/mm/yyyy)																						
		MW3S																						
		27-05-2014	*30-10-2014*	*07-05-2015*	*03-11-2015*	*01-06-2016*	*01-06-2016*	*25-10-2016*	*25-10-2016*	*09-06-2017*	*02-11-2017*	*29-05-2018*	*31-10-2018*	*2019-04-16*	*2019-10-08*	*22-04-2020*	*29-10-2020*	*26-05-2021*	*19-10-2021*	*21-04-2022*	*23-11-2022*	*09-05-2023*	*13-10-2023*	
pH	pH	7.98	7.89	7.75	7.93	8.03	7.66	7.91	7.47	7.65	7.55	7.77	7.76	-	-	7.95	7.77	7.51	7.66	7.70	-	-	Decomissioned and Replaced	6.5-8.5
Conductivity	uS/cm	5340	8460	5650	5350	4360	15500	4030	22100	12600	10100	10600	8000	-	-	8300	7560	7960	9240	7780	-	-		-
Alkalinity	mg/L	449	430	450	456	445	388	460	294	401	399	409	437	426	434	487	471	441	491	448	-	-		30-500
Hardness	mg/L	**671**	**1580**	**684**	**656**	**557**	**1480**	**407**	**3510**	**1130**	**1360**	**1930**	**1260**	**1440**	**1930**	**1290**	**1160**	**1320**	**1520**	**1270**	-	-		80-100
Total Dissolved Solids	mg/L	**2940**	**4650**	**3110**	**2940**	**2400**	**8510**	**2220**	**12200**	**6900**	**5530**	**6890**	**5200**	**6180**	**7280**	**5400**	**4910**	**5170**	**6010**	**5060**	-	-		500.00
Chloride	mg/L	**1600**	**3570**	**1730**	**1520**	**1260**	**3390**	**1000**	**8310**	**3140**	**2320**	**3540**	**2930**	**3210**	**3800**	**2260**	**2150**	**2370**	**2600**	**2590**	-	-		250.00
Sodium	mg/L	**812**	**1630**	**857**	**836**	**722**	**1450**	**583**	**3240**	**1660**	**1240**	**1640**	**1330**	**1400**	**1510**	**1170**	**1100**	**1280**	**1280**	**1170**	-	-		200.00
Calcium	mg/L	96.50	239.00	96.60	90.30	76.60	220.00	56.60	582.00	151.00	196.00	292.00	197.00	212.00	282.00	205.00	158.00	181.00	216.00	178.00	-	-		-
Magnesium	mg/L	104	240	108	105	89	160	65	500	184	212	291	187	222	298	190	185	210	238	201	-	-		-
Potassium	mg/L	21.60	34.50	20.90	18.80	16.50	23.50	13.30	29.50	36.00	28.90	40.00	36.00	43.00	40.00	41.00	30.00	32.00	32.00	32.00	-	-		-
Sulphate	mg/L	111	133	73	64	55	64	69	211	44	50	50	72	38	30	42	62	60	3	46	-	-		500.00
Ammonia	mg/L	1.89	5.35	3.14	2.92	0.89	5.14	2.77	9.20	4.03	4.99	5.68	4.66	4.80	6.50	4.00	3.18	4.22	4.52	3.41	-	-		
Nitrate	mg/L	1.10	<0.1	<0.1	0.50	2.30	<3	1.40	<10	<1	<1	0.20	<0.10	0.10	<0.10	0.24	<2.5	<2.5	<0.10	0.54	-	-		10.00
Nitrite	mg/L	-	<10	<0.1	<0.5	<1	<3	<0.5	<10	<1	<1	<0.10	<0.10	<0.10	<0.10	<0.10	<2.5	<2.5	<10	<0.10	-	-		1.00
Total Kjehdal Nitrogen	mg/L	-	4.60	4.00	3.70	1.10	7.00	3.30	12.00	1.00	5.70	6.50	10.30	4.00	7.00	5.18	3.84	7.01	9.49	3.37	-	-		-
Phenols	mg/L	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-	-	-	-	-		-	-		-	-	-		-
Dissolved Organic Carbon	mg/L	2.60	2.90	2.20	0.50	1.10	0.80	1.80	0.40	0.90	1.60	4.80	**7.90**	**5.40**	4.20	3.80	3.20	3.30	3.50	4.00	-	-		5.00
Chemical Oxygen Demand	mg/L	<5	179.00	31.00	24.00	23.00	40.00	50.00	210.00	59.00	172.00	84.00	81.00	51.00	91.00	51.00	38.00	54.00	8.00	37.00	-	-		-
BioChemical Oxygen Demand	mg/L	3.00	7.00	6.00	5.00	5.00	8.00	8.00	6.00	20.00	-	6.00	19.00	22.00	16.00	3.00	2.00	7.00	9.00	1.00	-	-		-
Iron	mg/L	**0.74**	**2.76**	**3.19**	**1.61**	0.14	**4.44**	0.11	**12.40**	-	0.06	**3.50**	**11.80**	**3.58**	**12.00**	**5.60**	<0.03	**4.60**	**2.80**	**4.70**	-	-		0.30
Manganese	mg/L	0.02	**0.06**	0.04	0.04	<0.01	**0.07**	<0.01	**0.51**	-	**0.06**	0.05	**0.14**	0.05	**0.16**	<0.1	0.04	<0.05	<0.05	<0.1	-	-		0.05
Total Phosphorus	mg/L	-	1.04	0.25	0.08	0.07	0.20	0.12	0.36	0.15	0.17	0.33	0.64	0.03	0.43	1.90	0.40	0.39	0.42	0.090	-	-		-
Total Suspended Solids	mg/L	1320	2450	820	1030	178	3250	402	1450	3000	1280	796	1120	842	1320	1460	1770	1320	1450	384	-	-		-
Bicarbonate	mg/L	449	430	450	456	445	388	460	294	401	399	409	437	426	434	487	471	441	491	448	-	-		-
Carbonate	mg/L	671	1580	684	656	557	1480	407	3510	1130	1360	1930	1260	1440	1930	1290	1160	1320	1520	1270	-	-		-
Anion Sum	meq/L	56.40	112.00	59.30	53.30	45.70	105.00	39.00	245.00	97.50	74.60	109.00	92.90	99.90	117.00	74.40	71.40	76.90	83.2000	83.00	-	-		-
Cation Sum	meq/L	49.4	104.0	51.9	50.3	43.0	89.9	34.0	213.0	109.0	82.2	111.0	84.3	91.2	106.0	78.1	71.9	83.1	87.2	77.4	-	-		-
Ion Ratio	AS/CS	1.14	1.08	1.14	1.06	1.06	1.16	1.15	1.15	5.67	4.88	1.02	0.91	0.91	0.91	1.05	1.01	1.08	1.05	0.93	-	-		-
% Difference	%	6.58	3.79	6.66	2.93	3.01	7.56	6.85	6.85	0.89	0.91	0.98	4.84	4.55	4.84	2.42	0.40	3.86	2.310	3.530	-	-		-
Arsenic	mg/L	-	**0.02**	<0.02	<0.02	<0.05	<0.03	0.00	<0.01	-	<0.01	<0.005	0.01	0.00	0.01	<0.01	<0.001	0.01	<0.005	<0.01	-	-		0.01
Boron	mg/L	1.44	1.44	1.45	1.29	1.52	1.76	1.05	1.46	-	1.54	1.78	1.60	1.72	2.29	1.60	1.40	1.86	1.70	1.70	-	-		5.00
Barium	mg/L	0.23	0.16	0.264	0.225	0.224	0.27	0.18	0.18	-	0.46	0.660	0.73	**1.03**	0.92	**1.10**	0.80	**1.34**	**1.10**	**1.30**	-	-		1.00
Cadmium	mg/L	-	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-	0.00	<0.0005	0.00	<0.0002	<0.0005	<0.001	<0.0001	<0.0005	<0.0005	<0.001	-	-		0.01
Chromium	mg/L	-	<0.002	<0.002	<0.002	<0.02	**0.79**	<0.02	<0.2	-	0.00	<0.005	0.00	<0.002	<0.005	<0.01	<0.001	<0.005	<0.005	<0.01	-	-		0.05
Copper	mg/L	-	<0.002	<0.002	0.01	<0.02	<0.002	0.01	0.05	-	<0.02	<0.005	0.00	<0.002	<0.005	<0.01	0.00	<0.005	<0.005	<0.01	-	-		1.00
Mercury	mg/L	-	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	-	<0.00002	<0.0001	<0.0001	<0.0002	<0.0001	<0.001	<0.0001	<0.0005	<0.0005	<0.001	-	-		0.00
Lead	mg/L	-	0.00	0.00	0.00	0.00	0.00	0.00	<0.00002	-	<0.005	<0.005	**0.01**	<0.002	0.01	<0.01	<0.001	<0.005	<0.005	<0.01	-	-		0.01
Zinc	mg/L	-	<0.005	0.01	0.01	<0.05	<0.005	<0.05	<0.5	-	<0.05	<0.05	0.02	<0.02	<0.05	<0.1	<0.01	<0.05	<0.05	<0.1	-	-		5.00
Field Parameters																								
Temperature	C	13.10	12.20	13.60	15.20	14.10	-	11.50	-	12.20	12.50	-	-	-	-	7.77	12.58	14.06	-	11.56	-	-		-
pH	pH	7.53	6.76	7.25	7.50	7.73	-	7.88	-	7.38	7.15	-	-	-	-	8.41	7.43	7.48	-	7.36	-	-		-
Conductivity	uS/cm	4207	6468	4776	6433	5464	-	3991	-	4606	8575	-	-	-	-	3	7	7	-	8	-	-		-
Total Dissolved Solids	mg/L	-	-	-	-	-	-	-	-	-	-					-	-	4.54	-	5.19	-	-		-
Dissolved Oxygen	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
Oxidation Reduction Potential	mV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-

Notes:

PWQO	Provincial Water Quality Objectives
ODWQS	Ontario Drinking Water Quality Standards - Ontario Regulation 169/03 "Ontario Drinking Water Quality Standards" under the Safe Drinking Water Act", dated 2002, and "Technical Support Document for Ontario Drinking Water Standards, Objectives and Guidelines", dated June 2003.
BOLD	Exceeds ODWQS

Pinchin Project No. 350221.001

TABLE 10
Bedrock Groundwater Quality Results - MW3D
South Fredricksburgh Waste Disposal Site
Town of Greater Napanee, Ontario

Parameter	Units	Sample Designation																				ODWQS
		Sample Collection Date (dd/mm/yyyy)																				
		MW3D																				
		07-05-2015	*03-11-2015*	*01-06-2016*	*25-10-2016*	*09-06-2017*	*09-06-2017*	*02-11-2017*	*29-05-2018*	*31-10-2018*	*16-04-2019*	*08-10-2019*	*22-04-2020*	*28-10-2020*	*26-05-2021*	*26-05-21*	*19-10-2021*	*20-04-2022*	*20-04-22*	*23-11-2022*	*09-05-2023*	*13-10-2023*	
pH	pH	7.16	7.47	7.43	7.40	7.31	7.33	7.49	7.45	7.48	-	-	7.58	7.70	7.37	7.41	7.53	7.25	7.31	DRY	DRY	DRY	6.5-8.5
Conductivity	uS/cm	23300	20800	21600	22400	23000	20900	16300	20400	19000	-	-	15700	11300	11600	11300	13800	12300	11900	-	-	-	-
Alkalinity	mg/L	301	312	311	294	303	301	301	299	319	310	335	341	321	319	318	375	320	321	-	-	-	30-500
Hardness	mg/L	**5110**	**3340**	**3600**	**3660**	**3430**	**3410**	**2520**	**3760**	**3690**	**3360**	**3500**	**2630**	**2140**	**2470**	**2380**	**2320**	**2410**	**2270**	-	-	-	80-100
Total Dissolved Solids	mg/L	**12800**	**11400**	**11900**	**12300**	**12700**	**11500**	**8960**	**13300**	**12400**	**12200**	**12800**	**10200**	**7340**	**7540**	**7340**	**8970**	**8000**	**7740**	-	-	-	500.00
Chloride	mg/L	**9090**	**7330**	**7810**	**7440**	**6900**	**6650**	**5420**	**7230**	**8130**	**6310**	**6630**	**5520**	**3730**	**4000**	**4000**	**4210**	**4550**	**4030**	-	-	-	250.00
Sodium	mg/L	**3710**	**3150**	**3270**	**3330**	**3120**	**3160**	**1980**	**3090**	**3130**	**2920**	**2890**	**2230**	**1580**	**1800**	**1740**	**1940**	**1720**	**1660**	-	-	-	200.00
Calcium	mg/L	753	578	608	606	575	584	429	634	600	556	564	453	353	400	377	386	390	372	-	-	-	-
Magnesium	mg/L	786	461	505	522	466	470	352	529	532	480	509	365	305	357	349	330	348	326	-	-	-	-
Potassium	mg/L	93	39	47	30	46	45	41	54	74	66	64	61	40	41	41	31	43	40	-	-	-	-
Sulphate	mg/L	222.00	260.00	233.00	262.00	125.00	120.00	169.00	<100	69.00	8.00	30.00	<50	150.00	<20	9.00	11.00	<1	6.00	-	-	-	500.00
Ammonia	mg/L	8.95	7.56	8.97	8.30	7.24	7.34	10.40	8.73	6.27	7.27	7.40	7.05	6.39	6.70	6.83	6.99	7.51	7.96	-	-	-	
Nitrate	mg/L	<0.1	3.30	<10	<10	<5	<5	<5	<0.10	<0.10	<0.10	<0.10	<0.10	<5.0	<2.5	<0.10	<2.5	<0.10	<0.10	-	-	-	10.00
Nitrite	mg/L	<10	<3	<10	<10	<5	<5	<5	<0.10	<0.10	<0.10	<0.10	<0.10	<5.0	<10	<1.0	<2.5	<0.10	<0.10	-	-	-	1.00
Total Kjehdal Nitrogen	mg/L	12.00	10.00	10.40	13.20	47.20	1.80	12.90	9.90	11.60	4.70	7.90	8.58	7.14	8.65	7.17	5.32	8.03	7.82	-	-	-	-
Phenols	mg/L	<0.001	<0.001	<0.001	<0.001	-	-	-					-		-	-		-	-	-	-	-	-
Dissolved Organic Carbon	mg/L	2.30	<0.2	0.70	0.50	<0.2	<0.2	1.10	2.20	2.60	1.30	2.70	1.10	0.70	1.00	1.00	1.50	2.00	2.00	-	-	-	5.00
Chemical Oxygen Demand	mg/L	123	259	394	264	781	737	853	772	120	117	800	387	63	72	<5	<5	94	76	-	-	-	-
BioChemical Oxygen Demand	mg/L	12	3	<2	8	12	9	-	14	14	22	17	10	10	19	21	2	15	14	-	-	-	-
Iron	mg/L	**19.10**	**13.30**	0.09	**14.00**	-	-	**9.42**	**21.10**	**12.90**	**9.80**	**17.00**	**16.60**	**8.80**	**6.50**	**6.20**	**10.10**	**3.40**	**3.60**	-	-	-	0.30
Manganese	mg/L	**0.35**	**0.42**	**0.53**	**0.51**	-	-	**0.35**	**0.50**	**0.40**	**0.32**	**0.50**	**0.40**	**0.30**	**0.22**	**0.22**	**0.29**	**0.10**	**0.10**	-	-	-	0.05
Total Phosphorus	mg/L	0.72	0.15	0.62	0.14	0.01	0.16	0.64	0.09	0.12	<0.01	0.29	0.56	0.15	0.970	0.74	0.18	0.12	0.12	-	-	-	-
Total Suspended Solids	mg/L	1480	930	1840	740	3000	2740	2260	1060	337	1710	<2	3530	400	1410	1690	867	873	810	-	-	-	-
Bicarbonate	mg/L	301	312	311	294	303	301	301	299	319	310	335	341	321	319	318	375	320	321	-	-	-	-
Carbonate	mg/L	5110	3340	3600	3660	3430	3410	2520	3760	3690	3360	3500	2630	2140	2470	2380	2320	2410	2270	-	-	-	-
Anion Sum	meq/L	267	219	231	221	203	196	163	210	237	184	194	163	115	119	119	126	135	120	-	-	-	-
Cation Sum	meq/L	268	206	216	220	205	208	139	212	212	196	198	152	113	129	125	132	125	119	-	-	-	-
Ion Ratio	AS/CS	1.00	1.06	1.07	1.01	0.43	2.92	7.88	1.01	0.90	1.07	1.02	0.93	0.98	1.08	1.04	1.04	0.92	0.99	-	-	-	-
% Difference	%	0.10	3.02	3.43	0.26	0.99	0.94	1.17	0.38	5.56	3.17	0.90	3.46	0.820	3.990	-	2.16	3.94	0.44	-	-	-	-
Arsenic	mg/L	**0.11**	<0.1	<0.01	<0.0001	-	-	<0.01	<0.01	<0.01	<0.005	0.01	<0.01	<0.01	<0.005	<0.005	<0.005	<0.01	<0.01	-	-	-	0.01
Boron	mg/L	1.49	1.12	1.67	1.47	-	-	1.43	1.50	1.60	1.61	2.11	1.50	1.40	1.50	1.47	1.50	1.40	1.30	-	-	-	5.00
Barium	mg/L	0.55	0.24	0.33	0.19	-	-	0.49	0.60	0.60	0.76	0.95	0.70	0.70	**1.36**	**1.35**	**2.00**	**1.70**	**1.70**	-	-	-	1.00
Cadmium	mg/L	0.00	0.00	<0.002	0.00	-	-	0.00	<0.001	<0.001	<0.0005	<0.0005	<0.001	<0.001	<0.0005	<0.0005	<0.0005	<0.001	<0.001	-	-	-	0.01
Chromium	mg/L	<0.002	<0.002	<0.02	<0.2	-	-	0.00	<0.01	<0.01	<0.005	<0.005	<0.01	<0.01	<0.005	<0.005	<0.005	<0.01	<0.01	-	-	-	0.05
Copper	mg/L	<0.002	0.07	<0.02	0.03	-	-	<0.002	<0.01	<0.01	<0.005	<0.005	<0.01	<0.01	<0.005	<0.005	<0.005	<0.01	<0.01	-	-	-	1.00
Mercury	mg/L	<0.00002	<0.00002	<0.00002	<0.00002	-	-	<0.00002	<0.0001	<0.0001	<0.0005	<0.0001	<0.001	<0.001	<0.0005	<0.0005	<0.0005	<0.001	<0.001	-	-	-	0.00
Lead	mg/L	0.00	<0.00002	0.00	0.00	-	-	<0.005	<0.01	<0.01	<0.005	0.01	<0.01	<0.01	<0.005	<0.005	<0.005	<0.01	<0.01	-	-	-	0.01
Zinc	mg/L	<0.005	0.01	<0.05	<0.5	-	-	<0.005	<0.1	<0.1	<0.05	<0.05	<0.1	<0.1	<0.05	<0.05	<0.05	<0.1	<0.1	-	-	-	5.00
Field Parameters																							
Temperature	C	13.70	14.70	14.80	10.50	13.80	-	12.50	-	-	-	-	6.29	11.87	15.66	15.66	-	12.28	12.28	-	-	-	-
pH	pH	6.45	7.23	7.06	7.54	6.94	-	6.93	-	-	-	-	8.95	7.23	7.25	7.25	-	7.17	7.17	-	-	-	-
Conductivity	uS/cm	20540	15256	19437	17539	18166	-	10643	-	-	-	-	15	12	12	12	-	14	14	-	-	-	-
Total Dissolved Solids	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	7.71	7.71	-	8.74	8.74	-	-	-	-
Dissolved Oxygen	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oxidation Reduction Potential	mV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Notes:

PWQO	Provincial Water Quality Objectives
ODWQS	Ontario Drinking Water Quality Standards - Ontario Regulation 169/03 "Ontario Drinking Water Quality Standards" under the Safe Drinking Water Act", dated 2002, and "Technical Support Document for Ontario Drinking Water Standards, Objectives and Guidelines", dated June 2003.
BOLD	Exceeds ODWQS

Pinchin Project No. 350221.001

TABLE 11
Overburden Groundwater Quality Results - MW4S
South Fredricksburgh Waste Disposal Site
Town of Greater Napanee, Ontario

Parameter	Units	Sample Designation																	ODWQS
		Sample Collection Date (dd/mm/yyyy)																	
		MW4S																	
		01/06/2016	*25/10/2016*	*09/06/2017*	*02/11/2017*	*01/11/2018*	*2019-10-07*	*22/04/2020*	*29/10/2020*	*27/05/2021*	*19/10/2021*	*21/04/2022*	*23/11/2022*	*09/05/2023*	*13/10/2023*	*17/05/2024*	*09/05/2025*	*21/10/2025*	
pH	pH	8	8	8	7	8	-	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	7.10	DRY	DRY	6.5-8.5
Conductivity	uS/cm	4600.0	14000.0	18000.0	21000.0	6580.0	-	-	-	-	-	-	-	-	-	54600	-	-	-
Alkalinity	mg/L	415.00	351.00	291.00	232.00	285.00	253.00	-	-	-	-	-	-	-	-	131.00	-	-	30-500
Hardness	mg/L	**775**	**2550**	**3240**	**5460**	**966**	**5320**	-	-	-	-	-	-	-	-	**15300**	-	-	80-100
Total Dissolved Solids	mg/L	**2530**	**7720**	**9910**	**11600**	**4280**	**14600**	-	-	-	-	-	-	-	-	**35500**	-	-	500.00
Chloride	mg/L	**1210**	**4800**	**5990**	**7120**	**2368**	**8320**	-	-	-	-	-	-	-	-	**22300**	-	-	250.00
Sodium	mg/L	**535**	**1810**	**1930**	**2930**	**960**	**2680**	-	-	-	-	-	-	-	-	**7470**	-	-	200.00
Calcium	mg/L	138	362	458	826	174	865	-	-	-	-	-	-	-	-	2330.00	-	-	-
Magnesium	mg/L	105	399	485	826	129	768	-	-	-	-	-	-	-	-	2310.00	-	-	-
Potassium	mg/L	10	27	48	78	33	74	-	-	-	-	-	-	-	-	140.00	-	-	-
Sulphate	mg/L	139	200	124	244	128	139	-	-	-	-	-	-	-	-	<200	-	-	500.00
Ammonia	mg/L	1.33	6.71	5.06	4.80	2.98	1.82	-	-	-	-	-	-	-	-	12.90	-	-	
Nitrate	mg/L	1.60	3.80	<5	<5	0.31	5.79	-	-	-	-	-	-	-	-	<20	-	-	10.00
Nitrite	mg/L	<1	<3	<5	<5	<0.10	0	-	-	-	-	-	-	-	-	<20	-	-	1.00
Total Kjehdal Nitrogen	mg/L	3.00	10.60	5.70	6.30	5.30	4.70	-	-	-	-	-	-	-	-	41.20	-	-	-
Phenols	mg/L	<0.001	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Organic Carbon	mg/L	3.00	1.50	1.50	1.20	**9.60**	**51.60**	-	-	-	-	-	-	-	-	**7.80**	-	-	5.00
Chemical Oxygen Demand	mg/L	108.00	160.00	295.00	850.00	61.00	260.00	-	-	-	-	-	-	-	-	930.00	-	-	-
BioChemical Oxygen Demand	mg/L	7.00	18.00	22.00	-	58.00	12.00	-	-	-	-	-	-	-	-	4.00	-	-	-
Iron	mg/L	**0.38**	**4.26**	-	**0.72**	**274.00**	**57.50**	-	-	-	-	-	-	-	-	**8.00**	-	-	0.30
Manganese	mg/L	**0.07**	**0.1100**	-	**0.3020**	**5.67**	**2.4000**	-	-	-	-	-	-	-	-	**2.30**	-	-	0.05
Total Phosphorus	mg/L	0.17	0.29	0.02	0.08	0.48	0.07	-	-	-	-	-	-	-	-	0.07	-	-	-
Total Suspended Solids	mg/L	165	420	370	380	20000	1720	-	-	-	-	-	-	-	-	279	-	-	-
Bicarbonate	mg/L	415	351	291	232	285	253	-	-	-	-	-	-	-	-	131	-	-	-
Carbonate	mg/L	775	2550	3240	5460	966	5320	-	-	-	-	-	-	-	-	624	-	-	-
Anion Sum	meq/L	46	147	177	211	75	243	-	-	-	-	-	-	-	-	632	-	-	-
Cation Sum	meq/L	39.2	131.0	149.0	239.0	62.1	225.0	-	-	-	-	-	-	-	-	636	-	-	-
Ion Ratio	AS/CS	1.16	1.12	8.82	6.26	0.83	0.92	-	-	-	-	-	-	-	-	1.01	-	-	-
% Difference	%	7.39	5.76	1.19	0.88	9.53	3.89	-	-	-	-	-	-	-	-	0.31	-	-	-
Arsenic	mg/L	<0.02	0.001	-	<0.01	0.01	<0.01	-	-	-	-	-	-	-	-	<0.05	-	-	0.01
Boron	mg/L	0.14	0.65	-	0.76	0.43	0.70	-	-	-	-	-	-	-	-	0.90	-	-	5.00
Barium	mg/L	0.13	0.322	-	**1.16**	**2.36**	**1.80**	-	-	-	-	-	-	-	-	**4.60**	-	-	1.00
Cadmium	mg/L	<0.00002	0.00013	-	0.00100	**0.01**	0.00200	-	-	-	-	-	-	-	-	<0.05	-	-	0.01
Chromium	mg/L	<0.002	<0.2	-	0.00	0.02	<0.01	-	-	-	-	-	-	-	-	<0.05	-	-	0.05
Copper	mg/L	0.01	0.02	-	<0.002	0.15	0.21	-	-	-	-	-	-	-	-	<0.05	-	-	1.00
Mercury	mg/L	<0.00002	<0.00002	-	<0.00002	<0.0001	<0.0001	-	-	-	-	-	-	-	-	<0.005	-	-	0.00
Lead	mg/L	0.00	0.00	-	<0.005	**0.09**	**0.10**	-	-	-	-	-	-	-	-	<0.05	-	-	0.01
Zinc	mg/L	<0.005	<0.5	-	0.02	1.33	0.20	-	-	-	-	-	-	-	-	<0.5	-	-	5.00
Langeliers Index 4° C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Saturation pH 4°C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Field Parameters																			
Temperature	C	11.20	7.50	10.30	11.60	-	-	-	-	-	-	-	-	-	-	-	-	-	-
pH	pH	7.66	6.14	7.42	7.06	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Conductivity	uS/cm	4470	9173	10036	17411	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Dissolved Solids	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Oxygen	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oxidation Reduction Potential	mV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Notes:

ODWQS	Ontario Drinking Water Quality Standards - Ontario Regulation 169/03 "Ontario Drinking Water Quality Standards" under the Safe Drinking Water Act", dated 2002, and "Technical Support Document for Ontario Drinking Water Standards, Objectives and Guidelines", dated June 2003.
BOLD	Exceeds ODWQS
Units	All Units in mg/L Unless Otherwise Noted.

Pinchin Project No. 350221.001

TABLE 12
Bedrock Groundwater Quality Results - MW4D
South Fredricksburgh Waste Disposal Site
Town of Greater Napanee, Ontario

Parameter	Units	Sample Designation																			ODWQS
		Sample Collection Date (dd/mm/yyyy)																			
		MW4S																			
		27/11/2013	*27/05/2014*	*30/10/2014*	*07/05/2015*	*01/06/2016*	*02/11/2017*	*17/04/2019*	*08/10/2019*	*22/04/2020*	*29/10/2020*	*27/05/2021*	*22/10/2021*	*21/04/2022*	*23/11/2022*	*09/05/2023*	*13/10/2023*	*13/11/2024*	*09/05/2025*	*21/10/2025*	
pH	pH	8	8	8	8	8	7	No Data	No Data	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	7.31	DRY	DRY	6.5-8.5
Conductivity	uS/cm	12700.0000	18200.0000	20500.0000	25800.0000	37800.0000	38100.0000	-	-	-	-	-	-	-	-	-	-	55100.0000	-	-	-
Alkalinity	mg/L	187.00	267.00	279.00	307.00	238.00	207.00	-	-	-	-	-	-	-	-	-	-	163.00	-	-	30-500
Hardness	mg/L	**1380**	**2040**	**2470**	**3930**	**6060**	**9700**	-	-	-	-	-	-	-	-	-	-	**14800**	-	-	80-100
Total Dissolved Solids	mg/L	**7000**	**10000**	**11300**	**14200**	**20800**	**21000**	-	-	-	-	-	-	-	-	-	-	317	-	-	500.00
Chloride	mg/L	**4230**	**6290**	**7580**	**7800**	**14200**	**17000**	-	-	-	-	-	-	-	-	-	-	**25800**	-	-	250.00
Sodium	mg/L	**1840**	**3220**	**3300**	**4450**	**6140**	**8700**	-	-	-	-	-	-	-	-	-	-	**9680**	-	-	200.00
Calcium	mg/L	213.00	337.00	386.00	601.00	901.00	1430.00	-	-	-	-	-	-	-	-	-	-	2150.00	-	-	-
Magnesium	mg/L	207.00	292.00	367.00	592.00	927.00	1490.00	-	-	-	-	-	-	-	-	-	-	2300.00	-	-	-
Potassium	mg/L	28.60	46.50	58.20	75.80	79.70	146.00	-	-	-	-	-	-	-	-	-	-	150.00	-	-	-
Sulphate	mg/L	484	**602**	**640**	154	**948**	**1040**	-	-	-	-	-	-	-	-	-	-	<1000	-	-	500.00
Ammonia	mg/L	4.11	5.51	7.52000	6.33	0.43	0.50	-	-	-	-	-	-	-	-	-	-	6.53	-	-	
Nitrate	mg/L	<0.1	<3	<0.1	<0.1	<10	**11**	-	-	-	-	-	-	-	-	-	-	<100	-	-	10.00
Nitrite	mg/L	<3	-	<10	<10	<10	<5	-	-	-	-	-	-	-	-	-	-	<100	-	-	1.00
Total Kjehdal Nitrogen	mg/L	5.50	-	7.30	9.00	1.20	2.10	-	-	-	-	-	-	-	-	-	-	11.20	-	-	-
Phenols	mg/L	<0.001	-	<0.001	<0.001	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Organic Carbon	mg/L	2.40	1.80	2.10	3.60	0.50	0.70	-	-	-	-	-	-	-	-	-	-	**7.00**	-	-	5.00
Chemical Oxygen Demand	mg/L	396.000	56.000	268.00	198.00	130.00	2360.00	-	-	-	-	-	-	-	-	-	-	930.00	-	-	-
BioChemical Oxygen Demand	mg/L	<2	<2	<2	7.00	3.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Iron	mg/L	0.13	**0.59**	**3.24**	**1.11**	<0.5	0.01	-	-	-	-	-	-	-	-	-	-	<0.6	-	-	0.30
Manganese	mg/L	0.0480	**0.09**	**0.10**	**0.14**	**0.1950**	**0.36**	-	-	-	-	-	-	-	-	-	-	**0.70**	-	-	0.05
Total Phosphorus	mg/L	0.19	-	2.56	1.38	0.78	1.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Suspended Solids	mg/L	666	962	1750	11300	5100	9900	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bicarbonate	mg/L	187	267	279	307	238	207	-	-	-	-	-	-	-	-	-	-	163	-	-	-
Carbonate	mg/L	1380	2040	2470	3930	6060	9700	-	-	-	-	-	-	-	-	-	-	14800	-	-	-
Anion Sum	meq/L	133	195	233	229	425	506	-	-	-	-	-	-	-	-	-	-	731	-	-	-
Cation Sum	meq/L	131	182	195	275	390	576	-	-	-	-	-	-	-	-	-	-	722	-	-	-
Ion Ratio	AS/CS	1.02000	1.07	1.19	0.84	1.09	6.44	-	-	-	-	-	-	-	-	-	-	0.99	-	-	-
% Difference	%	0.909	3.43	8.70	9.00	4.25	0.88	-	-	-	-	-	-	-	-	-	-	0.64	-	-	-
Arsenic	mg/L	<0.05	-	<0.1	<0.1	<0.5	<0.01	-	-	-	-	-	-	-	-	-	-	<0.02	-	-	0.01
Boron	mg/L	0.45	0.84	0.92	1.13	2.96	1.44	-	-	-	-	-	-	-	-	-	-	2.20	-	-	5.00
Barium	mg/L	0.085	0.05	0.038	0.03	<0.1	0.01	-	-	-	-	-	-	-	-	-	-	<0.2	-	-	1.00
Cadmium	mg/L	0.00	-	0.00	0.00	<0.002	0.00	-	-	-	-	-	-	-	-	-	-	0.00	-	-	0.01
Chromium	mg/L	<0.002	-	<0.002	<0.002	<0.2	0.00	-	-	-	-	-	-	-	-	-	-	<0.02	-	-	0.05
Copper	mg/L	0.01	-	<0.002	<0.002	<0.2	0.01	-	-	-	-	-	-	-	-	-	-	<0.02	-	-	1.00
Mercury	mg/L	<0.00002	-	<0.00002	<0.00002	<0.00002	0.00	-	-	-	-	-	-	-	-	-	-	<0.002	-	-	0.00
Lead	mg/L	0.000	-	0.00	0.00	<0.002	0.01	-	-	-	-	-	-	-	-	-	-	<0.02	-	-	0.01
Zinc	mg/L	0.007	-	0.01	0.01	<0.5	0.10	-	-	-	-	-	-	-	-	-	-	<0.2	-	-	5.00
Langeliers Index 4° C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Saturation pH 4°C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Field Parameters																					
Temperature	C	9.80	11.70	10.20	13.30	13.30	12.30	-	-	-	-	-	-	-	-	-	-	-	-	-	-
pH	pH	7.27	7.23	7.32	6.70	6.94	7.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Conductivity	uS/cm	9019	13666	13597	18370	29035	35428	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Dissolved Solids	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Oxygen	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oxidation Reduction Potential	mV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Notes:

ODWQS	Ontario Drinking Water Quality Standards - Ontario Regulation 169/03 "Ontario Drinking Water Quality Standards" under the Safe Drinking Water Act", dated 2002, and "Technical Support Document for Ontario Drinking Water Standards, Objectives and Guidelines", dated June 2003.
BOLD	Exceeds ODWQS
Units	All Units in mg/L Unless Otherwise Noted.

Pinchin Project No. 350221.001

TABLE 13
Overburden Groundwater Quality Results - MW5S
South Fredricksburgh Waste Disposal Site
Town of Greater Napanee, Ontario

Parameter	Units	Sample Designation																							ODWQS
		Sample Collection Date (dd/mm/yyyy)																							
		MW5S																							
		07/05/2015	03/11/2015	01/06/2016	25/10/2016	09/06/2017	02/11/2017	29/05/2018	02/11/2018	17/04/2019	17-04-19	07/10/2019	07-10-19	22/04/2020	29/10/2020	26/05/2021	22/10/2021	21/04/2022	23/11/2022	09/05/2023	13/10/2023	17/05/2024	12/11/2024	09/05/2025	21/10/2025	
pH	pH	7.69	7.91	7.89	7.94	7.84	7.73	7.88	8.05	-	-	-	7.83	7.79	7.80	7.49	7.78	7.48	7.33	7.73	7.42	7.66	7.98	8.03	7.86	6.5-8.5
Conductivity	uS/cm	1950	2070	1650	1820	1230	1770	1070	1380	-	-	-	923	932	1620	1060	1530	1220	1920	1490	1730	1410	2050	1790	2420	-
Alkalinity	mg/L	373	355	399	378	447	372	433	416	418	412	410	402	391	385	433	419	386	461	479	422	401	355	387	359	30-500
Hardness	mg/L	**830**	**811**	**589**	**615**	**517**	**677**	**473**	**526**	**526**	**535**	**621**	**411**	**411**	**577**	**516**	**618**	**568**	**795**	**664**	**704**	**624**	**796**	**777**	**869**	80-100
Total Dissolved Solids	mg/L	**1070**	**1140**	**908**	**1000**	**675**	**971**	**696**	**897**	**793**	**793**	**1080**	**600**	**606**	**1050**	**689**	**994**	**793**	**1250**	**968**	**1120**	**916**	**1330**	**934**	**1270**	500.00
Chloride	mg/L	**380**	**394**	**252**	**348**	106	**278**	99	190	178	177	**304**	71	72	**288**	128	**260**	156	**394**	213	**305**	212	**464**	**350**	**520**	250.00
Sodium	mg/L	120	153	113	125	67	111	50	80	53	54	94	30	30	95	35	78	41	80	68	105	64	126	84	145	200.00
Calcium	mg/L	114.00	113.00	91.40	89.10	96	109	89	87	100	102	102	92	92	96	106	114	122	150	119	117	113	134	156	153	-
Magnesium	mg/L	133.00	129.00	87.70	95.50	67.20	98.30	61.00	75.00	67.00	68.00	89.00	44.00	44.00	82.00	61.00	81.00	64.00	102.00	89.00	100.00	83.00	112.00	94.20	118.00	-
Potassium	mg/L	8.00	11.10	5.80	7.50	4.70	8.70	4.00	7.00	4.00	4.00	9.00	3.00	3.00	9.00	4.00	7.00	3.00	7.00	5.00	8.00	5.00	11.00	6.64	11.40	-
Sulphate	mg/L	120.00	92.00	73.00	70.00	13.00	40.00	19.00	42.00	41.00	41.00	28.00	14.00	14.00	24.00	15.00	20.00	30.00	23.00	49.00	20.00	35.00	29.00	48.00	40.00	500.00
Ammonia	mg/L	0.35	0.96	0.37	0.81	0.16	0.72	0.36	0.32	0.23	0.24	0.71	0.17	0.14	0.71	0.21	0.58	0.07	0.52	0.26	0.81	0.36	0.95	0.39	1.00	
Nitrate	mg/L	<0.1	<0.1	0	<0.1	<0.05	<0.05	<0.10	0.13	<0.10	<0.10	<0.10	<0.10	<0.10	<0.50	<0.50	<1.0	<0.10	<0.10	<0.10	<0.50	<0.50	<0.50	< 0.06	< 0.06	10.00
Nitrite	mg/L	<0.1	<0.1	<0.1	<0.1	<0.05	<0.05	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.50	<0.50	<1.0	<0.10	<0.10	<0.10	<0.50	<0.50	<0.50	< 0.03	< 0.03	1.00
Total Kjehdal Nitrogen	mg/L	0.60	1.20	0.60	1.20	0.30	0.90	<0.8	2.10	0.40	0.30	0.80	0.56	0.63	0.90	0.36	0.75	0.31	0.71	0.38	0.77	0.55	1.16	0.39	4.00	-
Phenols	mg/L	<0.001	<0.001	<0.001	<0.001	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-
Dissolved Organic Carbon	mg/L	1.40	<0.2	0.90	0.60	3.40	1.50	3.40	**6.60**	2.50	2.10	2.00	2.40	2.40	1.50	2.80	2.00	2.90	4.50	2.50	2.40	3.30	3.20	2.00	2.00	5.00
Chemical Oxygen Demand	mg/L	22.00	6.00	8.00	22.00	36.00	28.00	5.00	12.00	<5	<5	21.00	10.00	7.00	<5	<5	12.00	14.00	18.00	7.00	24.00	9.00	60.00	13.00	17.00	-
BioChemical Oxygen Demand	mg/L	3.00	2.00	<2	7.00	5.00	-	2.00	2.00	2.00	3.00	9.00	3.00	<1	7.00	6.00	8.00	5.00	3.00	3.00	9.00	5.00	7.00	< 4	8.00	-
Iron	mg/L	0.01	0.03	0.05	0.06	-	0.01	0.20	**0.75**	**0.31**	0.30	0.14	<0.3	0.21	<0.03	0.05	<0.2	**0.35**	<0.03	0.04	<0.06	**0.56**	<0.1	0.02	0.02	0.30
Manganese	mg/L	0.0140	0.01	0.0430	0.04	-	**0.0570**	**0.09**	0.05	**0.08**	**0.08**	**0.07**	**0.10**	**0.10**	**0.06**	**0.11**	**0.07**	**0.14**	0.05	**0.07**	**0.06**	**0.09**	<0.04	0.05	0.05	0.05
Total Phosphorus	mg/L	0.21	0.14	0.14	0.12	0.01	0.08	0.23	0.04	<0.02	0.01	0.07	0.05	0.04	0.03	0.06	<0.02	0.02	0.02	0.16	0.08	0.04	0.01	0.06	5.40	-
Total Suspended Solids	mg/L	168.00	176.00	158.00	165.00	38.00	108.00	72.00	62.00	40.00	44.00	98.00	50.00	48.00	84.00	44.00	23.00	22.00	115.00	327.00	160.00	37.00	93.00	112.00	65.00	-
Bicarbonate	mg/L	373.00	355.00	399.00	378.00	447.00	372.00	433.00	416.00	418.00	412.00	410.00	402.00	391.00	385.00	433.00	419.00	386.00	461.00	479.00	422.00	401.00	355.00	-	-	-
Carbonate	mg/L	830.00	811.00	589.00	615.00	517.00	677.00	473.00	526.00	526.00	535.00	621.00	411.00	411.00	577.00	516.00	618.00	568.00	795.00	664.00	704.00	624.00	796.00	-	-	-
Anion Sum	meq/L	20.70	20.10	16.60	18.80	12.20	16.10	11.80	14.60	14.20	14.10	17.40	10.30	10.10	16.30	12.60	16.10	12.80	20.80	16.60	17.50	14.70	20.80	18.54	22.7600	-
Cation Sum	meq/L	22.00000	23.20000	16.90000	18.00000	13.40000	18.60000	11.80000	14.20000	12.90000	13.20000	16.80000	9.60000	9.60000	16.00000	12.00000	16.00000	13.20000	19.60000	16.40000	18.90000	113.00000	21.70000	18.54000	24.00000	-
Ion Ratio	AS/CS	0.94	0.87	0.99	1.05	4.60	7.16	0.99	0.97	0.91	0.93	0.97	0.93	0.95	0.98	0.95	0.99	1.04	0.94	0.98	1.08	1.05	1.04	1.04	1.05	-
% Difference	%	3.17	7.11	0.78	2.23	0.91	0.87	0.37	1.29	4.82	3.43	1.69	3.66	2.74	1.16	2.59	0.52	1.82	3.08	0.74	3.94	2.24	2.20	-	2.670	-
Arsenic	mg/L	<0.0001	<0.005	0	0	-	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.01	<0.001	<0.001	<0.001	<0.005	<0.001	<0.001	<0.001	<0.002	<0.001	<0.004	< 0.0002	< 0.0002	0.01
Boron	mg/L	0.33	0.73	0.26	0.40	-	0.46	0.12	0.41	0.11	0.11	0.62	<0.01	0.07	0.54	0.15	0.35	0.10	0.31	0.20	0.41	0.34	<0.04	0.26	0.51	5.00
Barium	mg/L	0.250	0.40	0.184	0.236	-	0.664	0.33	0.44	0.29	0.300	0.670	0.200	0.25	0.63	0.32	0.47	0.24	0.490	0.24	0.39	0.36	<0.04	0.28	0.56	1.00
Cadmium	mg/L	0.00	<0.00002	0.00	<0.00002	-	<0.000014	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.001	<0.0005	<0.0001	<0.0001	<0.0005	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0004	< 0.000003	< 0.000003	0.01
Chromium	mg/L	0.01	**0.10**	<0.002	<0.002	-	<0.001	<0.001	0.01	<0.001	<0.001	<0.001	<0.01	<0.001	<0.001	<0.001	<0.005	<0.001	<0.001	<0.001	<0.002	<0.001	<0.004	0.00	0.00	0.05
Copper	mg/L	<0.002	0.00	<0.002	0.00	-	<0.002	<0.001	0.00	<0.001	<0.001	<0.001	<0.01	<0.001	<0.001	<0.001	<0.005	0.00	<0.001	<0.001	<0.002	0.00	<0.004	< 0.001	< 0.001	1.00
Mercury	mg/L	<0.00002	0.00	<0.00002	<0.00002	-	<0.00002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0004	< 0.00001	< 0.00001	0.00
Lead	mg/L	<0.00002	0.00	<0.00002	<0.00002	-	0.00	<0.001	0.00	<0.001	<0.001	0.00	<0.01	<0.001	<0.001	<0.001	<0.005	<0.001	<0.001	<0.001	<0.002	<0.001	<0.004	< 0.00009	< 0.00009	0.01
Zinc	mg/L	<0.005	<0.005	<0.005	<0.005	-	<0.005	<0.01	0.01	<0.01	<0.01	0.01	<0.1	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.02	<0.01	<0.04	< 0.002	< 0.002	5.00
Langeliers Index 4° C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.58	
Saturation pH 4°C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.28	
Field Parameters																										
Temperature	C	10.60	13.40	12.70	10.80	10.30	12.60	-	-	-	-	-	6.60	6.60	11.45	11.44	-	5.64	9.98	9.80	11.30	-	-	10.05	14.20	-
pH	pH	7.26	7.73	7.66	7.40	7.43	7.53	-	-	-	-	-	7.23	7.23	7.73	7.42	-	7.24	7.36	7.93	7.58	-	-	8.07	8.17	-
Conductivity	uS/cm	1485	1582	1444	1473	888	1410	-	-	-	-	-	1	1	2	1	-	1	2	1740	1682	-	-	274	2	-
Total Dissolved Solids	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.81	-	0.89	1.35	1.11	3.30	-	-	1.48	1.24	-
Dissolved Oxygen	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10.78	9.92	-
Oxidation Reduction Potential	mV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-42.00	-204.00	-

Notes:

ODWQS	Ontario Drinking Water Quality Standards - Ontario Regulation 169/03 "Ontario Drinking Water Quality Standards" under the Safe Drinking Water Act", dated 2002, and "Technical Support Document for Ontario Drinking Water Standards, Objectives and Guidelines", dated June 2003.
BOLD	Exceeds ODWQS
Units	All Units in mg/L Unless Otherwise Noted.

Pinchin Project No. 350221.001

TABLE 14
Bedrock Groundwater Quality Results - MW5D
South Fredricksburgh Waste Disposal Site
Town of Greater Napanee, Ontario

Parameter	Units	Sample Designation																						ODWQS
		Sample Collection Date (dd/mm/yyyy)																						
		MW5D																						
		07/05/2015	*03/11/2015*	*01/06/2016*	*25/10/2016*	*09/06/2017*	*02/11/2017*	*29/05/2018*	*02/11/2018*	*17/04/2019*	*07/10/2019*	*22/04/2020*	*29/10/2020*	*27/05/2021*	*22/10/2021*	*21/04/2022*	*23/11/2022*	*09/05/2023*	*13/10/2023*	*17/05/2024*	*12/11/2024*	*09/05/2025*	*21/10/2025*	
pH	pH	8	8	8	8	8	7.88	7.94	8.04	-	-	8.05	7.93	7.82	7.93	7.67	7.49	7.86	7.52	7.63	7.78	8.05	7.89	6.5-8.5
Conductivity	uS/cm	4440	5170	4400	3950	7620	5050	3240	3870	-	-	2940	2160	2920	2280	2830	3650	3940	3120	4350	2660	3900	4000	-
Alkalinity	mg/L	414	411	421	433	422	430	452	483	471	457	478	420	435	476	437	426	463	486	446	419	402	423	30-500
Hardness	mg/L	**818**	**702**	**718**	**642**	**734**	**503**	**609**	**619**	**768**	**643**	**540**	**577**	**705**	**595**	**689**	**764**	**824**	**756**	**856**	**660**	**1040**	**765**	80-100
Total Dissolved Solids	mg/L	**2440**	**2840**	**2420**	**2170**	**4190**	**2780**	**2110**	**2520**	**3520**	**2350**	**1910**	**1400**	**1900**	**1480**	**1840**	**2370**	**2560**	**2030**	**2830**	**1730**	**1960**	**2060**	500.00
Chloride	mg/L	**1180**	**1480**	**1230**	**1010**	**1460**	**489**	**798**	**956**	**1600**	**956**	**635**	**469**	**820**	**440**	**710**	**1060**	**1080**	**740**	**1250**	**666**	**770**	**1300**	250.00
Sodium	mg/L	**733**	**665**	**547**	**540**	**760**	**335**	**425**	**535**	**709**	**466**	**383**	**204**	**406**	**233**	**333**	**454**	**570**	**420**	**586**	**338**	**398**	**248**	200.00
Calcium	mg/L	120	108	108	95	109	77	92	93	118	96	91	86	109	93	106	118	127	113	130	101	214	130	-
Magnesium	mg/L	126	105	104	98	112	76	92	94	115	98	76	88	105	88	103	114	123	115	129	99	122	107	-
Potassium	mg/L	25.60	15.20	13.60	11.40	20.10	12.80	16.00	20.00	31.00	22.00	16.00	12.00	17.00	11.00	16.00	16.00	18.00	16.00	24.00	15.00	19.70	12.50	-
Sulphate	mg/L	51	34	47	52	14	33	24	24	17	19	31	20	30	20	21	21	16	20	12	26	40	19	500.00
Ammonia	mg/L	1.87	2.89	2.05	1.99	2.82	1.96	1.42	1.52	4.00	3.10	2.11	1.53	1.98	1.18	1.26	2.69	2.38	2.14	3.47	1.92	2.08	3.50	
Nitrate	mg/L	<0.1	<0.5	<1	<0.5	<0.5	<0.5	0.29	0.14	<0.10	0.33	<0.10	<1.0	<1.0	<1.0	0.52	0.13	0.20	<1.0	<1	<1	< 0.06	< 0.06	10.00
Nitrite	mg/L	<0.1	<0.5	<1	<0.5	<0.5	<0.5	<0.10	<0.10	<0.10	<0.10	<0.10	<1.0	<1.0	<1.0	<0.10	<0.10	<0.10	<1.0	<1	<1	< 0.3	< 0.03	1.00
Total Kjehdal Nitrogen	mg/L	2.80	3.30	2.90	2.40	3.00	2.80	2.40	3.10	3.90	3.60	2.39	1.76	2.40	1.34	1.38	2.98		2.48	4.02	2.47	1.49	6.00	-
Phenols	mg/L	<0.001	0	<0.001	<0.001	-	-					-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Organic Carbon	mg/L	2.00	<0.2	0.60	0.40	0.60	2.00	2.50	**10.20**	3.40	1.80	2.40	1.40	2.40	2.00	2.40	3.80	2.00	2.30	2.90	2.80	2.00	2.00	5.00
Chemical Oxygen Demand	mg/L	55.00	20.00	22.00	45.00	24.00	83.00	16.00	21.00	35.00	41.00	20.00	<5	<5	8.00	14.00	99.00	19.00	11.00	41.00	37.00	27.00	34.00	-
BioChemical Oxygen Demand	mg/L	10.00	15.00	6.00	9.00	11.00	-	5.00	9.00	10.00	11.00	2.00	4.00	7.00	7.00	6.00	10.00	8.00	10.00	18.00	4.00	8.00	6.00	-
Iron	mg/L	**0.31**	0.27	0.29	0.28	-	0.09	0.08	**1.02**	0.21	**2.86**	0.18	**0.96**	<0.03	<0.2	0.06	0.21	0.06	0.25	0.20	**0.32**	0.26	0.10	0.30
Manganese	mg/L	0.03	0.0400	0.05	**0.0790**	-	0.03	<0.01	0.05	0.03	**0.12**	0.03	**0.06**	0.03	**0.07**	0.04	**0.09**	0.05	**0.10**	**0.06**	**0.07**	**0.06**	0.03	0.05
Total Phosphorus	mg/L	0.85	0.27	0.34	0.25	0.05	1.10	0.33	0.11	0.01	0.55	0.64	0.06	0.12	0.15	0.04	0.02	0.17	0.05	0.12	0.01	0.10	4.40	-
Total Suspended Solids	mg/L	2500	1060	640	565	4100	1950	630	230	2380	1210	405	119	1470	435	249	616	376	114	149	117	178	96	-
Bicarbonate	mg/L	414	411	421	433	422	430	452	483	471	457	478	420	435	476	437	426	463	486	446	419	-	-	-
Carbonate	mg/L	818	702	718	642	734	503	609	619	768	643	540	577	705	595	689	764	824	756	856	660	-	-	-
Anion Sum	meq/L	42.60	50.70	44.00	38.20	49.80	23.10	32.10	37.10	54.90	36.50	28.10	22.00	32.50	22.40	29.20	38.90	40.10	31.00	44.40	27.70	30.71	44.94	-
Cation Sum	meq/L	49.0	43.6	38.3	36.8	48.5	25.1	31.2	36.3	47.3	33.9	28.0	20.8	32.3	22.4	28.8	35.6	41.9	33.9	43.4	28.4	30.7	26.4	-
Ion Ratio	AS/CS	0.87	1.16	1.15	1.04	1.31	4.23	0.97	0.98	0.86	0.93	1.00	0.94	1.00	1.00	0.98	0.92	1.04	1.09	0.98	1.03	1.26	0.59	-
% Difference	%	7.03	7.56	6.93	1.98	1.03	0.92	1.45	1.19	7.48	3.73	0.19	2.86	0.23	0.07	0.86	4.37	2.20	4.49	1.12	1.24	-	-26.03	-
Arsenic	mg/L	<0.02	<0.02	<0.02	0	-	0.00	0.00	0.00	0.00	0.01	<0.001	0.00	0.00	<0.005	<0.001	0.00	0.00	<0.001	<0.001	<0.001	0.00	0.00	0.01
Boron	mg/L	1.33	0.93	1.09	0.99	-	0.67	0.89	1.05	1.20	0.80	0.86	0.71	0.99	0.60	0.99	0.84	0.92	0.84	0.88	0.55	0.87	0.73	5.00
Barium	mg/L	0.40	0.470	0.465	0.345	-	0.27	0.36	0.47	0.490	0.440	0.290	0.28	0.36	0.21	0.38	0.40	0.400	0.39	0.41	0.18	0.36	0.24	1.00
Cadmium	mg/L	0.00	<0.00002	0.00	0.00	-	<0.000014	<0.0001	<0.0001	<0.0001	0.00	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.00	0.00	0.01
Chromium	mg/L	<0.002	<0.02	<0.002	<0.02	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.00	0.00	0.05
Copper	mg/L	<0.002	0.01	<0.002	0.01	-	<0.002	<0.001	0.001	<0.001	<0.001	<0.001	0.00	<0.001	<0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	< 0.001	< 0.001	1.00
Mercury	mg/L	<0.00002	<0.00002	<0.00002	<0.00002	-	0.00	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	< 0.00001	< 0.00001	0.00
Lead	mg/L	<0.00002	<0.00002	<0.00002	<0.00002	-	<0.00002	<0.001	0.01	<0.001	0.01	<0.001	0.00	<0.001	<0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	< 0.00009	< 0.00009	0.01
Zinc	mg/L	<0.005	<0.05	<0.005	<0.05	-	<0.005	<0.01	0.01	<0.01	0.04	<0.01	0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	< 0.002	0.01	5.00
Langeliers Index 4° C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.59	
Saturation pH 4°C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.30	
Field Parameters																								
Temperature	C	13.10	13.20	11.80	8.70	11.00	11.50	-	-	-	-	7.77	10.37	11.11	-	7.66	10.11	9.71	14.10	-	-	9.73	12.65	-
pH	pH	7.21	7.61	7.49	7.29	7.49	7.59	-	-	-	-	8.41	7.71	7.84	-	7.68	7.11	7.90	7.61	-	-	7.51	7.83	-
Conductivity	uS/cm	4165	3810	2176	3089	3967	1737	-	-	-	-	3	2	3	-	3	3	3520	1569	-	-	220	3	-
Total Dissolved Solids	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	1.83	-	2.16	2.07	2.25	3.90	-	-	1.94	1.62	-
Dissolved Oxygen	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6.14	5.62	-
Oxidation Reduction Potential	mV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-48.00	-197.00	-

Notes:

ODWQS	Ontario Drinking Water Quality Standards - Ontario Regulation 169/03 "Ontario Drinking Water Quality Standards" under the Safe Drinking Water Act", dated 2002, and "Technical Support Document for Ontario Drinking Water Standards, Objectives and Guidelines", dated June 2003.
BOLD	Exceeds ODWQS
Units	All Units in mg/L Unless Otherwise Noted.

Pinchin Project No. 350221.003

TABLE 15
Overburden Groundwater Quality Results - MW6S
South Fredricksburgh Waste Disposal Site
Town of Greater Napanee, Ontario

Parameter	Units	Sample Designation																			ODWQS
		Sample Collection Date (dd/mm/yyyy)																			
		MW6S																			
		07/05/2015	*03/11/2015*	*01/06/2016*	*25/10/2016*	*09/06/2017*	*02/11/2017*	*31/10/2018*	*16/04/2019*	*08/10/2019*	*22/04/2020*	*29/10/2020*	*27/05/2021*	*19/10/2021*	*20/04/2022*	*23/11/2022*	*09/05/2023*	*16/10/2023*	*17/11/2024*	*13/05/2025*	*21/10/2025*	
pH	pH	7.67	7.91	7.90	7.66	7.76	7.52	7.81	-	-	7.90	7.89	7.79	7.82	8.04	7.58	8.10	7.87	7.75	8.20	7.89	6.5-8.5
Conductivity	uS/cm	1670	1610	6180	10900	11400	12500	7390	-	-	9880	7150	4890	5000	5170	4250	5760	6060	4350	5020	5820	-
Alkalinity	mg/L	192	128	298	281	314	353	365	402	422	385	424	439	478	448	433	438	479	424	410	412	30-500
Hardness	mg/L	**552**	**317**	**1020**	**1310**	**914**	**2470**	**1520**	**1130**	**855**	**2050**	**1140**	**868**	**834**	**927**	**780**	**1020**	**1100**	**845**	**842**	**921**	80-100
Total Dissolved Solids	mg/L	**918**	**887**	**3400**	**5970**	**6250**	**6860**	**4800**	**4180**	**2960**	**6420**	**4650**	**3180**	**3250**	**3360**	**2760**	**3740**	**3940**	**2830**	**2690**	**3300**	500.00
Chloride	mg/L	**268**	**471**	**1920**	**2660**	**3810**	**3530**	**2830**	**1850**	**1170**	**3400**	**2060**	**1360**	**1190**	**1460**	**1251**	**1760**	**1630**	**1390**	**1500**	**1600**	250.00
Sodium	mg/L	**443**	**252**	**723**	**1140**	**1910**	**1750**	**1020**	**858**	**566**	**1490**	**953**	**750**	**675**	**754**	**605**	**885**	**974**	**651**	**565**	**587**	200.00
Calcium	mg/L	72.70	47.10	142.00	160.00	128.00	363.00	213.00	164.00	113.00	295.00	155.00	120.00	113.00	129.00	103.00	143.00	152.00	114.00	139.00	146.00	-
Magnesium	mg/L	90.10	48.50	153.00	221.00	144.00	381.00	240.00	175.00	139.00	319.00	183.00	138.00	134.00	147.00	127.00	161.00	174.00	136.00	120.00	135.00	-
Potassium	mg/L	14.80	8.20	15.70	21.30	46.50	54.20	37.00	29.00	23.00	51.00	32.00	21.00	21.00	24.00	19.00	25.00	31.00	24.00	18.40	20.60	-
Sulphate	mg/L	81.00	66.00	97.00	82.00	<100	158.00	112.00	98.00	100.00	60.00	72.00	80.00	70.00	66.00	108.00	76.00	50.00	63.00	95.00	150.00	500.00
Ammonia	mg/L	1.03	0.98	2.92	3.62	2.46	8.04	2.96	3.74	3.30	6.11	4.24	2.64	2.80	3.06	2.96	3.20	4.16	2.86	2.70	3.20	
Nitrate	mg/L	0	1	<3	<3	<5	<5	0.30	<0.10	<0.10	<0.10	<2.5	<1.0	<2.5	<0.10	0.10	<0.10	<5.0	<1.0	< 0.06	< 0.06	10.00
Nitrite	mg/L	<0.1	<0.1	<3	<3	<5	<5	<0.10	<0.10	<0.10	<0.10	<2.5	<1.0	<2.5	<0.10	<0.10	<0.10	<5.0	<1.0	< 0.3	< 0.03	1.00
Total Kjehdal Nitrogen	mg/L	1.60	1.30	3.00	4.70	2.80	10.30	7.10	3.30	3.20	6.88	4.40	3.24	2.99	3.38	3.11	-	5.41	3.01	1.60	6.00	-
Phenols	mg/L	<0.001	<0.001	<0.001	<0.001	-	-	-	-	-	-		-		-	-	-	-	-	-	-	-
Dissolved Organic Carbon	mg/L	2.00	0.30	0.60	0.40	0.20	1.30	3.40	2.20	2.00	1.70	1.90	2.00	1.60	2.00	2.80	1.70	2.20	2.50	1.00	2.00	5.00
Chemical Oxygen Demand	mg/L	29.00	32.00	37.00	26.00	23.00	5.00	37.00	102.00	45.00	63.00	60.00	54.00	22.00	32.00	65.00	36.00	27.00	22.00	23.00	35.00	-
BioChemical Oxygen Demand	mg/L	8.00	6.00	<2	7.00	12.00	-	5.00	3.00	16.00	20.00	6.00	5.00	9.00	<1	6.00	2.00	4.00	3.00	< 4	< 4	-
Iron	mg/L	**1.22**	**1.71**	**3.47**	<0.5	-	**9.42**	**6.50**	**2.51**	**3.77**	**3.20**	**0.91**	**1.19**	**0.90**	**2.40**	**1.38**	**2.25**	**2.15**	**1.04**	**1.62**	0.21	0.30
Manganese	mg/L	**0.3160**	**0.41**	**0.3940**	<0.1	-	**0.59**	**0.42**	**0.28**	**0.23**	**0.25**	**0.12**	**0.16**	**0.12**	**0.20**	**0.09**	**0.15**	**0.15**	**0.13**	**0.10**	0.01	0.05
Total Phosphorus	mg/L	0.19	0.07	0.08	0.09	0.02	0.72	0.06	0.01	0.04	0.30	0.28	0.08	0.07	0.08	<0.02	0.05	0.12	0.03	0.06	3.00	-
Total Suspended Solids	mg/L	100.00	105.00	122.00	700.00	660.00	4800.00	139.00	83.00	758.00	861.00	620.00	77.00	1310.00	38.00	81.00	93.00	112.00	62.00	59.00	69.00	-
Bicarbonate	mg/L	192.00	128.00	298.00	281.00	314.00	353.00	365.00	402.00	422.00	385.00	424.00	439.00	478.00	448.00	433.00	438.00	479.00	424.00	-	-	-
Carbonate	mg/L	552.00	317.00	1020.00	1310.00	914.00	2470.00	1520.00	1130.00	855.00	2050.00	1140.00	868.00	834.00	927.00	780.00	1020.00	1100.00	845.00	-	-	-
Anion Sum	meq/L	13.10	17.30	62.20	82.50	115.00	110.00	89.50	62.30	43.50	105.00	68.10	48.80	44.60	51.50	46.20	60.00	56.60	49.00	51.14	57.22	-
Cation Sum	meq/L	30.80000	17.70000	51.90000	76.60000	130.00000	128.00000	75.90000	60.90000	42.50000	108.00000	65.40000	50.70000	46.80000	52.20000	42.60000	59.70000	65.40000	46.00000	42.13000	44.47000	-
Ion Ratio	AS/CS	0.43	0.98	1.20	1.08	6.09	7.60	0.85	0.98	0.98	1.03	0.96	1.04	1.05	1.01	0.92	1.00	1.15	0.94	0.82	0.78	-
% Difference	%	40.30	1.22	9.00	3.71	0.89	0.86	8.22	1.11	1.18	1.24	2.05	1.88	2.37	0.61	4.06	0.21	7.17	3.15	-9.66	-12.54	-
Arsenic	mg/L	<0.01	<0.005	<0.03	0	-	-	<0.001	<0.002	<0.001	<0.005	<0.001	<0.001	<0.005	<0.01	<0.001	<0.001	<0.001	<0.002	0.00	< 0.0002	0.01
Boron	mg/L	0.84	0.36	0.84	0.67	-	1.24	1.14	1.04	1.00	1.13	1.10	1.18	1.14	1.20	1.00	1.04	1.22	1.24	0.94	0.99	5.00
Barium	mg/L	0.318	0.224	0.532	0.804	-	**1.68**	0.74	0.470	0.700	0.720	0.63	0.39	0.43	0.60	0.49	0.450	0.63	0.64	0.43	0.38	1.00
Cadmium	mg/L	0.00	<0.00002	<0.00002	0.00	-	0.00	<0.0001	<0.0002	<0.0001	<0.0005	<0.0001	<0.0002	<0.0005	<0.001	<0.0001	<0.0001	<0.0001	<0.0002	0.00	0.00	0.01
Chromium	mg/L	<0.002	0.00	<0.002	<0.2	-	0.00	0.00	<0.002	<0.001	<0.005	<0.001	<0.001	<0.005	<0.01	<0.001	<0.001	<0.001	<0.002	0.00	0.00	0.05
Copper	mg/L	<0.002	0.00	<0.002	0.02	-	<0.002	0.01	<0.002	0.00	<0.005	<0.001	<0.001	<0.005	<0.01	<0.001	<0.001	<0.001	0.00	< 0.001	< 0.001	1.00
Mercury	mg/L	<0.00002	<0.00002	<0.00002	<0.00002	-	0.00	<0.0001	<0.0002	<0.0001	<0.0005	<0.0001	<0.0002	<0.0005	<0.001	<0.0001	<0.0001	<0.0001	<0.0002	< 0.00001	< 0.00001	0.00
Lead	mg/L	<0.00002	<0.00002	0.00	<0.00002	-	-	0.00	<0.002	0.00	<0.005	<0.001	<0.002	<0.005	<0.01	<0.001	<0.001	<0.001	<0.002	0.00	< 0.00009	0.01
Zinc	mg/L	0.01	<0.005	<0.005	<0.5	-	<0.005	0.03	<0.02	0.02	<0.05	<0.01	<0.01	<0.05	<0.1	<0.01	<0.01	<0.01	<0.02	0.00	0.01	5.00
Langeliers Index 4° C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.91	0.62	
Saturation pH 4°C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.29	7.27	
Field Parameters																						
Temperature	C	13.00	13.50	14.20	11.70	11.00	12.90	-	-	-	10.95	12.46	14.12	-	10.33	11.07	10.19	14.60	-	9.40	14.15	-
pH	pH	7.53	7.63	7.65	7.24	7.55	7.32	-	-	-	9.22	8.29	7.65	-	7.40	7.41	7.69	7.81	-	7.30	7.93	-
Conductivity	uS/cm	2438	1619	4397	9580	2000	10579	-	-	-	5	6	6	-	5	6	5520	3999	-	36	10	-
Total Dissolved Solids	mg/L	-	-	-	-	-	-	-	-	-	-	-	3.73	-	3.18	3.95	3.48	7.30	-	3.01	677.00	-
Dissolved Oxygen	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.14	5.45	-
Oxidation Reduction Potential	mV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	38.00	-126.00	-

Notes:

ODWQS	Ontario Drinking Water Quality Standards - Ontario Regulation 169/03 "Ontario Drinking Water Quality Standards" under the Safe Drinking Water Act", dated 2002, and "Technical Support Document for Ontario Drinking Water Standards, Objectives and Guidelines", dated June 2003.
BOLD	Exceeds ODWQS
Units	All Units in mg/L Unless Otherwise Noted.

Pinchin Project No. 350221.003

TABLE 16
Bedrock Groundwater Quality Results - MW6D
South Fredricksburgh Waste Disposal Site
Town of Greater Napanee, Ontario

Parameter	Units	Sample Designation																									ODWQS
		Sample Collection Date (dd/mm/yyyy)																									
		MW6D																									
		07/05/2015	*03/11/2015*	*01/06/2016*	*25/10/2016*	*09/06/2017*	*02/11/2017*	*02/11/2017*	*29/05/2018*	*31/10/2018*	*16/04/2019*	*16-04-19*	*08/10/2019*	*22/04/2020*	*28/10/2020*	*28-10-20*	*26/05/2021*	*19/10/2021*	*19-10-21*	*20/04/2022*	*23/11/2022*	*09/05/2023*	*16/10/2023*	*17/11/2024*	*09/05/2025*	*21/10/2025*	
pH	pH	7	8	7	7	6.93	7.41	7.54	7.44	7.60	-	-	-	7.40	7.51	7.54	7.11	7.15	7.23	7.43	7.08	7.88	7.26	7.11	7.77	7.81	6.5-8.5
Conductivity	uS/cm	23200	16000	82400	57600	73600	20200	17500	16700	20500	-	-	-	55800	25600	18800	55900	68100	53700	20700	43400	3820	23800	43000	19200	11400	-
Alkalinity	mg/L	375.00	450.00	291.00	172.00	225.00	340.00	341.00	441.00	442.00	366.00	389.00	435.00	309.00	365.00	382.00	307.00	301.00	342.00	389.00	313.00	407.00	395.00	318.00	348.00	429.00	30-500
Hardness	mg/L	**18600**	**12100**	**18500**	**14300**	**9450**	**4790**	**4180**	**4380**	**5680**	**4150**	**2420**	**1150**	**15400**	**6930**	**4900**	**16900**	**21700**	**15300**	**5750**	**14500**	**1090**	**7220**	**13800**	**1390**	**1300**	80-100
Total Dissolved Solids	mg/L	**12800**	**8790**	**45300**	**31700**	**40500**	**11100**	**9600**	**10900**	**14400**	**9820**	**5830**	**2940**	**36300**	**16600**	**12200**	**36300**	**44300**	**34900**	**13500**	**28200**	**2480**	**15500**	**28000**	**13600**	**7290**	500.00
Chloride	mg/L	**10100**	**5270**	**28200**	**20800**	**11600**	**5410**	**4640**	**5940**	**9560**	**5580**	**2930**	**1160**	**22000**	**9190**	**6140**	**24000**	**25200**	**21900**	**7600**	**22127**	**900**	**11092**	**20000**	**1700**	**31000**	250.00
Sodium	mg/L	**8480**	**5450**	**8350**	**6430**	**4320**	**1920**	**1650**	**1940**	**2670**	**1760**	**987**	**437**	**7610**	**3440**	**2120**	**7520**	**9670**	**6720**	**2450**	**6540**	**425**	**3490**	**6440**	**417**	**493**	200.00
Calcium	mg/L	2940.00	1950.00	2970.00	2210.00	1480.00	790.00	697.00	728.00	910.00	711.00	433.00	191.00	2410.00	1130.00	807.00	2690.00	3450.00	2410.00	937.00	2310.00	185.00	1160.00	2240.00	290.00	233.00	-
Magnesium	mg/L	2740.00	1770.00	2700.00	2130.00	1400.00	686.00	593.00	621.00	828.00	577.00	325.00	163.00	2290.00	997.00	700.00	2480.00	3170.00	2260.00	829.00	2110.00	152.00	1050.00	2000.00	161.00	174.00	-
Potassium	mg/L	130.00	71.10	104.00	77.10	66.00	34.20	30.20	34.00	67.00	41.00	26.00	21.00	123.00	65.00	47.00	111.00	120.00	98.00	43.00	97.00	13.00	61.00	108.00	15.30	16.30	-
Sulphate	mg/L	414.00	314.00	254.00	222.00	121.00	417.00	435.00	166.00	362.00	205.00	201.00	100.00	160.00	200.00	160.00	200.00	<20	74.00	187.00	44.00	245.00	226.00	168.00	270.00	140.00	500.00
Ammonia	mg/L	5.51	4.12	16.30	13.10	3.39	4.40	4.20	5.02	4.79	14.20	14.90	2.00	3.10	7.16	5.30	0.58	0.19	0.59	6.29	15.30	1.28	7.95	15.30	1.63	19.00	
Nitrate	mg/L	<0.1	<3	<10	<10	<5	<5	<5	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<10	<5.0	<10	<2.5	<0.10	<0.20	<0.10	<0.10	<0.50	<20	< 0.06	< 0.06	10.00
Nitrite	mg/L	<10	<3	<10	<10	<5	<5	<5	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<10	<5.0	<10	<2.5	<0.10	<0.20	<0.10	<0.10	<0.50	<20	< 0.3	< 0.03	1.00
Total Kjehdal Nitrogen	mg/L	7.60	4.70	19.40	18.80	3.80	6.00	5.40	5.70	10.10	11.00	11.30	2.00	11.60	5.57	3.61	1.70	3.10	3.81	8.90	14.90	1.34	8.77	13.40	1.10	24.00	-
Phenols	mg/L	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Organic Carbon	mg/L	**5.30**	0.40	0.50	0.50	0.50	1.60	1.80	**5.10**	**7.00**	4.00	4.10	2.70	2.80	2.10	2.20	3.00	2.40	2.40	4.00	**5.70**	2.80	2.90	3.50	2.00	2.00	5.00
Chemical Oxygen Demand	mg/L	319.00	202.00	370.00	270.00	265.00	600.00	519.00	1060.00	612.00	181.00	215.00	80.00	500.00	99.00	99.00	44.00	98.00	92.00	460.00	360.00	24.00	726.00	500.00	46.00	128.00	-
BioChemical Oxygen Demand	mg/L	18.00	32.00	11.00	18.00	20.00	-	-	19.00	40.00	22.00	21.00	50.00	30.00	29.00	19.00	<1	30.00	40.00	10.00	14.00	4.00	6.00	21.00	6.00	22.00	-
Iron	mg/L	**3.58**	**1.84**	**4.00**	<0.5	-	0.05	0.10	**0.60**	**1.02**	<0.2	0.12	**0.67**	<0.2	0.03	<0.03	0.05	**2.40**	**2.30**	**0.70**	0.21	0.06	<0.1	**1.20**	0.06	0.05	0.30
Manganese	mg/L	**0.1270**	**0.12**	**0.1290**	<0.1	-	**0.18**	**0.18**	**0.10**	**0.12**	**0.08**	**0.08**	**0.12**	**0.07**	**0.08**	**0.07**	0.05	<0.2	<0.2	<0.2	**0.08**	0.04	0.04	**0.06**	0.00	0.04	0.05
Total Phosphorus	mg/L	0.50	0.25	0.11	0.15	0.02	1.10	1.09	0.16	0.26	<0.01	0.01	0.27	0.47	0.34	0.32	0.24	0.50	0.44	0.18	<0.02	0.20	0.12	0.130	0.04	7.20	-
Total Suspended Solids	mg/L	1540.00	640.00	670.00	510.00	26000.00	2100.00	2030.00	26.00	327.00	1510.00	1070.00	93.00	2010.00	1310.00	2120.00	1470.00	118.00	1430.00	759.00	3660.00	478.00	246.00	524.00	262.00	557.00	-
Bicarbonate	mg/L	375.00	450.00	291.00	172.00	225.00	340.00	341.00	441.00	442.00	366.00	389.00	435.00	309.00	365.00	382.00	307.00	301.00	342.00	389.00	313.00	407.00	395.00	318.00	-	-	-
Carbonate	mg/L	18600.00	12100.00	18500.00	14300.00	9450.00	4790.00	4180.00	4380.00	5680.00	4150.00	2420.00	1150.00	15400.00	6930.00	4900.00	16900.00	21700.00	15300.00	5750.00	14500.00	1090.00	7220.0000	13800.00	-	-	-
Anion Sum	meq/L	301.00	164.00	808.00	594.00	335.00	168.00	147.00	180.00	286.00	169.00	94.60	43.50	630.00	271.00	184.00	687.00	717.00	626.00	226.00	631.00	38.60	326.0000	574.00	59.62	872.83	-
Cation Sum	meq/L	744.00000	482.00000	737.00000	568.00000	379.00000	181.00000	156.00000	173.00000	232.00000	162.00000	93.00000	42.60000	643.00000	290.00000	192.00000	668.00000	857.00000	601.00000	223.00000	577.00000	40.60000	298.00000	560.00000	60.00000	48.87000	-
Ion Ratio	AS/CS	0.40	0.34	1.10	1.05	6.09	3.57	3.18	0.96	0.81	0.96	0.98	0.98	1.02	1.07	1.04	0.97	1.19	0.96	0.99	0.91	1.05	0.92	0.98	1.00	0.06	-
% Difference	%	42.40	49.20	4.55	2.24	0.89	0.93	0.94	1.94	10.50	2.25	0.87	1.02	1.01	3.47	1.98	1.41	8.87	2.05	0.67	4.51	2.54	4.380	1.220	-	-89.40	-
Arsenic	mg/L	**0.251**	<0.2	<0.01	**0.013**	-	-	-	<0.01	0.00	<0.005	<0.002	<0.001	<0.005	<0.001	<0.001	<0.001	<0.02	<0.02	<0.02	<0.001	<0.001	<0.004	<0.005	< 0.0002	< 0.0002	0.01
Boron	mg/L	0.88	0.77	2.73	0.70	-	0.94	0.90	0.80	0.86	0.70	0.66	0.90	0.70	0.96	0.78	0.76	1.30	1.20	1.00	1.05	0.72	1.06	1.25	0.73	0.83	5.00
Barium	mg/L	0.451	0.249	0.590	0.495	-	0.36	0.33	0.400	0.420	0.110	0.11	0.52	0.23	0.38	0.35	0.160	0.80	0.80	0.40	0.21	0.09	0.41	0.80	0.10	0.31	1.00
Cadmium	mg/L	0.00	0.00	<0.002	0.00	-	<0.001	0.00	<0.001	<0.0001	<0.0005	<0.0002	<0.0001	<0.0005	<0.0001	<0.0001	<0.0002	<0.002	<0.002	<0.002	<0.0001	<0.0001	<0.0004	<0.001	< 0.000003	0.00	0.01
Chromium	mg/L	<0.002	0.00	<0.2	<0.2	-	0.00	0.00	<0.01	<0.001	<0.005	<0.002	<0.001	<0.005	<0.001	<0.001	<0.001	<0.02	<0.02	<0.02	<0.001	<0.001	<0.004	<0.005	0.00	0.00	0.05
Copper	mg/L	<0.002	0.03	<0.2	0.03	-	<0.02	<0.02	<0.01	<0.001	<0.005	<0.002	<0.001	<0.005	<0.001	<0.001	<0.001	<0.02	<0.02	<0.02	<0.001	<0.001	<0.004	<0.005	< 0.001	< 0.001	1.00
Mercury	mg/L	<0.00002	<0.00002	<0.00002	<0.00002	-	<0.00002	<0.00002	<0.0001	<0.0001	<0.0005	<0.0002	<0.0001	<0.0005	<0.0001	<0.0001	<0.0001	<0.002	<0.002	<0.002	<0.0001	0.00	<0.0004	<0.001	< 0.00001	< 0.00001	0.00
Lead	mg/L	<0.00002	<0.00002	<0.002	<0.00002	-	-	-	<0.01	0.00	<0.005	<0.002	<0.001	<0.005	<0.001	<0.001	<0.001	<0.02	<0.02	<0.02	<0.001	<0.001	<0.004	<0.01	< 0.00009	< 0.00009	0.01
Zinc	mg/L	<0.005	<0.005	<0.5	<0.5	-	<0.05	<0.05	<0.1	<0.01	<0.05	<0.02	<0.01	<0.05	<0.01	<0.01	<0.01	<0.2	<0.2	<0.2	<0.01	<0.01	<0.04	<0.05	< 0.002	< 0.002	5.00
Langeliers Index 4° C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.65	
Saturation pH 4°C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.16	
Field Parameters																											
Temperature	C	10.30	13.80	13.70	10.60	9.90	10.90	-	-	-	-	-	-	10.20	11.44	11.44	11.15	-	-	9.81	10.35	9.64	11.70	-	9.37	12.42	-
pH	pH	6.18	7.12	6.70	7.02	7.18	7.03	-	-	-	-	-	-	8.07	7.55	7.55	7.17	-	-	7.82	7.17	7.73	7.36	-	7.22	7.76	-
Conductivity	uS/cm	79790	12262	64580	34930	9317	5805	-	-	-	-	-	-	4	6	6	18	-	-	-	5	13	3530	2000	-	51	9	-
Total Dissolved Solids	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.45	8.06	6.20	3.20	-	4.54	596.00	-
Dissolved Oxygen	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.89	6.25	-
Oxidation Reduction Potential	mV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-121.00	-267.00	-

Notes:

ODWQS	Ontario Drinking Water Quality Standards - Ontario Regulation 169/03 "Ontario Drinking Water Quality Standards" under the Safe Drinking Water Act", dated 2002, and "Technical Support Document for Ontario Drinking Water Standards, Objectives and Guidelines", dated June 2003.
BOLD	Exceeds ODWQS
Units	All Units in mg/L Unless Otherwise Noted.

Pinchin Project No. 350221.001

TABLE 17
Overburden Groundwater Quality Results - MW7S
South Fredricksburgh Waste Disposal Site
Town of Greater Napanee, Ontario

Parameter	Units	Sample Designation				ODWQS
		Sample Collection Date (dd/mm/yyyy)				
		MW7S				
		17/05/2011	*04/11/2011*	*02/11/2017*	*31/05/2018*	
pH	pH	7.47	8.00	7.81	WELL NOT LOCATED SINCE 2017	6.5-8.5
Conductivity	uS/cm	1510	1520	1770		-
Alkalinity	mg/L	358	369	376	-	30-500
Hardness	mg/L	-	-	**656**	-	80-100
Total Dissolved Solids	mg/L	**1030**	**1120**	**975**	-	500.00
Chloride	mg/L	**266**	**303**	**279**	-	250.00
Sodium	mg/L	104	83.50	113.00	-	200.00
Calcium	mg/L	89.7	84.90	102.00	-	-
Magnesium	mg/L	70.00	74.30	97.50	-	-
Potassium	mg/L	-	10.90	8.90	-	-
Sulphate	mg/L	50	36.00	41.00	-	500.00
Ammonia	mg/L	1.97	1.28	0.71	-	
Nitrate	mg/L	<0.1	<0.1	<0.05	-	10.00
Nitrite	mg/L	-	<0.05	<0.05	-	1.00
Total Kjehdal Nitrogen	mg/L	-	2.30	0.90	-	-
Phenols	mg/L	-	0	-	-	-
Dissolved Organic Carbon	mg/L	2.30	<0.5	1.60	-	5.00
Chemical Oxygen Demand	mg/L	42.00	35.000	36.000	-	-
BioChemical Oxygen Demand	mg/L	-	-	-	-	-
Iron	mg/L	<0.2	<0.2	0.01	-	0.30
Manganese	mg/L	-	<0.05	0.0500	-	0.05
Total Phosphorus	mg/L	-	0.12	0.08	-	-
Total Suspended Solids	mg/L	-	-	96.000	-	-
Bicarbonate	mg/L	358	369	376	-	-
Carbonate	mg/L	-	-	656.000	-	-
Anion Sum	meq/L	-	-	16.200	-	-
Cation Sum	meq/L	-	-	18.30000	-	-
Ion Ratio	AS/CS	-	-	6.07000	-	-
% Difference	%	-	-	0.886	-	-
Arsenic	mg/L	-	<0.01	0.0	-	0.01
Boron	mg/L	0.49	0.47	0.49	-	5.00
Barium	mg/L	0.44	0.59	0.623	-	1.00
Cadmium	mg/L	-	<0.001	<0.000014	-	0.01
Chromium	mg/L	-	<0.05	<0.001	-	0.05
Copper	mg/L	-	<0.005	<0.002	-	1.00
Mercury	mg/L	-	<0.0001	<0.00002	-	0.00
Lead	mg/L	-	0.006	<0.00002	-	0.01
Zinc	mg/L	-	<0.02	<0.005	-	5.00
Langeliers Index 4° C	-	-	-	-	-	
Saturation pH 4°C	-	-	-	-	-	
Field Parameters						
Temperature	C	11.00	13.20	-	-	-
pH	pH	7.30	6.51	-	-	-
Conductivity	uS/cm	1520.00	1346	-	-	-
Total Dissolved Solids	mg/L	765.00	673.00	-	-	-
Dissolved Oxygen	mg/L	-	-	-	-	-
Oxidation Reduction Potential	mV	-	-	-	-	-

Notes:

ODWQS	Ontario Drinking Water Quality Standards - Ontario Regulation 169/03 "Ontario Drinking Water Quality Standards" under the Safe Drinking Water Act", dated 2002, and "Technical Support
BOLD	Exceeds ODWQS
Units	All Units in mg/L Unless Otherwise Noted.

Pinchin Project No. 350221.001

TABLE 18
Bedrock Groundwater Quality Results - MW8
South Fredricksburgh Waste Disposal Site
Town of Greater Napanee, Ontario

Parameter	Units	Sample Designation																				ODWQS
		Sample Collection Date (dd/mm/yyyy)																				
		MW8																				
		07/05/2015	03/11/2015	01/06/2016	25/10/2016	02/11/2017	31/05/2018	02/11/2018	17/04/2019	08/10/2019	22/04/2020	29/10/2020	27/05/2021	22/10/2021	20/04/2022	23/11/2022	23/11/2022	09/05/2023	16/10/2023	17/11/2024	13/05/2025	21/10/2025	
pH	pH	7.35	7.64	7.22	7.62	7.13	7.68	8.08	-	-	DRY	7.44	7.28	7.37	7.37	7.12	7.01	7.31	7.15	7.17	-	DRY	6.5-8.5
Conductivity	uS/cm	25400	27000	50800	40000	37400	32700	3870	-	-	-	21800	19800	22500	22500	20400	20100	20100	20400	20900	-	-	-
Alkalinity	mg/L	295.00	294.00	204.00	237.00	200.00	293.00	489.00	276.00	322.00	-	328.00	332.00	396.00	397.00	465.00	482.00	444.00	458.00	375.00	-	-	30-500
Hardness	mg/L	**4070.00**	**3880.00**	**11200.00**	**8340.00**	**5110.00**	**5970.00**	**614.00**	**5670.00**	**5490.00**	-	**4870.00**	**4850.00**	**5780.00**	**5620.00**	**4940.00**	**4920.00**	**5050**	**5090**	**5640**	**8270**	-	80-100
Total Dissolved Solids	mg/L	**14000.0**	**14900.0**	**27900.0**	**22000.0**	**20600.0**	**21300.00**	**2520.00**	**17700.0**	**17300.0**	-	**14200.0**	**12900.0**	**14600.0**	**15400.0**	**13300.0**	**13100.0**	**13100**	**13300**	**13600**	-	-	500.00
Chloride	mg/L	**9950**	**10200**	**18900**	**15900**	**8960**	**12100**	**958**	**10900**	**9500**	-	**7630.00**	**7700.00**	**8500.00**	**9400.00**	**8118.00**	**7809.00**	**7300**	**8575**	**8760**	**8100**	-	250.00
Sodium	mg/L	**4190.00**	**3540.00**	**9680.00**	**6980.00**	**3710.00**	**5580.00**	**540.00**	**4270.00**	**3650.00**	-	**3370.00**	**2700.00**	**3240.00**	**3470.00**	**2780.00**	**2830.00**	**2930**	**2990**	**2840**	**3470**	-	200.00
Calcium	mg/L	586.00	552.00	1660.00	1200.00	730.00	913.00	91.00	831.00	795.00	-	757.00	741.00	885.00	870.00	756.00	757.00	806.00	808.00	931.00	1730.00	-	-
Magnesium	mg/L	634.00	608.00	1700.00	1300.00	800.00	896.00	94.00	874.00	850.00	-	723.00	729.00	867.00	837.00	740.00	736.00	737.00	745.00	806.00	757.00	-	-
Potassium	mg/L	65.50	46.50	148.00	98.50	64.30	105.00	20.00	109.00	81.00	-	68.00	45.00	34.00	73.00	48.00	46.00	50.00	59.00	69.00	57.40	-	-
Sulphate	mg/L	177.00	232.00	**706.0000**	443.00	201.00	280.00	25.00	<1	160.00	-	100.00	70.00	80.00	99.00	24.00	24.00	<200	40.00	23.00	18.00	-	500.00
Ammonia	mg/L	6.71	8.09	20.00000	14.80	8.62	12.10	1.64	6.50	11.80	-	5.52	2.67	3.02	6.82	8.63	8.62	7.02	7.86	7.83	8.40	-	
Nitrate	mg/L	<0.1	<3	10	<10	<5	0	0	0	<0.10	-	<10	<2.5	<1.0	<0.20	<0.10	0.10	<0.50	<0.50	<20	< 0.6	-	10.00
Nitrite	mg/L	<10	<3	<10	<10	<5	<0.10	<0.10	<0.10	0	-	<10	<2.5	<1.0	<0.20	0.10	0.11	<0.50	<0.50	<20	< 0.75	-	1.00
Total Kjehdal Nitrogen	mg/L	8.40	9.60	22.40	21.60	10.60	15.20	3.80	4.00	8.00	-	8.61	4.36	3.00	7.07	8.86	8.73	7.86	7.82	7.86	3.10	-	-
Phenols	mg/L	<0.001	<0.001	<0.001	<0.001	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-
Dissolved Organic Carbon	mg/L	3.70	<0.2	0.40	0.30	1.10	4.70	**8.80**	3.80	3.00	-	2.00	3.00	2.40	2.00	3.10	3.70	2.60	3.00	2.80	3.00	-	5.00
Chemical Oxygen Demand	mg/L	292	449	230	480	1340	2400	20	111	455	-	869	10	904	959	265	190	918	961	200	135	-	-
BioChemical Oxygen Demand	mg/L	9.00	<2	7.00	<2	-	3.00	6.00	4.00	13.00	-	<1	2.00	7.00	<1	<1	3.00	3.00	2.00	<1	< 4	-	-
Iron	mg/L	**1.67**	**1.35**	**12.10**	**4.88**	**4.41**	**5.80**	**1.00**	**2.10**	**7.40**	-	0.29	<0.2	<0.6	**2.10**	**4.60**	**4.60**	**3.90**	**5.10**	**2.54**	**1.35**	-	0.30
Manganese	mg/L	**0.0900**	**0.07**	**0.20**	**0.11**	**0.1290**	**0.10**	0.0500	**0.10**	**0.1700**	-	**0.15**	**0.22**	**0.20**	**0.20**	**0.60**	**0.60**	**0.50**	**0.59**	**0.76**	**0.74**	-	0.05
Total Phosphorus	mg/L	0.12	0.11	0.08	0.13	0.05	0.31	0.11	0.04	0.14	-	0.33	0.07	<0.02	0.25	0.03	0.02	0.05	0.02	0.03	< 0.03	-	-
Total Suspended Solids	mg/L	330	210	630	166	650	148	257	214	218	-	252	41	24	37	52	38	51	146	46	37.00	-	-
Bicarbonate	mg/L	295	294	204	237	200	293	489	276	322	-	328	332	396	397	465	482	444	458	375	-	-	-
Carbonate	mg/L	4070	3880	11200	8340	5110	5970	614	5670	5490	-	4870	4850	5780	5620	4940	4920	5050	5090	5640	-	-	-
Anion Sum	meq/L	290	297	552	464	261	353	37	313	278	-	224	225	249	275	239	230	215	252	255	227.82	-	-
Cation Sum	meq/L	266	233	650	474	266	366	36	302	271	-	246	216	258	266	221	223	230	234	239	301.44000	-	-
Ion Ratio	AS/CS	1.09000	1.27	0.85	0.98	0.98	1.04	0.98	0.97	0.98	-	1.10	0.96	1.03	0.96	0.93	0.97	1.07	0.93	0.94	1.32	-	-
% Difference	%	4.350	12.00	8.16	1.13	0.98	1.73	1.28	1.74	1.19	-	4.70	2.18	1.60	1.78	3.80	1.60	3.43	3.74	3.34	13.91	-	-
Arsenic	mg/L	**0.1**	<0.1	<0.01	**0.037**	-	0.010	0.002	0.010	**0.016**	-	0.01	0.01	<0.02	<0.02	**0.02**	**0.02**	**0.02**	0.01	0.01	0.00	-	0.01
Boron	mg/L	1.12	0.79	3.17	1.20	1.07	1.40	1.03	0.90	1.58	-	0.90	0.98	1.20	1.10	0.90	0.80	1.00	0.89	0.77	0.70	-	5.00
Barium	mg/L	0.264	0.19	<0.1	<0.1	0.506	0.40	0.460	0.400	0.520	-	0.47	0.50	0.50	0.600	**1.1**	1.000	0.90	**1.16**	**1.51**	**2.09**	-	1.00
Cadmium	mg/L	0.00	0.00	<0.002	0.00	0.00	<0.001	<0.0001	<0.001	<0.0005	-	<0.0005	<0.0005	<0.002	<0.002	<0.001	<0.001	<0.001	<0.0004	<0.0004	0.00	-	0.01
Chromium	mg/L	<0.002	<0.002	<0.2	<0.2	0.00	<0.01	<0.001	<0.01	<0.005	-	0.00	<0.005	<0.02	<0.02	<0.01	<0.01	<0.01	<0.004	<0.002	0.00	-	0.05
Copper	mg/L	<0.002	0.04	<0.2	0.07	<0.002	0.01	<0.001	<0.01	0.02	-	0.01	0.01	<0.02	<0.02	<0.01	<0.01	<0.01	<0.004	<0.002	0.00	-	1.00
Mercury	mg/L	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.001	<0.0001	<0.001	<0.0005	-	<0.0001	<0.0005	<0.0001	<0.002	<0.001	<0.001	<0.001	<0.0004	<0.004	< 0.00001	-	0.00
Lead	mg/L	0.000	0.00	<0.002	0.00	-	<0.01	0.01	<0.01	0.01	-	0.00	<0.005	<0.02	<0.02	<0.01	<0.01	<0.01	<0.004	<0.004	0.00	-	0.01
Zinc	mg/L	0.028	0.02	<0.5	<0.5	0.02	<0.1	0.02	<0.1	0.05	-	0.08	0.05	<0.2	<0.2	<0.1	<0.1	<0.1	<0.04	0.04	0.02	-	5.00
Langeliers Index 4° C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---	-	
Saturation pH 4°C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---	-	
Field Parameters																							
Temperature	C	13.10	12.90	13.70	9.70	11.00	-	-	-	-	9.12	10.55	12.91	-	10.81	10.22	10.22	11.04	12.40	-	11.61	11.49	-
pH	pH	6.73	7.12	7.00	7.64	7.00	-	-	-	-	7.62	7.24	7.53	-	7.20	6.58	6.58	7.43	7.34	-	6.75	6.83	-
Conductivity	uS/cm	20680	19364	49341	29856	18689	-	-	-	-	21	17	21	-	23	21	21	26500	3999	-	19600	23700	-
Total Dissolved Solids	mg/L	-	-	-	-	-	-	-	-	-	-	-	12.80	-	14.10	13.20	13.20	1.64	2.40	-	13.30	14.80	-
Dissolved Oxygen	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6.09	6.83	-
Oxidation Reduction Potential	mV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-13.00	-34.00	-

Notes:

ODWQS	Ontario Drinking Water Quality Standards - Ontario Regulation 169/03 "Ontario Drinking Water Quality Standards" under the Safe Drinking Water Act", dated 2002, and "Technical Support Document for Ontario Drinking Water Standards, Objectives and Guidelines", dated June 2003.
BOLD	Exceeds ODWQS
Units	All Units in mg/L Unless Otherwise Noted.

Pinchin Project No. 350221.001

TABLE 19
Overburden Groundwater Quality Results - MW9S
South Fredricksburgh Waste Disposal Site
Town of Greater Napanee, Ontario

Parameter	Units	Sample Designation																						ODWQS
		Sample Collection Date (dd/mm/yyyy)																						
		MW9S																						
		07/05/2015	*03/11/2015*	*03/11/2015*	*01/06/2016*	*25/10/2016*	*09/06/2017*	*02/11/2017*	*31/05/2018*	*01/11/2018*	*2019-04-17*	*2019-10-07*	*21/04/2020*	*29/10/2020*	*27/05/2021*	*27-05-21*	*22/10/2021*	*21/04/2022*	*22/11/2022*	*08/05/2023*	*13/10/2023*	*12/11/2024*	*09/05/2025*	*21/10/2025*	
pH	pH	7.9	8.07	7.98	8.04	7.96	7.86	7.86	8.03	7.78	-	-	7.80	7.78	7.88	7.73	8.10	7.84	7.43	7.79	7.38	7.63	7.98	7.85	6.5-8.5
Conductivity	uS/cm	2320	2350	1920	1700	2730	5630	4220	1320	2090	-	-	1800	1160	4250	3840	3130	4960	2940	2750	1570	2970	1190	2900	-
Alkalinity	mg/L	308	342	330	294	229	310	315	371	394	333	424	354	386	361	372	429	417	390	408	448	401	353	465	30-500
Hardness	mg/L	**441**	**397**	**395**	**335**	**240**	**984**	**525**	**523**	**551**	**554**	**570**	**481**	**438**	**795**	**779**	**641**	**822**	**602**	**553**	**484**	**595**	**501**	**417**	80-100
Total Dissolved Solids	mg/L	**1280**	**1290**	**1060**	**937**	**1500**	**3100**	**2320**	**858**	**1360**	**1530**	**1140**	**1170**	**754**	**2760**	**2500**	**2030**	**3220**	**1910**	**1790**	**1020**	**1930**	**674**	**1670**	500.00
Chloride	mg/L	**328**	**977**	**296**	239	170	**1080**	**420**	192	**466**	**584**	**313**	**336**	119	**1090**	**1000**	**650**	**1480**	**750**	**718**	249	**706**	**260**	**700**	250.00
Sodium	mg/L	**377**	**315**	**272**	**228**	119	**632**	**264**	85	184	**245**	136	165	66	**610**	**556**	**311**	**718**	**419**	**383**	165	**444**	107	126	200.00
Calcium	mg/L	78.1	77.9	80	65.2	34.1	131	106	132.00	125.00	133.00	154.00	130.00	126.00	165.00	167.00	153.00	161.00	137.00	126.00	131.00	136.00	149.00	113.00	-
Magnesium	mg/L	59.7	49.3	47.4	41.8	37.7	108	63.2	47.00	58.00	54.00	45.00	38.00	30.00	93.00	88.00	63.00	102.00	63.00	58.00	38.00	62.00	31.60	32.50	-
Potassium	mg/L	15.5	14.1	12.9	11.3	9.7	20.1	12.8	8.00	12.00	11.00	8.00	8.00	4.00	19.00	17.00	13.00	27.00	15.00	13.00	7.00	16.00	4.88	7.23	-
Sulphate	mg/L	65	50	67	79	55	34	39	64.00	56.00	52.00	44.00	51.00	62.00	60.00	60.00	62.00	50.00	46.00	52.00	57.00	50.00	58.00	53.00	500.00
Ammonia	mg/L	0.38	2	0.93	0.38	0.73	3.91	2.85	0.54	0.75	0.97	1.58	0.60	0.48	1.91	1.82	1.32	3.47	2.14	1.17	0.65	1.44	0.26	2.00	
Nitrate	mg/L	0.8	<0.5	0.2	1.6	0.2	<0.5	0.09	0	0.52	0.64	<0.10	0.43	<0.10	<1.0	<1.0	<0.10	<0.10	<0.10	<0.10	1.30	<1	0.28	< 0.06	10.00
Nitrite	mg/L	<0.1	<0.5	<0.1	0.6	0.8	<0.5	<0.05	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<1.0	<1.0	<0.10	<0.10	<0.10	<0.10	<0.10	<1	< 0.03	< 0.03	1.00
Total Kjehdal Nitrogen	mg/L	0.7	2.3	1.2	0.4	0.8	4.8	3.5	<0.8	<0.8	1.00	1.80	0.97	0.48	3.65	3.33	1.52	3.46	2.60	1.38	1.05	1.40	0.30	12.00	-
Phenols	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Organic Carbon	mg/L	2.5	0.2	0.5	0.9	0.9	0.4	1.3	2.80	1.60	2.20	3.30	2.90	2.70	0.80	<0.5	3.00	3.00	4.80	3.00	3.80	3.70	4.00	3.00	5.00
Chemical Oxygen Demand	mg/L	19	50	<5	6	8	43	72	10.00	<5	8.00	14.00	5.00	15.00	5.00	<5	8.00	28.00	18.00	14.00	15.00	34.00	8.00	20.00	-
BioChemical Oxygen Demand	mg/L	10	8	7	3	7	8	-	2.00	4.00	2.00	7.00	2.00	<1	8.00	6.00	17.00	4.00	5.00	3.00	3.00	<1	< 4	< 4	-
Iron	mg/L	**0.314**	**1.01**	**0.926**	<0.5	<0.005	-	0.024	**1.75**	**2.60**	**0.65**	**3.95**	0.23	**3.68**	0.03	**1.69**	**1.70**	**3.50**	**1.02**	0.19	**0.58**	**1.01**	**0.79**	0.04	0.30
Manganese	mg/L	0.031	0.043	0.041	<0.1	<0.001	-	0.02	0.0500	0.05	0.04	**0.06**	0.04	0.04	0.05	**0.08**	**0.08**	<0.1	0.04	0.01	0.04	0.04	**0.07**	0.00	0.05
Total Phosphorus	mg/L	0.07	0.18	0.14	0.03	0.03	0.04	0.08	0.07	0.05	0.01	0.05	0.02	0.02	0.19	0.03	0.04	0.07	0.09	0.05	0.02	0.01	< 0.03	3.80	-
Total Suspended Solids	mg/L	62	24	30	18	30	108	60	18.00	34.00	38.00	28.00	29.00	51.00	612.00	451.00	135.00	56.00	30.00	47.00	27.00	43.00	45.00	35.00	-
Bicarbonate	mg/L	308	342	330	294	229	310	315	371.00	394.00	333.00	424.00	354.00	386.00	361.00	372.00	429.00	417.00	390.00	408.00	448.00	401.00	-	-	-
Carbonate	mg/L	441	397	395	335	240	984	525	523.00	551.00	554.00	570.00	481.00	438.00	795.00	779.00	641.00	822.00	602.00	553.00	484.00	595.00	-	-	-
Anion Sum	meq/L	16.8	35.5	16.4	14.4	10.6	37.4	19	14.20	23.60	24.30	18.20	17.60	12.40	39.20	36.90	28.20	51.10	29.90	29.50	17.30	29.00	15.71	30.20	-
Cation Sum	meq/L	25.7	22.2	20.2	16.9	10.3	43.8	22.5	14.40	19.40	22.10	17.60	17.00	11.80	43.00	40.30	26.80	48.60	30.80	28.10	17.10	31.70	15.71	14.01	-
Ion Ratio	AS/CS	0.655	1.6	0.811	0.85	1.03	7.86	8.55	1.01	0.82	0.91	0.97	0.96	0.95	1.10	1.09	0.95	0.95	1.03	0.95	0.99	1.09	0.95	0.46	-
% Difference	%	20.8	23	10.4	8.08	1.56	0.854	0.842	0.72	9.74	4.70	1.69	1.77	2.51	4.64	4.43	2.61	2.55	1.42	2.37	0.58	4.50	-	-36.61	-
Arsenic	mg/L	<0.01	<0.005	<0.005	<0.01	0.0029	-	-	<0.001	0.00	<0.001	0.00	<0.001	0.00	0.00	0.00	<0.005	<0.01	<0.001	<0.001	<0.001	0.00	0.00	0.00	0.01
Boron	mg/L	0.364	0.427	0.393	1.75	0.249	-	0.241	0.16	0.23	0.07	0.22	0.07	0.32	0.24	0.10	0.17	0.20	0.12	0.10	0.14	0.14	0.06	0.10	5.00
Barium	mg/L	0.146	0.167	0.166	0.135	0.11	-	0.196	0.210	0.28	0.17	0.33	0.170	0.310	0.260	0.20	0.20	0.20	0.19	0.16	0.200	0.22	0.14	0.15	1.00
Cadmium	mg/L	0.00003	<0.00002	<0.00002	<0.002	0.00002	-	<0.001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0005	<0.001	<0.0001	<0.0001	<0.0001	<0.0001	< 0.000003	0.00	0.01
Chromium	mg/L	<0.002	<0.002	0.003	<0.2	<0.002	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	<0.01	<0.001	<0.001	<0.001	<0.001	0.00	0.00	0.05
Copper	mg/L	<0.002	0.0025	0.002	<0.2	0.0052	-	<0.002	<0.001	0.00	<0.001	0.00	<0.001	<0.001	<0.001	<0.001	<0.005	<0.01	0.00	<0.001	<0.001	0.00	< 0.001	< 0.001	1.00
Mercury	mg/L	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	-	<0.00002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.001	<0.0001	<0.0001	<0.0001	<0.0001	< 0.00001	< 0.00001	0.00
Lead	mg/L	<0.00002	<0.00002	<0.00002	<0.002	<0.00002	-	-	**0.15**	**0.25**	0.003	**0.584**	0.002	<0.001	**0.04**	**0.02**	<0.005	<0.01	<0.001	0.001	<0.001	<0.001	0.0013	**0.013**	0.01
Zinc	mg/L	<0.005	<0.005	<0.005	<0.5	<0.005	-	<0.005	0.07	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.1	<0.01	<0.01	<0.01	<0.01	< 0.002	< 0.002	5.00
Langeliers Index 4° C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.55	
Saturation pH 4°C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.30	
Field Parameters																									
Temperature	C	13.7	15.9	-	12.4	12.4	11.1	12.2	-	-	-	-	8.92	11.92	10.89	10.89	-	7.63	9.45	8.89	13.00	-	11.26	13.51	-
pH	pH	7.45	7.43	-	7.57	7.02	7.59	7.18	-	-	-	-	9.85	8.83	8.07	8.07	-	7.62	7.04	8.56	7.49	-	7.78	7.57	-
Conductivity	uS/cm	2091	1119	-	1085	2138	5527	6252	-	-	-	-	2	2	3	3	-	6	3	4990	1485	-	110	1	-
Total Dissolved Solids	mg/L	-	-	-	-	-	-	-			-	-	-	-	2.16	2.16	-	3.76	1.70	3.42	4.20	-	1.26	0.87	-
Dissolved Oxygen	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25.32	4.06	-
Oxidation Reduction Potential	mV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16.00	-22.00	-

Notes:

ODWQS	Ontario Drinking Water Quality Standards - Ontario Regulation 169/03 "Ontario Drinking Water Quality Standards" under the Safe Drinking Water Act", dated 2002, and "Technical Support Document for Ontario Drinking Water Standards, Objectives and Guidelines", dated June 2003.
BOLD	Exceeds ODWQS
Units	All Units in mg/L Unless Otherwise Noted.

Pinchin Project No. 350221.003

TABLE 20
Bedrock Groundwater Quality Results - MW9D
South Fredricksburgh Waste Disposal Site
Town of Greater Napanee, Ontario

Parameter	Units	Sample Designation																						ODWQS
		Sample Collection Date (dd/mm/yyyy)																						
		MW9D																						
		07/05/2015	*03/11/2015*	*01/06/2016*	*25/10/2016*	*09/06/2017*	*02/11/2017*	*31/05/2018*	*11/11/2018*	*17/04/2019*	*07/10/2019*	*21/04/2020*	*29/10/2020*	*27/05/2021*	*22/10/2021*	*22/10/2021*	*21/04/2022*	*22/11/2022*	*22-11-22*	*08/05/2023*	*13/10/2023*	*12/11/2024*	*09/05/2025*	*21/10/2025*	
pH	pH	7	**6**	**6**	**6**	**6**	**6**	**6**	**6**	-	-	**6.13**	**6.18**	**6.06**	**5.99**	**6.01**	**5.88**	6.51	6.60	**6.23**	**6.12**	**5.97**	**6.06**	**5.62**	6.5-8.5
Conductivity	uS/cm	155000	190000	195000	194000	129000	131000	170000	17400	-	-	193000	190000	187000	188000	189000	175000	146000	137000	165000	164000	166000	196000	196000	-
Alkalinity	mg/L	42.00	**23.00**	**22.00**	**23.00**	30.00	**29.00**	31.00	33.00	**23.00**	**20.00**	35.00	**22.00**	**21.00**	**25.00**	**24.00**	**16.00**	116.00	148.00	36.00	**25.00**	**22.00**	**22.00**	**21.00**	30-500
Hardness	mg/L	**53400**	**88800**	**85800**	**73800**	**71300**	**83900**	**73600**	**68400**	**77000**	**87000**	**88300**	**85800**	**91300**	**88600**	**94200**	**88100**	**62300**	**52700**	**84400**	**85900**	**84600**	**91600**	**99500**	80-100
Total Dissolved Solids	mg/L	**85400**	**104000**	**107000**	**106000**	**70900**	**72100**	**110000**	**113000**	**101000**	**126000**	**125000**	**124000**	**122000**	**122000**	**123000**	**114000**	**94900**	**89000**	**107000**	**107000**	**108000**	**283000**	**240000**	500.00
Chloride	mg/L	**93700**	**128000**	**137000**	**129000**	**97800**	**104000**	**124000**	**23200**	**138000**	**140000**	**133000**	**139000**	**138000**	**132000**	**133000**	**175350**	**95000**	**81000**	**119000**	**114202**	**128000**	**160000**	**140000**	250.00
Sodium	mg/L	**26800**	**46000**	**43400**	**37900**	**37200**	**42100**	**45000**	**41100**	**40200**	**45300**	**45400**	**51100**	**46200**	**40900**	**41000**	**45200**	**30000**	**25000**	**45600**	**44300**	**44500**	**41100**	**43900**	200.00
Calcium	mg/L	9350	15900	14700	12700	12300	14800	13500	11700	13700	15200	15900	15400	16100	15700	16600	15500	11100	9400	15000	15100	15100	18900	20600	-
Magnesium	mg/L	7310	12000	12000	10200	9890	11400	9680	9510	10400	11900	11800	11500	12400	12000	12800	12000	8400	7100	11400	11700	11400	10800	11700	-
Potassium	mg/L	378	492	513	437	412	519	563	642	715	762	723	575	552	499	556	630	400	300	529	534	566	509	564	-
Sulphate	mg/L	<1000	85.0000	101.00	110.00	<100	135.00	<250	27.00	87.00	<500	<2000	<500	<200	<100	<100	140.00	70.00	70.00	<1000	59.00	<200	50.00	43.00	500.00
Ammonia	mg/L	10.20	30.20000	61.10	67.20	54.30	61.80	85.60	65.10	61.20	68.00	70.00	74.60	94.60	73.90	66.50	82.10	55.60	51.70	62.40	67.60	74.10	36.90	65.60	
Nitrate	mg/L	<100	<3	<10	<10	<5	<5	0	0	0	<0.10	<2.5	<50	<25	<10	<10	<2.0	<5.0	<5.0	<2.0	<2.0	<20	< 6	< 0.06	10.00
Nitrite	mg/L	<100	<30	<10	<10	<5	<5	<0.1	<0.1	<0.10	<0.10	<2.5	<50	<25	<10	<10	<2.0	<5.0	<5.0	<2.0	<2.0	<20	< 7.5	< 0.03	1.00
Total Kjehdal Nitrogen	mg/L	34.60	25.90	46.40	58.40	59.20	55.50	62.10	77.60	32.70	58.00	74.20	76.60	94.80	75.90	77.40	78.60	55.10	48.50	66.20	74.00	74.30	3.26	28.00	-
Phenols	mg/L	0	0	0	`	-	-	-	-	-	-	-	-	-			-	-	-	-	-	-	-	-	-
Dissolved Organic Carbon	mg/L	**7.90**	<0.2	0.60	0.50	0.20	0.20	**9.80**	**9.20**	**8.70**	**8.20**	**8.90**	**7.40**	<0.5	**7.90**	**8.90**	**8.50**	**8.30**	**12.30**	**5.20**	**10.70**	**11.00**	**13.00**	**14.00**	5.00
Chemical Oxygen Demand	mg/L	3100	7150	13500	8410	18200	17700	8900	12200	16500	22600	10800	21600	<3000	78	85	13000	200	650	80	-	8760	123	276	-
BioChemical Oxygen Demand	mg/L	15.00	9.00	15.00	14.00	17.00	-	7.00	13.00	11.00	16.00	1.00	12.00	14.00	4.00	2.00	2.00	5.00	4.00	8.00	7.00	9.00	19.00	14.00	-
Iron	mg/L	**5.60**	**18.70**	**7.43**	**14.10**	-	**14.90**	**6.00**	**12.00**	**10.00**	**36.00**	<30	**11.70**	**9.00**	**15.00**	**14.00**	**16.00**	**6.40**	**6.90**	<3	**14.00**	**5.00**	**4.30**	**0.50**	0.30
Manganese	mg/L	**0.15**	**0.36**	**0.15**	**0.2630**	-	**0.3650**	<1	<1	<2	**2.40**	<10	**0.30**	<1	<1	<1	<1	<0.2	**0.40**	<1	<1	<1	**0.33**	**0.39**	0.05
Total Phosphorus	mg/L	0.23	0.12	0.04	<0.1	1.71	5.75	0.20	<0.2	<0.4	0.40	0.40	0.40	<0.2	<0.2	<0.2	0.70	<0.04	<0.04	<0.2	<0.2	<0.2	< 0.18	1.20	-
Total Suspended Solids	mg/L	550	2010	8250	446	13300	2650	146	436	1900	1980	406	921	2150	90	174	155	286	300	121	82	1010	292.00	177.00	-
Bicarbonate	mg/L	42	23	22	23	30	29	31	33	23	20	35	22	21	25	24	16	116	148	36	25	22	-	-	-
Carbonate	mg/L	53400	88800	85800	73800	71300	83900	73600	68400	77000	87000	88300	85800	91300	88600	94200	88100	62300	52700	84400	85900	84600	-	-	-
Anion Sum	meq/L	2650	3610	3870	3630	2760	2930	3500	656	3900	3950	3750	3920	3890	3720	3750	4950	2680	2290	3360	3220	3610	4466.24	3941.19	-
Cation Sum	meq/L	2240	3790	3620	3140	3060	3530	3450	3170	3310	3730	3760	3960	3850	3570	3680	3750	2560	2150	3690	3660	3650	4466	3915	-
Ion Ratio	AS/CS	1.18	0.95	1.07	1.16	5.07	9.20	0.98	4.84	0.85	0.94	1.00	1.01	0.99	0.96	0.98	0.76	0.96	0.94	1.10	1.14	1.01	0.81	0.99	-
% Difference	%	8.34	2.51	3.29	7.27	0.90	0.83	0.74	65.80	8.12	2.84	0.13	0.45	0.51	2.15	0.93	13.80	2.29	3.10	4.68	6.36	0.48	-	-0.34	-
Arsenic	mg/L	**1**	<0.5	<0.05	**0**	-	-	<0.1	<0.1	<0.2	<0.05	<1	<0.05	<0.1	<0.1	<0.1	<0.1	<0.02	<0.02	<0.1	<0.1	<0.1	0.01	0.00	0.01
Boron	mg/L	0.43	0.51	0.57	0.93	-	0.62	<1	1.00	<2	1.00	<10	0.90	<1	1.00	1.00	1.00	0.40	0.40	<1	1.00	<1	1.04	1.14	5.00
Barium	mg/L	0.89	**1.85**	0.98	**1.43**	-	**2.63**	**2.00**	**2.00**	<2	**2.00**	<10	**1.90**	**2.00**	**2.00**	**2.00**	**2.00**	0.80	0.80	1.00	**2.00**	**2.00**	**1.69**	**1.91**	1.00
Cadmium	mg/L	0.00	0.00	0.00	0.00	-	0.00	<0.01	<0.01	<0.02	<0.005	<0.1	<0.005	<0.01	<0.01	<0.01	<0.01	<0.002	<0.002	<0.01	<0.01	<0.01	0.00	< 0.000003	0.01
Chromium	mg/L	<0.002	<0.2	0.03	<0.2	-	0.00	<0.1	<0.1	<0.2	<0.05	<1	<0.02	<0.1	<0.1	<0.1	<0.1	<0.02	<0.02	<0.1	<0.1	<0.1	0.03	0.01	0.05
Copper	mg/L	<0.002	0.09	<0.002	0.05	-	<0.002	<0.1	<0.1	<0.2	0.18	<1	<0.02	<0.1	<0.1	<0.1	<0.1	<0.02	<0.02	<0.1	<0.1	<0.1	< 0.001	0.00	1.00
Mercury	mg/L	<0.00002	<0.00002	<0.00002	<0.00002	-	<0.00002	<0.01	<0.002	<0.02	<0.001	<0.1	<0.002	<0.002	<0.01	<0.01	<0.01	<0.002	<0.002	<0.01	<0.01	<0.01	< 0.00001	< 0.00001	0.00
Lead	mg/L	<0.00002	0.0002	0.0003	0.0002	-	-	<0.1	<0.1	<0.2	**0.07**	<1	<0.02	<0.1	<0.1	<0.1	<0.1	<0.02	<0.02	<0.1	<0.1	<0.1	< 0.00009	< 0.00009	0.01
Zinc	mg/L	0.02	<0.5	0.01	<0.5	-	0.02	<1	<1	<2	<0.5	<10	<0.2	<1	<1	<1	<1	<0.2	<0.2	<1	<1	<1	0.01	0.02	5.00
Langeliers Index 4° C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-0.99	
Saturation pH 4°C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6.61	
Field Parameters																									
Temperature	C	11.70	16.90	13.00	11.40	13.80	12.20	14.40	11.00	-	-	9.89	10.65	-		-	9.02	9.83	9.83	10.75	12.10	-	11.80	11.77	-
pH	pH	6.05	6.22	6.03	5.77	6.53	6.27	6.17	6.03	-	-	5.92	6.42	-	-	-	6.30	6.25	6.25	6.46	6.40	-	6.03	5.35	-
Conductivity	uS/cm	119520	152601	151642	148260	142409	137721	100	149	-	-	>1000	>100	-	-	-	100	100	100	81000	3999	-	72	100	-
Total Dissolved Solids	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	60.00	-	-	60.00	60.00	60.00	6.00	2.10	-	60.00	600.00	-
Dissolved Oxygen	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.94	7.14	-
Oxidation Reduction Potential	mV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	55.00	75.00	-

Notes:

ODWQS	Ontario Drinking Water Quality Standards - Ontario Regulation 169/03 "Ontario Drinking Water Quality Standards" under the Safe Drinking Water Act", dated 2002, and "Technical Support Document for Ontario Drinking Water Standards, Objectives and Guidelines", dated June 2003.
BOLD	Exceeds ODWQS
Units	All Units in mg/L Unless Otherwise Noted.

Pinchin Project No. 350221.001

PINCHIN

TABLE 21
Overburden Groundwater Quality Results - MW10S
South Fredricksburgh Waste Disposal Site
Town of Greater Napanee, Ontario

Parameter	Units	Sample Designation																						ODWQS
		Sample Collection Date (dd/mm/yyyy)																						
		07/05/2015	*03/11/2015*	*01/06/2016*	*25/10/2016*	*09/06/2017*	*09/06/2017*	*02/11/2017*	*31/05/2018*	*01/11/2018*	*17/04/2019*	*07/10/2019*	*21/04/2020*	*29/10/2020*	*27/05/2021*	*22/10/2021*	*21/04/2022*	*22/11/2022*	*08/05/2023*	*13/10/2023*	*13/10/2023*	*12/11/2024*	*09/05/2025*	*21/10/2025*	
pH	pH	7.90	8.02	8.18	7.94	7.89	7.91	7.83	8.08	7.94	-	-	8.12	7.93	7.83	7.97	7.89	7.79	7.74	7.78	7.64	7.76	8.09	7.82	6.5-8.5
Conductivity	uS/cm	2360	3280	2540	2330	4590	4790	5420	3660	1940	-	-	2820	2320	3300	1630	1960	1700	1840	1620	2200	2150	2340	986	-
Alkalinity	mg/L	308.00	318.00	315.00	361.00	317.00	316.00	317.00	324.00	344.00	352.00	335.00	321.00	340.00	333.00	382.00	375.00	340.00	359.00	347.00	366.00	352.00	325.00	320.00	30-500
Hardness	mg/L	**457**	**554**	**400**	**439**	**1250**	**1270**	**597**	**721**	**371**	**551**	**363**	**512**	**393**	**639**	**448**	**426**	**368**	**391**	**407**	**484**	**433**	**699**	**736**	80-100
Total Dissolved Solids	mg/L	**1300**	**1800**	**1400**	**1280**	**2620**	**2630**	**2980**	**2380**	**1260**	**2120**	**1220**	**1830**	**1510**	**2140**	**1060**	**1270**	**1100**	**1200**	**1050**	**1430**	**1400**	**1280**	**551**	500.00
Chloride	mg/L	**553**	**374**	**560**	**467**	**1000**	**986**	**862**	**995**	**425**	**833**	**394**	**759**	**561**	**920**	**258**	**390**	**327**	**387**	**340**	**500**	**478**	**570**	88	250.00
Sodium	mg/L	**391**	**492**	**321**	**279**	**615**	**612**	**550**	**412**	**226**	**415**	**216**	**355**	**306**	**509**	169	**232**	**214**	**249**	179	**300**	**305**	**389**	**505**	200.00
Calcium	mg/L	84	103	79	89	111	114	99	137	76	102	76	101	80	119	107	93	83	84	92	100	91	168	154	-
Magnesium	mg/L	60.30	57.60	49.50	52.70	189.00	191.00	85.00	92.00	44.00	72.00	42.00	63.00	47.00	83.00	44.00	47.00	39.00	44.00	43.00	57.00	50.00	67.80	85.10	-
Potassium	mg/L	15.70	13.10	12.60	12.50	20.00	20.70	21.50	18.00	13.00	20.00	13.00	17.00	14.00	20.00	10.00	13.00	11.00	11.00	9.00	12.00	14.00	16.80	19.80	-
Sulphate	mg/L	76.00	68.0000	67.00	79.00	52.00	50.00	40.00	55.00	35.00	59.00	40.00	57.00	50.00	40.00	39.00	63.00	48.00	50.00	30.00	30.00	46.00	52.00	46.00	500.00
Ammonia	mg/L	0.58	0.25000	0.97	0.57	0.94	3.26	2.05	0.42	0.52	0.97	0.85	0.74	0.69	1.28	0.25	0.03	0.25	0.12	0.45	0.75	0.61	0.24	< 0.1	
Nitrate	mg/L	4	1	1	0	<0.5	<0.5	<0.5	1	0	0.96	0.13	0.91	<1.0	<1.0	<0.50	0.29	0.11	0.58	<1.0	<1.0	<0.50	0.57	0.29	10.00
Nitrite	mg/L	0	<0.1	<0.5	<0.1	<0.5	<0.5	<0.5	<0.10	<0.10	<0.10	<0.10	<0.10	<1.0	<1.0	<0.50	<0.10	<0.10	<0.10	<1.0	<1.0	<0.50	< 0.3	< 0.03	1.00
Total Kjehdal Nitrogen	mg/L	1.00	0.20	2.10	1.80	1.30	3.40	2.50	<0.8	<0.8	1.30	1.30	5.50	1.07	1.37	0.57	0.13	0.66	0.38	0.60	0.95	1.64	0.32	8.00	-
Phenols	mg/L	<0.001	<0.001	<0.001	<0.001	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-
Dissolved Organic Carbon	mg/L	4.30	0.20	0.70	0.60	0.30	0.40	1.50	2.90	3.80	2.70	2.40	**60.50**	3.00	<0.5	3.00	4.00	4.00	2.60	4.00	4.00	4.70	3.00	3.00	5.00
Chemical Oxygen Demand	mg/L	13.000	<5	12.00	14.00	34.00	25.00	60.00	11.00	<5	<5	21.00	8.00	11.00	<5	8.00	14.00	<5	9.00	9.00	15.00	27.00	19.00	< 8	-
BioChemical Oxygen Demand	mg/L	13.00	11.00	5.00	4.00	12.00	13.00	-	3.00	2.00	7.00	2.00	5.00	4.00	12.00	7.00	<1	3.00	2.00	3.00	4.00	4.00	8.00	< 4	-
Iron	mg/L	0.13	**0.42**	0.04	0.27	-	-	0.01	0.20	**0.61**	0.20	**1.34**	0.10	0.12	<0.03	0.30	<0.03	<0.3	0.18	**0.54**	**0.55**	**0.67**	**0.70**	**4.20**	0.30
Manganese	mg/L	0.03	0.03	0.02	0.0350	-	-	0.02	0.0300	0.0200	0.01	0.05	0.01	0.04	0.02	<0.05	<0.01	<0.1	0.01	0.02	0.02	0.05	0.02	**0.06**	0.05
Total Phosphorus	mg/L	0.06	0.03	0.04	0.02	0.02	0.04	0.09	0.09	0.03	<0.02	0.16	0.07	0.03	0.08	<0.02	0.02	<0.02	0.02	0.02	0.02	0.01	0.04	2.30	-
Total Suspended Solids	mg/L	68	34	34	17	290	280	174	21	12	211	82	246	27	279	45	9	23	29	32	50	23	64	13	-
Bicarbonate	mg/L	308	318	315	361	317	316	317	324	344	352	335	321	340	333	382	375	340	359	347	366	352	-	-	-
Carbonate	mg/L	457	554	400	439	1250	1270	597	721	371	551	363	512	393	639	448	426	368	391	407	484	433	-	-	-
Anion Sum	meq/L	23.60	18.40	23.60	22.00	35.60	35.20	31.50	35.80	19.60	31.80	18.70	29.10	23.70	33.40	15.70	19.80	17.00	19.20	17.20	22.00	21.50	23.58	9.85	-
Cation Sum	meq/L	26.60	33.00	22.30	21.30	40.60	41.10	36.60	32.80	17.60	29.60	17.00	26.20	21.60	35.50	16.60	18.90	17.00	18.90	16.20	23.10	22.30	23.58	37.39	-
Ion Ratio	AS/CS	0.89	0.56	1.06	1.04	6.54	7.81	7.45	0.92	0.90	0.93	0.91	0.90	0.91	1.06	1.05	0.95	1.00	0.99	0.94	1.05	1.04	1.33	3.80	-
% Difference	%	5.91	28.30	2.71	1.75	0.88	0.86	0.86	4.29	5.38	3.57	4.54	5.31	4.62	2.99	2.64	2.33	0.21	0.65	2.94	2.30	1.92	-	58.31	-
Arsenic	mg/L	<0.01	<0.01	<0.01	<0.001	-	-	-	<0.001	0	<0.001	0.00	<0.001	<0.001	<0.001	<0.005	<0.001	<0.01	<0.001	0.00	0.00	0.00	0.00	0.01	0.01
Boron	mg/L	0.67	0.52	0.56	0.53	-	-	0.68	0.44	0.42	0.47	0.51	0.36	0.31	0.27	0.25	0.33	0.30	0.33	0.31	0.33	0.35	0.41	0.36	5.00
Barium	mg/L	0.39	0.391	0.32	0.306	-	-	0.629	0.390	0.290	0.40	0.47	0.30	0.250	0.300	0.230	0.34	0.20	0.29	0.39	0.390	0.36	0.42	0.51	1.00
Cadmium	mg/L	0.00	<0.00002	<0.00002	0.00	-	-	<0.001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001	<0.001	<0.0001	<0.0002	<0.0001	<0.0001	0.00	< 0.000003	0.01
Chromium	mg/L	<0.002	0.01	0.01	<0.002	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	<0.001	<0.01	<0.001	<0.001	<0.001	<0.001	0.00	0.00	0.05
Copper	mg/L	<0.002	0.01	<0.002	0.01	-	-	<0.002	0.00	<0.001	<0.001	0.00	<0.001	<0.001	0.00	<0.005	0.00	<0.01	0.00	<0.001	<0.001	0.00	< 0.001	< 0.001	1.00
Mercury	mg/L	<0.00002	<0.00002	<0.00002	<0.00002	-	-	<0.00002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.001	<0.0001	<0.0001	<0.0001	<0.0001	< 0.00001	< 0.00001	0.00
Lead	mg/L	<0.00002	<0.00002	<0.00002	0.00	-	-	-	0.00	<0.001	<0.001	0.00	<0.001	<0.001	<0.001	<0.005	<0.001	<0.01	<0.001	<0.001	<0.001	<0.001	< 0.00009	< 0.00009	0.01
Zinc	mg/L	0.01	<0.005	<0.005	<0.005	-	-	<0.005	0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.1	<0.01	<0.01	<0.01	<0.01	0.01	< 0.002	5.00
Langeliers Index 4° C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.50	
Saturation pH 4°C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.32	
Field Parameters																									
Temperature	C	12.50	1614.00	13.10	11.00	13.00	-	12.90	-	-	-	-	10.14	12.78	11.32	-	7.68	9.90	10.21	13.30	13.30	-	10.15	14.20	-
pH	pH	7.59	7.83	7.34	6.97	7.99	-	7.78	-	-	-	-	7.80	7.50	8.29	-	7.75	7.49	7.71	7.71	7.71	-	8.30	7.56	-
Conductivity	uS/cm	2455	1890	1384	1700	2200	-	1175	-	-	-	-	2	1	2	-	2	2	1970	1356	1356	-	22	1	-
Total Dissolved Solids	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	1.34	-	1.46	1.06	1.25	5.60	5.60	-	2.35	0.94	-
Dissolved Oxygen	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14.78	11.22	-
Oxidation Reduction Potential	mV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	37.00	-70.00	-

Notes:

ODWQS	Ontario Drinking Water Quality Standards - Ontario Regulation 169/03 "Ontario Drinking Water Quality Standards" under the Safe Drinking Water Act", dated 2002, and "Technical Support Document for Ontario Drinking Water Standards, Objectives and Guidelines", dated June 2003.
BOLD	Exceeds ODWQS
Units	All Units in mg/L Unless Otherwise Noted.

Pinchin Project No. 350221.001

TABLE 22
Bedrock Groundwater Quality Results - MW10D
South Fredricksburgh Waste Disposal Site
Town of Greater Napanee, Ontario

Parameter	Units	Sample Designation																ODWQS
		Sample Collection Date (dd/mm/yyyy)																
		MW10D																
		07/05/2015	*01/06/2016*	*02/11/2017*	*17/04/2019*	*07/10/2019*	*21/04/2020*	*29/10/2020*	*27/05/2021*	*19/10/2021*	*21/04/2022*	*22/11/2022*	*08/05/2023*	*13/10/2023*	*12/11/2024*	*09/05/2025*	*21/10/2025*	
pH	pH	7.13	7.04	6.59	DRY	-	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	**6.18**	DRY	DRY	6.5-8.5
Conductivity	uS/cm	77200.0000	115000.0000	93500.0000	-	-	-	-	-	-	-	-	-	-	152000.0000	-	-	-
Alkalinity	mg/L	82.00	78.00	74.00	-	66.00	-	-	-	-	-	-	-	-	51.00	-	-	30-500
Hardness	mg/L	**20100**	-	**46900**	-	**60900**	-	-	-	-	-	-	-	-	**70700**	-	-	80-100
Total Dissolved Solids	mg/L	**42500**	**63400**	**51400**	-	**103000**	-	-	-	-	-	-	-	-	**98800**	-	-	500.00
Chloride	mg/L	**35300**	**59000**	**56900**	-	**86200**	-	-	-	-	-	-	-	-	**97200**	-	-	250.00
Sodium	mg/L	**10700**	**16900**	**22900**	-	**30400**	-	-	-	-	-	-	-	-	**36400**	-	-	200.00
Calcium	mg/L	3530	5830	7990	-	10600	-	-	-	-	-	-	-	-	12200	-	-	-
Magnesium	mg/L	2740	4580	6220	-	8350	-	-	-	-	-	-	-	-	9760	-	-	-
Potassium	mg/L	207	252	326	-	540	-	-	-	-	-	-	-	-	462	-	-	-
Sulphate	mg/L	<1000	174.0000	236.00	-	<500	-	-	-	-	-	-	-	-	<200	-	-	500.00
Ammonia	mg/L	9.99	30.90000	37.00	-	50.00	-	-	-	-	-	-	-	-	59.70	-	-	
Nitrate	mg/L	<100	<10	<5	-	<0.10	-	-	-	-	-	-	-	-	<20	-	-	10.00
Nitrite	mg/L	<100	<10	<5	-	<0.10	-	-	-	-	-	-	-	-	<20	-	-	1.00
Total Kjehdal Nitrogen	mg/L	25.90	35.80	26.80	-	50.00	-	-	-	-	-	-	-	-	63.70	-	-	-
Phenols	mg/L	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Organic Carbon	mg/L	**5.70**	0.60	0.80	-	**13.90**	-	-	-	-	-	-	-	-	**16.00**	-	-	5.00
Chemical Oxygen Demand	mg/L	1030.000	1520.00	5070.00	-	4770.00	-	-	-	-	-	-	-	-	1020.00	-	-	-
BioChemical Oxygen Demand	mg/L	15.00	-	-	-	11.00	-	-	-	-	-	-	-	-	5.00	-	-	-
Iron	mg/L	**1.97**	**10.20**	**8.30**	-	**12.00**	-	-	-	-	-	-	-	-	**6.00**	-	-	0.30
Manganese	mg/L	**0.29**	**0.78**	**1.10**	-	**1.50**	-	-	-	-	-	-	-	-	**2.00**	-	-	0.05
Total Phosphorus	mg/L	0.17	0.16	2.90	-	0.70	-	-	-	-	-	-	-	-	0.01	-	-	-
Total Suspended Solids	mg/L	320.00	-	1320.00	-	1340.00	-	-	-	-	-	-	-	-	604	-	-	-
Bicarbonate	mg/L	82.00	78.00	74.00	-	66.00	-	-	-	-	-	-	-	-	51	-	-	-
Carbonate	mg/L	20100.00	-	46900.00	-	60900.00	-	-	-	-	-	-	-	-	70700	-	-	-
Anion Sum	meq/L	1000.00	1670.00	1610.00	-	2430.00	-	-	-	-	-	-	-	-	2740	-	-	-
Cation Sum	meq/L	873.00000	1420.00000	1920.00000	-	2560.00000	-	-	-	-	-	-	-	-	3010	-	-	-
Ion Ratio	AS/CS	1.15	1.18	8.70	-	1.05	-	-	-	-	-	-	-	-	1.10	-	-	-
% Difference	%	6.99	8.28	0.84	-	2.45	-	-	-	-	-	-	-	-	4.65	-	-	-
Arsenic	mg/L	<0.1	<1	-	-	<0.05	-	-	-	-	-	-	-	-	<0.1	-	-	0.01
Boron	mg/L	0.64	2.31	1.40	-	1.90	-	-	-	-	-	-	-	-	1.00	-	-	5.00
Barium	mg/L	0.76	**1.180**	**1.40**	-	**1.60**	-	-	-	-	-	-	-	-	**2.0**	-	-	1.00
Cadmium	mg/L	0.00	<0.002	0.00	-	<0.005	-	-	-	-	-	-	-	-	<0.01	-	-	0.01
Chromium	mg/L	<0.002	<0.2	0.00	-	<0.05	-	-	-	-	-	-	-	-	<0.1	-	-	0.05
Copper	mg/L	<0.002	<0.2	<0.2	-	<0.05	-	-	-	-	-	-	-	-	<0.1	-	-	1.00
Mercury	mg/L	<0.00002	<0.00002	<0.00002	-	<0.001	-	-	-	-	-	-	-	-	<0.01	-	-	0.00
Lead	mg/L	0.00	<0.002	-	-	<0.05	-	-	-	-	-	-	-	-	<0.1	-	-	0.01
Zinc	mg/L	0.01	<0.5	<0.5	-	<0.5	-	-	-	-	-	-	-	-	<1	-	-	5.00
Langeliers Index 4° C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Saturation pH 4°C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Field Parameters																		
Temperature	C	12.40	15.80	11.50	-	-	-	-	-	-	-	-	-	-	-	-	-	-
pH	pH	6.62	6.70	6.33	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Conductivity	uS/cm	58312	49500	102455	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Dissolved Solids	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Oxygen	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oxidation Reduction Potential	mV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Notes:

ODWQS	Ontario Drinking Water Quality Standards - Ontario Regulation 169/03 "Ontario Drinking Water Quality Standards" under the Safe Drinking Water Act", dated 2002, and "Technical Support Document for Ontario Drinking Water Standards, Objectives and Guidelines", dated June 2003.
BOLD	Exceeds ODWQS
Units	All Units in mg/L Unless Otherwise Noted.

Pinchin Project No. 350221.001

TABLE 23
Overburden Groundwater Quality Results - MW11S
South Fredricksburgh Waste Disposal Site
Town of Greater Napanee, Ontario

Parameter	Units	Sample Designation				ODWQS
		Sample Collection Date (dd/mm/yyyy)				
		MW11S				
		04/12/2023	*13/11/2024*	*13/05/2025*	*21/10/2025*	
pH	pH	7.70	8	-	No Sample	6.5-8.5
Conductivity	uS/cm	5430	18600	-	-	-
Alkalinity	mg/L	498.00	276.00	-	-	30-500
Hardness	mg/L	**1130**	**4180**	**8860**	-	80-100
Total Dissolved Solids	mg/L	**3530**	**12100**	-	-	500.00
Chloride	mg/L	**1680**	**7100**	**8800**	-	250.00
Sodium	mg/L	**784**	**2900**	**3580**	-	200.00
Calcium	mg/L	186	648.00	2098.00	-	-
Magnesium	mg/L	161	621	664	-	-
Potassium	mg/L	35	87.00	79.60	-	-
Sulphate	mg/L	71	<100	150.00	-	500.00
Ammonia	mg/L	3.65	6.70	6.40	-	
Nitrate	mg/L	<0.10	<10	**10.20**	-	10.00
Nitrite	mg/L	<0.10	<10	< 0.75	-	1.00
Total Kjehdal Nitrogen	mg/L	4	13.10	3.10	-	-
Phenols	mg/L	-	-	-	-	-
Dissolved Organic Carbon	mg/L	**19.60**	**5.70**	3.00	-	5.00
Chemical Oxygen Demand	mg/L	83.00	1020.000	149.00	-	-
BioChemical Oxygen Demand	mg/L	5.00	-	7.00	-	-
Iron	mg/L	0.04	**2.400**	**10.50**	-	0.30
Manganese	mg/L	**0.10**	**0.26**	**0.47**	-	0.05
Total Phosphorus	mg/L	0.17	-	1.45	-	-
Total Suspended Solids	mg/L	18300.00	-	308.00	-	-
Bicarbonate	mg/L	498.00	276.00	-	-	-
Carbonate	mg/L	1130.00	4180.00	-	-	-
Anion Sum	meq/L	58.80	206.00	250.73	-	-
Cation Sum	meq/L	57.80	212.00	317.91000	-	-
Ion Ratio	AS/CS	0.98	1.03	1.27	-	-
% Difference	%	0.90	1.54	11.81	-	-
Arsenic	mg/L	0.00	<0.005	0.00	-	0.01
Boron	mg/L	2.16	2.50	2.42	-	5.00
Barium	mg/L	0.38	**1.04**	0.97	-	1.00
Cadmium	mg/L	<0.0001	<0.0005	0.00	-	0.01
Chromium	mg/L	<0.001	<0.005	0.02	-	0.05
Copper	mg/L	0.01	0.01	0.03	-	1.00
Mercury	mg/L	<0.0001	<0.0005	0.00	-	0.00
Lead	mg/L	<0.001	<0.005	0.00	-	0.01
Zinc	mg/L	<0.01	<0.05	0.03	-	5.00
Langeliers Index 4° C	-	-	-	-	-	
Saturation pH 4°C	-	-	-	-	-	
Field Parameters						
Temperature	C	-	-	12.03	-	-
pH	pH	-	-	7.25	-	-
Conductivity	uS/cm	-	-	>1000	-	-
Total Dissolved Solids	mg/L	-	-	11.10	-	-
Dissolved Oxygen	mg/L	-	-	24.00	-	-
Oxidation Reduction Potential	mV	-	-	16.00	-	-

Notes:

ODWQS	Ontario Drinking Water Quality Standards - Ontario Regulation 169/03 "Ontario Drinking Water Quality Standards" under the Safe Drinking Water Act", dated 2002, and "Te
BOLD	Exceeds ODWQS
Units	All Units in mg/L Unless Otherwise Noted.

Pinchin Project No. 350221.001

TABLE 24
Bedrock Groundwater Quality Results - MW11D
South Fredricksburgh Waste Disposal Site
Town of Greater Napanee, Ontario

Parameter	Units	Sample Designation			ODWQS
		Sample Collection Date (dd/mm/yyyy)			
		MW11D			
		12/11/2024	*09/05/2025*	*21/10/2025*	
pH	pH	**7.39**	7.64	No Sample	6.5-8.5
Conductivity	uS/cm	32000.00	22600.0000	-	-
Alkalinity	mg/L	215.00	350.00	-	30-500
Hardness	mg/L	**6970**	**10800**	-	80-100
Total Dissolved Solids	mg/L	**35800**	**15700**	-	500.00
Chloride	mg/L	**14500**	**7000**	-	250.00
Sodium	mg/L	**5500**	**5560**	-	200.00
Calcium	mg/L	1150	2380	-	-
Magnesium	mg/L	996	1175	-	-
Potassium	mg/L	128	136	-	-
Sulphate	mg/L	<1	9.00	-	500.00
Ammonia	mg/L	14.7	9.37	-	
Nitrate	mg/L	<20	< 0.6	-	10.00
Nitrite	mg/L	<0.10	< 0.75	-	1.00
Total Kjehdal Nitrogen	mg/L	19	3.44	-	-
Phenols	mg/L	-	-	-	-
Dissolved Organic Carbon	mg/L	3.90	4.00	-	5.00
Chemical Oxygen Demand	mg/L	460.00	76.000	-	-
BioChemical Oxygen Demand	mg/L	21.00	< 12	-	-
Iron	mg/L	**6.70**	**9.980**	-	0.30
Manganese	mg/L	**2.30**	**1.78**	-	0.05
Total Phosphorus	mg/L	2.66	0.37	-	-
Total Suspended Solids	mg/L	242.00	484.000	-	-
Bicarbonate	mg/L	215.00	-	-	-
Carbonate	mg/L	6970.00	-	-	-
Anion Sum	meq/L	413.00	205.60	-	-
Cation Sum	meq/L	383.00	205.60	-	-
Ion Ratio	AS/CS	0.93	2.25	-	-
% Difference	%	3.83	-	-	-
Arsenic	mg/L	<0.01	0.0	-	0.01
Boron	mg/L	2.20	2.21	-	5.00
Barium	mg/L	**2.70**	**3.10**	-	1.00
Cadmium	mg/L	<0.0001	0.00004	-	0.01
Chromium	mg/L	<0.01	0.00	-	0.05
Copper	mg/L	<0.01	< 0.001	-	1.00
Mercury	mg/L	<0.001	< 0.00001	-	0.00
Lead	mg/L	<0.01	< 0.00009	-	0.01
Zinc	mg/L	<0.1	0.003	-	5.00
Langeliers Index 4° C	-	-	-	-	
Saturation pH 4°C	-	-	-	-	
Field Parameters					
Temperature	C	-	12.04	13.36	-
pH	pH	-	6.97	7.12	-
Conductivity	uS/cm	-	>1000	27100	-
Total Dissolved Solids	mg/L	-	16.80	16.80	-
Dissolved Oxygen	mg/L	-	7.22	5.87	-
Oxidation Reduction Potential	mV	-	25.00	-88	-

Notes:

11D	Ontario Drinking Water Quality Standards - Ontario Regulation 169/03 "Ontario Drinking Water Quality Standards" under the Safe Drinking Water Act", dated 2002, and "Technical Suppo
BOLD	Exceeds ODWQS
Units	All Units in mg/L Unless Otherwise Noted.

Pinchin Project No. 350221.001

TABLE 25
Bedrock Groundwater Quality Results - R1
South Fredricksburgh Waste Disposal Site
Town of Greater Napanee, Ontario

Parameter	Units	Sample Designation																						ODWQS
		Sample Collection Date (dd/mm/yyyy)																						
		R1																						
		07/05/2015	03/11/2015	01/06/2016	25/10/2016	09/06/2017	02/11/2017	29/05/2018	01/11/2018	17/04/2019	08/10/2019	29/04/2020	27/05/2021	22/10/2021	23/10/2021	21/04/2022	23/11/2022	08/05/2023	08/05/2023	13/10/2023	13/11/2024	09/05/2025	21/10/2025	
pH	pH	7.93	8.04	8.13	7.93	8.14	7.97	7.90	7.83	-	-	7.97	7.82	7.96	7.90	7.96	7.44	7.77	7.78	7.77	7.91	8.33	No Access	6.5-8.5
Conductivity	uS/cm	424	405	574	465	420	458	402	533	429	-	406	485	515	509	299	325	266	268	518	487	459	-	-
Alkalinity	mg/L	193	175	183	162	215	198	214	233	189	222	229	212	242	241	195	193	186	187	232	163	199	-	30-500
Hardness	mg/L	**230**	**218**	**232**	**209**	**230**	**226**	**225**	**232**	**195**	**250**	**227**	**241**	**255**	**257**	**199**	**191**	**179**	**179**	**222**	**234**	**210**	-	80-100
Total Dissolved Solids	mg/L	233	223	316	256	231	252	261	346	279	385	-	315	335	331	194	211	173	174	337	**20800**	237	-	500.00
Chloride	mg/L	6.60	11.80	44.90	16.60	2.40	13.70	4.00	34.00	3.00	54.00	3.00	28.00	27.00	26.00	3.00	20.00	2.00	1.00	34.00	22	3	-	250.00
Sodium	mg/L	5.20	10.40	21.30	8.80	3.40	15.30	3.00	16.00	8.00	28.00	2.00	14.00	18.00	18.00	3.00	11.00	2.00	2.00	23.00	15	3.21	-	200.00
Calcium	mg/L	65.80	61.60	66.80	56.60	66.20	62.00	67.00	65.00	60.00	72.00	68.00	70.00	74.00	75.00	60.00	55.00	52.00	52.00	64.00	69	61.5	-	-
Magnesium	mg/L	15.80	15.50	15.90	16.30	15.60	17.20	14.00	17.00	11.00	17.00	14.00	16.00	17.00	17.00	12.00	13.00	12.00	12.00	15.00	15.00	13.80	-	-
Potassium	mg/L	2.10	2.60	2.30	3.60	1.90	2.40	2.00	3.00	3.00	3.00	2.00	3.00	3.00	4.00	2.00	2.00	1.00	1.00	2.00	3	2	-	-
Sulphate	mg/L	16.00	10.00	32.00	48.00	4.00	5.00	6.00	5.00	10.00	12.00	6.00	16.00	2.00	2.00	11.00	7.00	7.00	6.00	8.00	4.00	8.00	-	500.00
Ammonia	mg/L	0.23	0.19	0.49	0.79	0.22	0.33	0.37	0.47	0.23	0.63	0.18	0.21	0.52	0.50	0.21	0.25	0.07	0.16	0.30	0.342	0.21	-	
Nitrate	mg/L	<0.1	<0.1	0.10	<0.1	<0.05	<0.05	<0.10	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	< 0.06	-	10.00
Nitrite	mg/L	<0.1	<0.1	<0.1	<0.1	<0.05	<0.05	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	< 0.03	-	1.00
Total Kjehdal Nitrogen	mg/L	0.60	0.70	0.40	1.40	0.60	0.90	<0.8	1.40	0.50	0.90	0.65	0.87	0.99	0.98	0.53	0.74	0.49	0.59	0.74	0.80	0.60	-	-
Phenols	mg/L	<0.001	<0.001	<0.001	<0.001	-	-	-	-	-	-	-	-			-	-	-	-	-	-	-	-	-
Dissolved Organic Carbon	mg/L	**6.50**	4.70	1.20	**5.50**	**6.70**	1.80	**5.50**	**8.00**	3.80	**5.70**	**5.60**	0.90	**6.00**	**6.00**	5.00	**7.20**	**5.20**	**5.10**	**6.00**	**6.90**	5.00	-	5.00
Chemical Oxygen Demand	mg/L	27.00	13.00	11.00	19.00	18.00	30.00	12.00	6.00	6.00	7.00	17.00	<5	14.00	16.00	<5	17.00	11.00	19.00	<5	12.00	19.00	-	-
BioChemical Oxygen Demand	mg/L	2.00	<2	<2	<2	<3	-	1.00	3.00	<1	3.00	1.00	2.00	2.00	2.00	<1	2.00	<1	<1	4.00	1.00	< 4	-	-
Iron	mg/L	0.16	**0.40**	0.04	**0.63**	-	**1.21**	**0.71**	**1.95**	0.10	**1.95**	0.07	**1.26**	**2.36**	**2.37**	0.17	**1.41**	0.25	0.12	**1.85**	**3.59**	**0.51**	-	0.30
Manganese	mg/L	**0.27**	**0.35**	**0.27**	**0.31**	-	**0.40**	**0.64**	**0.61**	**0.14**	**0.74**	**0.40**	**0.55**	**0.54**	**0.55**	**0.26**	**0.46**	**0.06**	0.05	**0.62**	**0.5600**	**0.26**	-	0.05
Total Phosphorus	mg/L	<0.01	0.22	0.01	0.04	0.05	0.04	0.06	0.06	0.00	0.06	0.01	0.03	0.09	0.08	0.02	0.07	0.01	0.01	0.07	0.09	0.04	-	-
Total Suspended Solids	mg/L	<3	6.00	<3	3.00	3.00	8.00	3.00	4.00	<2	<2	<2	5.00	6.00	3.00	<2	9.00	<2	3.00	5.00	10.00	4.00	-	-
Bicarbonate	mg/L	193.00	175.00	183.00	162.00	215.00	198.00	214.00	233.00	189.00	222.00	229.00	212.00	242.00	241.00	195.00	193.00	186.00	187.00	232.00	163.00000	-	-	-
Carbonate	mg/L	230.00	218.00	232.00	209.00	230.00	226.00	225.00	232.00	195.00	250.00	227.00	241.00	255.00	257.00	199.00	191.0000	179.00	179.00	222.00	234.00000	-	-	-
Anion Sum	meq/L	4.38	4.04	5.59	4.70	4.44	4.46	4.52	5.73	4.07	6.21	4.79	5.36	5.64	5.60	4.21	4.5700	3.92	3.89	5.77	5.36	4.22	-	-
Cation Sum	meq/L	4.90000	4.92000	5.68000	4.75000	4.86000	5.34000	4.70000	5.45000	4.34000	6.33000	4.70000	5.51000	5.99000	6.06000	4.18000	4.36000	3.70000	3.71000	5.50000	5.43000	4.22000	-	-
Ion Ratio	AS/CS	0.89	0.82	0.99	0.99	4.44	8.95	1.04	0.95	1.07	1.02	0.98	1.03	1.06	1.08	0.99	0.95	0.94	0.95	0.95	1.01	1.05	-	-
% Difference	%	5.65	9.76	0.74	0.52	0.92	0.84	2.01	2.52	3.18	0.94	0.98	1.35	2.96	4.01	0.43	2.330	2.91	2.46	2.35	0.62	-	-	-
Arsenic	mg/L	<0.2	<0.005	<0.005	0.00	-	0.00	0.00	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.001	0.00	<0.001	<0.001	<0.001	<0.001	0.00	-	0.01
Boron	mg/L	0.02	0.03	0.04	0.03	-	0.04	0.02	0.04	0.01	0.06	0.01	0.03	0.05	0.04	0.01	0.08	0.02	0.01	0.05	0.04	0.02	-	5.00
Barium	mg/L	0.04	0.051	0.060	0.050	-	0.05	0.05	0.07	0.04	0.070	0.04	0.05	0.06	0.06	0.04	0.05	0.04	0.03	0.07	0.07	0.05	-	1.00
Cadmium	mg/L	0.00	<0.00002	0.00	0.00	-	<0.000014	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.00	-	0.01
Chromium	mg/L	<0.002	<0.002	<0.002	<0.002	-	<0.001	<0.001	<0.001	<0.01	0.00	<0.001	<0.001	<0.002	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.00	-	0.05
Copper	mg/L	0.03	0.01	0.06	0.01	-	0.01	0.02	0.01	0.22	0.00	0.03	0.00	0.01	0.004	0.17	0.03	0.25	0.14	0.02	0.00	0.31	-	1.00
Mercury	mg/L	<0.00002	<0.00002	<0.00002	<0.00002	-	<0.00002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	< 0.00001	-	0.00
Lead	mg/L	<0.00002	<0.00002	0.00	0.00	-	0.00	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.001	0.00	<0.001	<0.001	<0.001	<0.001	0.00	-	0.01
Zinc	mg/L	0.14	0.10	0.06	0.10	-	0.08	0.03	0.03	0.03	0.03	0.04	0.03	0.25	0.24	0.03	0.14	0.07	0.03	0.13	0.12	0.02	-	5.00
Langeliers Index 4° C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Saturation pH 4°C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Field Parameters																								
Temperature	C	9.30	16.10	14.20	12.70	14.70	13.30	-	-	-	-	-	13.51	-	-	6.59	11.15	9.07	9.07	16.90	-	-	-	-
pH	pH	7.73	7.45	8.07	7.72	7.85	7.32	-	-	-	-	-	7.77	-	-	7.95	7.47	8.22	8.22	7.93	-	-	-	-
Conductivity	uS/cm	443	324	491	409	197	447	-	-	-	-	-	1	-	-	1	1	514	514	200	-	-	-	-
Total Dissolved Solids	mg/L	-	-	-	-	-	-	-	-	-	-	264.00	0.36	-	-	0.32	0.43	0.33	0.33	0.50	-	-	-	-
Dissolved Oxygen	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oxidation Reduction Potential	mV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Notes:

ODWQS	Ontario Drinking Water Quality Standards - Ontario Regulation 169/03 "Ontario Drinking Water Quality Standards" under the Safe Drinking Water Act", dated 2002, and "Technical Support Document for Ontario Drinking Water Standards, Objectives and Guidelines", dated June 2003.
BOLD	Exceeds ODWQS
Units	All Units in mg/L Unless Otherwise Noted.

Pinchin Project No. 350221.003

TABLE 26
Reasonable Use Criteria and Trigger Assessment (Shallow Aquifer)
South Fredricksburgh Waste Disposal Site
Town of Greater Napanee, Ontario

Parameter	Units	MW9S		MW10S		ODWQS	Guideline B-7 Calculation Cm = Cb + x (Cr - Cb)			
		09/05/2025	*21/10/2025*	*09/05/2025*	*21/10/2025*		Cb	x	Cr	Cm
Alkalinity	mg/L	353	**465**	325	320	30 - 500	403.71	0.5	30 - 500	216.9 - 451.9
Dissolved Organic Carbon	mg/L	**4**	3	3	3	5.00	2.32	0.5	5	3.661
Total Dissolved Solids	mg/L	674	**1670**	**1280**	551	500.00	935.31	0.5	500	935.309
Chloride	mg/L	**260**	**700**	**570**	88	250.00	232.85	0.5	250	241.43
Nitrate	mg/L	0.28	< 0.06	0.57	0.29	10.00	0.02	0.25	10	2.518
Sulphate	mg/L	58	53	52	46	500.00	31.53	0.5	500	265.765
Barium	mg/L	0.137	0.151	0.42	0.51	1.00	0.36	0.25	1	0.524
Boron	mg/L	0.063	0.095	0.409	0.36	5.00	0.28	0.25	5	1.458
Iron	mg/L	**0.79**	0.039	**0.704**	**4.2**	0.30	0.09	0.5	0.30	0.194
Sodium	mg/L	107	126	**389**	**505**	200.00	78.18	0.5	200.00	139.092
Hardness	mg/L	**501**	**417**	**699**	**736**	80-100	620.71	0.5	80-100	620.710
pH	pH Units	7.98	7.85	8.09	7.82	6.5 - 8.5	7.77	0.5	6.5-8.5	7.1 - 8.1
Nitrite	mg/L	< 0.03	< 0.03	< 0.3	< 0.03	1.00	0.04	0.25	1	0.278
Manganese	mg/L	**0.0693**	0.00216	0.0191	**0.0604**	0.05	0.06	0.5	0.05	0.060
Arsenic	mg/L	0.0012	0.0002	0.0005	0.0052	0.03	0.00027	0.25	0.025	0.006
Cadmium	mg/L	< 0.000003	0.000016	0.000013	< 0.000003	0.01	0.00002	0.25	0.005	0.001
Chromium	mg/L	0.00012	0.00019	0.0002	0.00057	0.05	0.00052	0.25	0.05	0.013
Copper	mg/L	< 0.001	< 0.001	< 0.001	< 0.001	1.00	0.00048	0.5	1	0.500
Mercury	mg/L	< 0.00001	< 0.00001	< 0.00001	< 0.00001	0.00	0.00002	0.25	0.001	0.00026
Lead	mg/L	0.00	0.01	< 0.00009	< 0.00009	0.01	0.00013	0.25	0.01	0.00260
Zinc	mg/L	< 0.002	< 0.002	0.0050	< 0.002	5.000	0.00175	0.5	5	2.501

Notes:

ODWQS	Ontario Drinking Water Quality Standards - Ontario Regulation 169/03 "Ontario Drinking Water Quality Standards" under the Safe Drinking Water Act", dated 2002, and "Technical Support Document for Ontario Drinking Water Standards, Objectives and Guidelines", dated June 2003.
BOLD	Exceeds Guideline B-7
Units	All Units in mg/L Unless Otherwise Noted.
Cb	Background Concentration (Geomean of historical groundwater concentrations observed at MW5S)
Cr	Maximum Acceptable Contaminant Concentration (ODWQS)
x	Reduction Constant
Cm	Maximum Off-Site Acceptable Contaminant Concentration
NC	The Cm values can not be calculated as the Cb value exceeds the Cr (OWDQS)

Pinchin Project No. 350221.001

TABLE 27
Reasonable Use Criteria and Trigger Assessment (Deep Aquifer)
South Fredricksburgh Waste Disposal Site
Town of Greater Napanee, Ontario

Parameter	Units	MW9D		MW10D		ODWQS	Guideline B-7 Calculation Cm = Cb + x (Cr - Cb)			
		09/05/2025	*21/10/2025*	*09/05/2025*	*21/10/2025*		Cb	x	Cr	Cm
Alkalinity	mg/L	22	21	**DRY**	**DRY**	30-500	420.93	0.5	30 - 500	225.5 - 460.5
Dissolved Organic Carbon	mg/L	**13**	**14**	-	-	5.00	1.85	0.5	5	3.424
Total Dissolved Solids	mg/L	**283000**	**240000**	-	-	500	2404.99	0.5	500	2404.992
Chloride	mg/L	**160000**	**140000**	-	-	250	1014.27	0.5	250	1014.266
Nitrate	mg/L	< 6	< 0.06	-	-	10.00	0.12	0.25	10	2.589
Sulphate	mg/L	50	43	-	-	500	31.30	0.5	500	265.648
Barium	mg/L	**1.69**	**1.91**	-	-	1	0.349	0.25	1	0.512
Boron	mg/L	1.04	1.14	-	-	5	0.894	0.25	5	1.921
Iron	mg/L	**4.3**	0.5	-	-	0.30	0.227	0.5	0.30	0.263
Sodium	mg/L	**41100**	**43900**	-	-	200	501.093	0.5	200.00	501.093
Hardness	mg/L	**91600**	**99500**	-	-	100	697.928	0.5	80-100	697.928
pH	pH Units	**6.06**	**5.62**	-	-	6.5-8.5	7.851	0.5	6.5-8.5	7.2 - 8.2
Nitrite	mg/L	< 7.5	< 0.03	-	-	1.00	0.122	0.25	1	0.341
Manganese	mg/L	0.332	0.385	-	-	0.05	0.051	0.5	0.05	0.051
Arsenic	mg/L	**0.0085**	0.0042	-	-	0.03	0.001768007	0.25	0.025	0.008
Cadmium	mg/L	0.0002	< 0.000003	-	-	0.01	0.000031	0.25	0.005	0.001
Chromium	mg/L	**0.0346**	0.0117	-	-	0.05	0.0003	0.25	0.05	0.013
Copper	mg/L	< 0.001	0.002	-	-	1.00	0.0004	0.5	1	0.500
Mercury	mg/L	< 0.00001	< 0.00001	-	-	0.001	0.000025	0.25	0.001	0.0003
Lead	mg/L	< 0.00009	< 0.00009	-	-	0.01	0.0002	0.25	0.01	0.003
Zinc	mg/L	0.0080	0.02	-	-	5.000	0.0085	0.5	5	2.504

Notes:

ODWQS	Ontario Drinking Water Quality Standards - Ontario Regulation 169/03 "Ontario Drinking Water Quality Standards" under the Safe Drinking Water Act", dated 2002, and "Technical Support Document for Ontario Drinking Water Standards, Objectives and Guidelines", dated June 2003.
BOLD	Exceeds Guideline B-7
Units	All Units in mg/L Unless Otherwise Noted.
Cb	Background Concentration (Geomean of historical groundwater concentrations observed at MW5D)
Cr	Maximum Acceptable Contaminant Concentration (ODWQS)
x	Reduction Constant
Cm	Maximum Off-Site Acceptable Contaminant Concentration; equal to the background concentration when the background concentration exceeds the ODWQS

Pinchin Project No. 350221.001

APPENDIX VIII

Laboratory Analytical Reports



FINAL REPORT

CA15360-MAY25 R

South Fredericksburgh

Prepared for

Pinchin Ltd

FINAL REPORT

CA15360-MAY25 R

First Page

CLIENT DETAILS		LABORATORY DETAILS	
Client	Pinchin Ltd	Project Specialist	Brad Moore Hon. B.Sc
		Laboratory	SGS Canada Inc.
Address	1456 Centennial Drive, Kingston Canada, K7P 0K4 Phone: 613-796-2342, Fax:	Address	185 Concession St., Lakefield ON, K0L 2H0
Contact	Samantha Young	Telephone	705-652-2143
Telephone	613-796-2342	Facsimile	705-652-6365
Facsimile		Email	brad.moore@sgs.com
Email	sryoung@pinchin.com	SGS Reference	CA15360-MAY25
Project	South Fredericksburgh	Received	05/15/2025
Order Number		Approved	05/27/2025
Samples	Ground Water (3)	Report Number	CA15360-MAY25 R
		Date Reported	05/27/2025

COMMENTS

Temperature of Sample upon Receipt: 7 degrees C

raised RL for NO2/NO3 due to sample matrix

NH3>TKN due to sample matrix

SIGNATORIES

Brad Moore Hon. B.Sc

FINAL REPORT

CA15360-MAY25 R

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FINAL REPORT

CA15360-MAY25 R

Client: Pinchin Ltd
Project: South Fredericksburgh
Project Manager: Samantha Young
Samplers: Sam Young

MATRIX: WATER

L1 = ODWS_AO_OG / WATER / - - Table 4 - Drinking Water - Reg O.169_03
L2 = ODWS_MAC / WATER / - - Table 1,2 and 3 - Drinking Water - Reg O.169_03

				Sample Number	7	8	9
				Sample Name	MW6D	MW8	MW11S
				Sample Matrix	Ground Water	Ground Water	Ground Water
				Sample Date	13/05/2025	13/05/2025	13/05/2025
Parameter	**Units**	**RL**	**L1**	**L2**	**Result**	**Result**	**Result**
Acid Rock Drainage							
pH Check <2	pH	0.05			1.00	---	---
General Chemistry							
Temperature @ pH	°C	0			22.6	---	---
Alkalinity	mg/L as CaCO3	2	500		410	---	---
Total Suspended Solids	mg/L	2			59	37	308
Biochemical Oxygen Demand (BOD5)	mg/L	2			< 4↑	< 4↑	7
Conductivity	uS/cm	2			5020	---	---
Total Dissolved Solids	mg/L	30	500		2690	---	---
Chemical Oxygen Demand	mg/L	8			23	135	149
Total Kjeldahl Nitrogen	as N mg/L	0.5			1.6	3.1	3.1
Ammonia+Ammonium (N)	as N mg/L	0.1			2.7	8.4	6.4
Dissolved Organic Carbon	mg/L	1	5		1	3	3
Metals and Inorganics							
Phosphorus (total)	mg/L	0.03			0.06	< 0.03	1.45
Sulphate	mg/L	2	500		95	18	150
Nitrite (as N)	as N mg/L	0.03		1	< 0.3↑	< 0.75↑	< 0.75↑
Nitrate (as N)	as N mg/L	0.06		10	< 0.06	< 0.6↑	10.2
Hardness (dissolved)	mg/L as CaCO3	0.05	100		842	8270	8860
Iron (dissolved)	mg/L	0.007	0.3		1.62	1.35	10.5
Calcium (dissolved)	mg/L	0.01			139	1730	2098
Potassium (dissolved)	mg/L	0.009			18.4	57.4	79.6

FINAL REPORT

CA15360-MAY25 R

Client: Pinchin Ltd
Project: South Fredericksburgh
Project Manager: Samantha Young
Samplers: Sam Young

MATRIX: WATER

L1 = ODWS_AO_OG / WATER / - - Table 4 - Drinking Water - Reg O.169_03
L2 = ODWS_MAC / WATER / - - Table 1,2 and 3 - Drinking Water - Reg O.169_03

Parameter	Units	RL	L1	L2	Sample Number 7 Result	Sample Number 8 Result	Sample Number 9 Result
					Sample Name MW6D	Sample Name MW8	Sample Name MW11S
					Sample Matrix Ground Water	Sample Matrix Ground Water	Sample Matrix Ground Water
					Sample Date 13/05/2025	Sample Date 13/05/2025	Sample Date 13/05/2025
Metals and Inorganics (continued)							
Magnesium (dissolved)	mg/L	0.001			120	757	664
Sodium (dissolved)	mg/L	0.01	200	20	565	3470	3580
Arsenic (dissolved)	mg/L	0.0002		0.01	0.0003	0.0033	0.0037
Barium (dissolved)	mg/L	0.00008		1	0.427	2.09	0.970
Boron (dissolved)	mg/L	0.002		5	0.937	0.695	2.42
Cadmium (dissolved)	mg/L	0.000003		0.005	0.000004	0.000051	0.000089
Chromium (dissolved)	mg/L	0.00008		0.05	0.00090	0.00488	0.01802
Copper (dissolved)	mg/L	0.001	1		< 0.001	0.002	0.029
Lead (dissolved)	mg/L	0.00009		0.01	0.00020	0.00024	0.00393
Manganese (dissolved)	mg/L	0.00001	0.05		0.101	0.740	0.474
Zinc (dissolved)	mg/L	0.002	5		0.003	0.020	0.030
Anion Sum	meq/L	-9999			51.14	227.82	250.73
Anion-Cation Balance	% difference	-9999			-9.66	13.91	11.81
Cation sum	meq/L	-9999			42.13	301.44	317.91
Ion Ratio	none	-9999			0.82	1.32	1.27
Langeliers Index 4° C	@ 4° C	-9999			0.91	---	---
Saturation pH 4°C	pHs @ 4°C	-9999			7.29	---	---

FINAL REPORT

CA15360-MAY25 R

Client: Pinchin Ltd
Project: South Fredericksburgh
Project Manager: Samantha Young
Samplers: Sam Young

MATRIX: WATER

L1 = ODWS_AO_OG / WATER / - - Table 4 - Drinking Water - Reg O.169_03
L2 = ODWS_MAC / WATER / - - Table 1,2 and 3 - Drinking Water - Reg O.169_03

				Sample Number	7	8	9
				Sample Name	MW6D	MW8	MW11S
				Sample Matrix	Ground Water	Ground Water	Ground Water
				Sample Date	13/05/2025	13/05/2025	13/05/2025
Parameter	**Units**	**RL**	**L1**	**L2**	**Result**	**Result**	**Result**
Other (ORP)							
pH	No unit	0.05	8.5		8.20	---	---
Chloride	mg/L	1	250		1500	8100	8800
Mercury (dissolved)	mg/L	0.00001		0.001	< 0.00001	< 0.00001	0.00003

EXCEEDANCE SUMMARY

Parameter	Method	Units	Result	ODWS_AO_OG / WATER / - - Table 4 - Drinking Water - Reg O.169_03 L1	ODWS_MAC / WATER / - - Table 1,2 and 3 - Drinking Water - Reg O.169_03 L2
MW6D					
Total Dissolved Solids	SM 2540C	mg/L	2690	500	
Hardness (dissolved)	SM 3030/EPA 200.7	mg/L as CaCO3	842	100	
Iron (dissolved)	SM 3030/EPA 200.8	mg/L	1.62	0.3	
Manganese (dissolved)	SM 3030/EPA 200.8	mg/L	0.101	0.05	
Sodium (dissolved)	SM 3030/EPA 200.8	mg/L	565	200	20
Chloride	US EPA 325.2	mg/L	1500	250	
MW8					
Hardness (dissolved)	SM 3030/EPA 200.7	mg/L as CaCO3	8270	100	
Barium (dissolved)	SM 3030/EPA 200.8	mg/L	2.09		1
Iron (dissolved)	SM 3030/EPA 200.8	mg/L	1.35	0.3	
Manganese (dissolved)	SM 3030/EPA 200.8	mg/L	0.740	0.05	
Sodium (dissolved)	SM 3030/EPA 200.8	mg/L	3470	200	20
Chloride	US EPA 325.2	mg/L	8100	250	
MW11S					
Nitrate as Nitrogen	EPA300/MA300-Ions1.3	as N mg/L	10.2		10
Hardness (dissolved)	SM 3030/EPA 200.7	mg/L as CaCO3	8860	100	
Iron (dissolved)	SM 3030/EPA 200.8	mg/L	10.5	0.3	
Manganese (dissolved)	SM 3030/EPA 200.8	mg/L	0.474	0.05	
Sodium (dissolved)	SM 3030/EPA 200.8	mg/L	3580	200	20
Chloride	US EPA 325.2	mg/L	8800	250	

QC SUMMARY

Alkalinity

Method: SM 2320 | Internal ref.: ME-CA-[ENV]EWL-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Alkalinity	EWL0384-MAY25	mg/L as CaCO3	2	< 2	1	20	96	80	120	NA		

Ammonia by SFA

Method: SM 4500 | Internal ref.: ME-CA-[ENV]SFA-LAK-AN-007

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Ammonia+Ammonium (N)	SKA0176-MAY25	as N mg/L	0.1	<0.1	ND	10	99	90	110	102	75	125

QC SUMMARY

Anions by discrete analyzer

Method: US EPA 325.2 | Internal ref.: ME-CA-IENVIEWL-LAK-AN-026

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Chloride	DIO8037-MAY25	mg/L	1	<1	ND	20	98	80	120	99	75	125
Sulphate	DIO8039-MAY25	mg/L	2	<2	2	20	101	80	120	83	75	125

Anions by IC

Method: EPA300/MA300-Ions1.3 | Internal ref.: ME-CA-IENVIIC-LAK-AN-001

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Nitrate (as N)	DIO0426-MAY25	mg/L	0.06	<0.06	0	20	102	90	110	102	75	125
Nitrite (as N)	DIO0434-MAY25	mg/L	0.03	<0.03	0	20	95	90	110	100	75	125
Nitrate (as N)	DIO0434-MAY25	mg/L	0.06	<0.06	1	20	100	90	110	104	75	125
Nitrite (as N)	DIO0459-MAY25	mg/L	0.03	<0.03	1	20	99	90	110	103	75	125

QC SUMMARY

Biochemical Oxygen Demand

Method: SM 5210 I Internal ref.: ME-CA-[ENV]EWL-LAK-AN-007

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Biochemical Oxygen Demand (BOD5)	BOD0032-MAY25	mg/L	2	< 2	8	30	99	70	130	118	70	130

Carbon by SFA

Method: SM 5310 I Internal ref.: ME-CA-[ENV]SFA-LAK-AN-009

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Dissolved Organic Carbon	SKA0171-MAY25	mg/L	1	<1	5	20	98	90	110	83	75	125

Chemical Oxygen Demand

Method: HACH 8000 I Internal ref.: ME-CA-[ENV]EWL-LAK-AN-009

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Chemical Oxygen Demand	EWL0410-MAY25	mg/L	8	<8	4	20	100	80	120	87	75	125
Chemical Oxygen Demand	EWL0411-MAY25	mg/L	8	<8	6	20	100	80	120	NV	75	125

QC SUMMARY

Conductivity

Method: SM 2510 | Internal ref.: ME-CA-[ENV]EWL-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Conductivity	EWL0384-MAY25	uS/cm	2	< 2	0	20	99	90	110	NA		

Mercury by CVAAS

Method: EPA 7471A/SM 3112B | Internal ref.: ME-CA-[ENV]SPE-LAK-AN-004

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Mercury (dissolved)	EHG0022-MAY25	mg/L	0.00001	< 0.00001	ND	20	119	80	120	130	70	130

QC SUMMARY

Metals in aqueous samples - ICP-MS

Method: SM 3030/EPA 200.8 | Internal ref.: ME-CA-[ENVISPE-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Arsenic (dissolved)	EMS0168-MAY25	mg/L	0.0002	<0.0002	ND	20	99	90	110	102	70	130
Barium (dissolved)	EMS0168-MAY25	mg/L	0.00008	<0.00008	3	20	98	90	110	95	70	130
Boron (dissolved)	EMS0168-MAY25	mg/L	0.002	<0.002	ND	20	96	90	110	95	70	130
Calcium (dissolved)	EMS0168-MAY25	mg/L	0.01	<0.01	19	20	97	90	110	101	70	130
Cadmium (dissolved)	EMS0168-MAY25	mg/L	0.000003	<0.000003	11	20	96	90	110	100	70	130
Chromium (dissolved)	EMS0168-MAY25	mg/L	0.00008	<0.00008	ND	20	99	90	110	107	70	130
Copper (dissolved)	EMS0168-MAY25	mg/L	0.001	<0.001	ND	20	98	90	110	102	70	130
Iron (dissolved)	EMS0168-MAY25	mg/L	0.007	<0.007	0	20	103	90	110	125	70	130
Potassium (dissolved)	EMS0168-MAY25	mg/L	0.009	<0.009	0	20	97	90	110	84	70	130
Magnesium (dissolved)	EMS0168-MAY25	mg/L	0.001	<0.001	2	20	99	90	110	98	70	130
Manganese (dissolved)	EMS0168-MAY25	mg/L	0.00001	<0.00001	0	20	97	90	110	99	70	130
Sodium (dissolved)	EMS0168-MAY25	mg/L	0.01	<0.01	7	20	98	90	110	95	70	130
Lead (dissolved)	EMS0168-MAY25	mg/L	0.00009	<0.00009	8	20	97	90	110	96	70	130
Zinc (dissolved)	EMS0168-MAY25	mg/L	0.002	<0.002	1	20	99	90	110	105	70	130
Arsenic (dissolved)	EMS0180-MAY25	mg/L	0.0002	<0.0002	ND	20	99	90	110	110	70	130
Barium (dissolved)	EMS0180-MAY25	mg/L	0.00008	<0.00008	ND	20	102	90	110	107	70	130
Boron (dissolved)	EMS0180-MAY25	mg/L	0.002	<0.002	ND	20	98	90	110	94	70	130
Cadmium (dissolved)	EMS0180-MAY25	mg/L	0.000003	<0.000003	ND	20	101	90	110	103	70	130
Chromium (dissolved)	EMS0180-MAY25	mg/L	0.00008	<0.00008	ND	20	104	90	110	76	70	130
Copper (dissolved)	EMS0180-MAY25	mg/L	0.001	<0.001	ND	20	101	90	110	95	70	130

QC SUMMARY

Metals in aqueous samples - ICP-MS (continued)

Method: SM 3030/EPA 200.8 | Internal ref.: ME-CA-[ENV]SPE-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Iron (dissolved)	EMS0180-MAY25	mg/L	0.007	<0.007	ND	20	100	90	110	100	70	130
Potassium (dissolved)	EMS0180-MAY25	mg/L	0.009	<0.009	ND	20	98	90	110	94	70	130
Magnesium (dissolved)	EMS0180-MAY25	mg/L	0.001	<0.001	0	20	97	90	110	96	70	130
Manganese (dissolved)	EMS0180-MAY25	mg/L	0.00001	<0.00001	10	20	102	90	110	78	70	130
Lead (dissolved)	EMS0180-MAY25	mg/L	0.00009	<0.00009	ND	20	98	90	110	88	70	130
Zinc (dissolved)	EMS0180-MAY25	mg/L	0.002	<0.002	ND	20	99	90	110	108	70	130
Calcium (dissolved)	EMS0181-MAY25	mg/L	0.01	<0.01	12	20	102	90	110	120	70	130
Sodium (dissolved)	EMS0181-MAY25	mg/L	0.01	<0.01	11	20	108	90	110	119	70	130

pH

Method: SM 4500 | Internal ref.: ME-CA-[ENV]EWL-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
pH	EWL0384-MAY25	No unit	0.05	NA	0		100			NA		

QC SUMMARY

Phosphorus by SFA

Method: SM 4500-P J | Internal ref.: ME-CA-IENVISFA-LAK-AN-003

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Phosphorus (total)	SKA0168-MAY25	mg/L	0.03	<0.03	5	10	100	90	110	92	75	125
Phosphorus (total)	SKA0189-MAY25	mg/L	0.03	<0.03	6	10	99	90	110	86	75	125

Solids Analysis

Method: SM 2540C | Internal ref.: ME-CA-IENVIEWL-LAK-AN-005

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Total Dissolved Solids	EWL0458-MAY25	mg/L	30	<30	0	20	105	80	120	NA		

QC SUMMARY

Suspended Solids

Method: SM 2540D | Internal ref.: ME-CA-IENVIEWL-LAK-AN-004

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Total Suspended Solids	EWL0401-MAY25	mg/L	2	< 2	1	10	96	90	110	NA		
Total Suspended Solids	EWL0409-MAY25	mg/L	2	< 2	2	10	109	90	110	NA		

Total Nitrogen

Method: SM 4500-N C/4500-NO3- F | Internal ref.: ME-CA-IENVISFA-LAK-AN-002

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Total Kjeldahl Nitrogen	SKA0191-MAY25	as N mg/L	0.5	<0.5	ND	10	99	90	110	99	75	125
Total Kjeldahl Nitrogen	SKA0202-MAY25	as N mg/L	0.5	<0.5	2	10	99	90	110	97	75	125

QC SUMMARY

Method Blank: a blank matrix that is carried through the entire analytical procedure. Used to assess laboratory contamination.
Duplicate: Paired analysis of a separate portion of the same sample that is carried through the entire analytical procedure. Used to evaluate measurement precision.
LCS/Spike Blank: Laboratory control sample or spike blank refer to a blank matrix to which a known amount of analyte has been added. Used to evaluate analyte recovery and laboratory accuracy without sample matrix effects.
Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate laboratory accuracy with sample matrix effects.
Reference Material: a material or substance matrix matched to the samples that contains a known amount of the analyte of interest. A reference material may be used in place of a matrix spike.
RL: Reporting limit
RPD: Relative percent difference
AC: Acceptance criteria

Multielement Scan Qualifier: as the number of analytes in a scan increases, so does the chance of a limit exceedance by random chance as opposed to a real method problem. Thus, in multielement scans, for the LCS and matrix spike, up to 10% of the analytes may exceed the quoted limits by up to 10% absolute and the spike is considered acceptable.
Duplicate Qualifier: for duplicates as the measured result approaches the RL, the uncertainty associated with the value increases dramatically, thus duplicate acceptance limits apply only where the average of the two duplicates is greater than five times the RL.
Matrix Spike Qualifier: for matrix spikes, as the concentration of the native analyte increases, the uncertainty of the matrix spike recovery increases. Thus, the matrix spike acceptance limits apply only when the concentration of the matrix spike is greater than or equal to the concentration of the native analyte.

LEGEND

FOOTNOTES

NSS Insufficient sample for analysis.
RL Reporting Limit.
↑ Reporting limit raised.
↓ Reporting limit lowered.
NA The sample was not analysed for this analyte
ND Non Detect

Results relate only to the sample tested.
Data reported represent the sample as submitted to SGS. Solid samples expressed on a dry weight basis.
"Temperature Upon Receipt" is representative of the whole shipment and may not reflect the temperature of individual samples.
Analysis conducted on samples submitted pursuant to or as part of Reg. 153/04, are in accordance to the "Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act and Excess Soil Quality" published by the Ministry and dated March 9, 2004 as amended.

SGS provides criteria information (such as regulatory or guideline limits and summary of limit exceedances) as a service. Every attempt is made to ensure the criteria information in this report is accurate and current, however, it is not guaranteed. Comparison to the most current criteria is the responsibility of the client and SGS assumes no responsibility for the accuracy of the criteria levels indicated.

SGS Canada Inc. statement of conformity decision rule does not consider uncertainty when analytical results are compared to a specified standard or regulation.
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This report supersedes all previous versions.

-- End of Analytical Report --

SGS

Request for Laboratory Services and CHAIN OF CUSTODY (General)

SGS Environmental Services - Lakefield: 185 Concession St., Lakefield, ON K0L 2H0 Phone: 705-652-2000 Toll Free: 877-747-7658 Fax: 705-652-6365 Web: www.ca.sgs.com {4}

SGS Environmental Services - London: 657 Consortium Court, London, ON, N6E 2S8 Phone: 519-672-4500 Toll Free: 877-848-8060 Fax: 519-672-0361 Web: www.ca.sgs.com {4}

Laboratory Information Section

Received Date (mm/dd/yyyy): 05/15/2025 | LAB LIMS #: CA-15360-May25

Received Time (After Hours Only): __:__ | Temperature Upon Receipt (°C): 7x3

Billing & Reporting Information

Invoice/Receipt to {3}:

Company: Pinchin
Attention: Samantha Young
Address: 1456 Centennial Drive, Suite 2, Kingston, ON K7L 0K4
Email: SRyoung@pinchin.com

Quote #: 2024 1378
Attached Parameter List: ☐ YES ☐ NO

Turnaround Time

Is *Rush Turnaround Time Required? ☐ YES ☐ NO
Specify:
* Rush TA Requests Require Lab Approval

Project Name/Number: South Fredericksburgh LF - GW Pg 2 | P.O. #:

Client Information/Report To: | Client Lab #:

Company Name:	Pinchin Ltd.	Phone Number:	613-796-2342
Contact Name:	Samantha Young	Fax Number:	
Address:	1456 Centennial Drive, Suite 2, Kingston ON	E-mail:	SRyoung@pinchin.com
Copy to:			

Sample Information

Sample Identifier	Date Sampled (mm/dd/yy)	Time Sampled	# of Bottles	Analysis Requested: Field Filtered	Field Temp (°C)	Field pH		GW Monitoring Package			
MW6D	05/13/25	AM	10	N	9.37	7.22		X			
MW8	"	"	8	N	11.61	6.75		X			
MW15	"	"	7	N	12.03	7.25		X			
[illegible]	"	"						[illegible]			

Limited sample volume. Please analyze TSS + BOD and anions if possible. Thanks !!

Preserves rinsed from MW8 and MW15

Sampled By {1}:	(Name) Sam Young	(Signature) SY	Date:	05/13/25	(mm/dd/yy)
Relinquished by {2}:	(Name) Sam Young	(Signature) SY	Date:	05/13/25	(mm/dd/yy)

Note: {1} Submission of samples to SGS is acknowledgement that you have been provided direction on sample collection/handling and transportation of samples. {2} Submission of samples to SGS is considered authorization for completion of work. Signatures may appear on this form or be retained on file in the contract, or in an alternative format (e.g. shipping documents). {3} Results may be sent by email to an unlimited number of addresses for no additional cost. Fax is available upon request. {4} Completion of work may require the subcontracting of samples between the London and Lakefield laboratories.

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Revision #: 2.3
Date of Issue: 24 Jun. 2014

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FINAL REPORT

CA40148-MAY25 R1

South Fredericksburgh LF-GW

Prepared for

Pinchin Ltd

TE-GL-ENVLAB-IT-011v1.6.3

FINAL REPORT

CA40148-MAY25 R1

First Page

CLIENT DETAILS		LABORATORY DETAILS	
Client	Pinchin Ltd	Project Specialist	Brad Moore Hon. B.Sc
		Laboratory	SGS Canada Inc.
Address	1456 Centennial Drive Kingston, ON K7P 0K4, Canada	Address	185 Concession St., Lakefield ON, K0L 2H0
Contact	Samantha Young	Telephone	705-652-2143
Telephone	613-796-2342	Facsimile	705-652-6365
Facsimile		Email	brad.moore@sgs.com
Email	sryoung@pinchin.com	SGS Reference	CA40148-MAY25
Project	South Fredericksburgh LF-GW	Received	05/13/2025
Order Number		Approved	05/26/2025
Samples	Ground Water (13)	Report Number	CA40148-MAY25 R1
		Date Reported	05/26/2025

COMMENTS

Temperature of Sample upon Receipt: 9 degrees C

NO2+NO3 RLs raised for some samples due to sample matrix

Phos T tag 17 RL raised due to sample matrix

NH3 > TKN due to sample matrix

SO4 spike low, results accepted based on all other QC

SIGNATORIES

Brad Moore Hon. B.Sc

FINAL REPORT

CA40148-MAY25 R1

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FINAL REPORT

CA40148-MAY25 R1

Client: Pinchin Ltd
Project: South Fredericksburgh LF-GW
Project Manager: Samantha Young
Samplers: Sam Young

MATRIX: WATER

L1 = ODWS_AO_OG / WATER / - - Table 4 - Drinking Water - Reg O.169_03
L2 = ODWS_MAC / WATER / - - Table 1,2 and 3 - Drinking Water - Reg O.169_03

Parameter	Units	RL	L1	L2	Sample Number	7	8	9	10	11	12	13	14
					Sample Name	MW2S	MW1S	MW1D	MW6D	MW11D	MW5S	Dup-1	MWSD
					Sample Matrix	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water
					Sample Date	09/05/2025	09/05/2025	09/05/2025	09/05/2025	09/05/2025	09/05/2025	09/05/2025	09/05/2025
						Result	Result	Result	Result	Result	Result	Result	Result
General Chemistry													
Biochemical Oxygen Demand (BOD5)	mg/L	2				5	< 4 ↑	< 4 ↑	6	< 12 ↑	< 4 ↑	< 4 ↑	8
Alkalinity	mg/L as CaCO3	2	500			382	14	394	348	350	387	408	402
Conductivity	uS/cm	2				3160	1920	4340	19200	22600	1790	4330	3900
Total Suspended Solids	mg/L	2				81	179	51	262	484	112	239	178
Total Dissolved Solids	mg/L	30	500			1690	1260	2300	13600	15700	934	2220	1960
Chemical Oxygen Demand	mg/L	8				28	30	33	46	76	13	27	27
Total Kjeldahl Nitrogen (N)	as N mg/L	0.05				0.74	1.43	1.72	1.10	3.44	0.39	1.53	1.49
Ammonia+Ammonium (N)	as N mg/L	0.04				0.64	1.42	3.01	1.63	9.37	0.39	2.08	2.08
Dissolved Organic Carbon	mg/L	10	5			6	5	2	2	4	2	2	2
Metals and Inorganics													
Phosphorus (total)	mg/L	0.18				< 0.03 ↓	< 0.03 ↓	0.03	0.04	0.37	0.06	0.11	0.10
Sulphate	mg/L	2	500			37	14	< 2	270	9	48	40	40
Nitrite (as N)	as N mg/L	0.03		1		< 0.3 ↑	< 0.3 ↑	< 0.3 ↑	< 0.3 ↑	< 0.75 ↑	< 0.03	< 0.3 ↑	< 0.3 ↑
Nitrate (as N)	as N mg/L	0.06		10		0.10	< 0.06	0.12	< 0.06	< 0.6 ↑	< 0.06	< 0.06	< 0.06
Hardness (dissolved)	mg/L as CaCO3	0.05	100			670	541	1210	1390	10800	777	1010	1040
Arsenic (dissolved)	mg/L	0.0002		0.01		0.0014	0.0002	0.0013	< 0.0002	0.0069	< 0.0002	0.0018	0.0017
Barium (dissolved)	mg/L	0.00008		1		0.336	0.270	0.310	0.0989	3.10	0.280	0.357	0.364
Boron (dissolved)	mg/L	0.002		5		0.414	0.177	0.531	0.732	2.21	0.258	0.836	0.868
Calcium (dissolved)	mg/L	0.01				135	170	267	290	2380	156	208	214
Cadmium (dissolved)	mg/L	0.000003		0.005		< 0.000003	< 0.000003	0.000005	< 0.000003	0.000040	< 0.000003	< 0.000003	0.000004
Chromium (dissolved)	mg/L	0.00008		0.05		0.00027	0.00017	0.00028	0.00020	0.00138	0.00020	0.00020	0.00018
Copper (dissolved)	mg/L	0.001	1			< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001

FINAL REPORT

CA40148-MAY25 R1

Client: Pinchin Ltd
Project: South Fredericksburgh LF-GW
Project Manager: Samantha Young
Samplers: Sam Young

MATRIX: WATER

L1 = ODWS_AO_OG / WATER / - - Table 4 - Drinking Water - Reg O.169_03
L2 = ODWS_MAC / WATER / - - Table 1,2 and 3 - Drinking Water - Reg O.169_03

					Sample Number	7	8	9	10	11	12	13	14
					Sample Name	MW2S	MW1S	MW1D	MW6D	MW11D	MW5S	Dup-1	MWSD
					Sample Matrix	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water
					Sample Date	09/05/2025	09/05/2025	09/05/2025	09/05/2025	09/05/2025	09/05/2025	09/05/2025	09/05/2025
Parameter	**Units**	**RL**	**L1**	**L2**		**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**
Metals and Inorganics (continued)													
Iron (dissolved)	mg/L	0.007	0.3			1.48	40.0	6.50	0.063	9.98	0.018	0.269	0.258
Potassium (dissolved)	mg/L	0.009				18.8	11.1	29.8	15.3	136	6.64	19.2	19.7
Magnesium (dissolved)	mg/L	0.001				80.7	28.2	131	161	1175	94.2	120	122
Manganese (dissolved)	mg/L	0.00001	0.05			0.0721	2.24	0.108	0.0	1.78	0.0488	0.0603	0.0602
Sodium (dissolved)	mg/L	0.01	200	20		489	128	631	417	5560	83.7	403	398
Lead (dissolved)	mg/L	0.00009		0.01		< 0.00009	< 0.00009	< 0.00009	< 0.00009	< 0.00009	< 0.00009	< 0.00009	< 0.00009
Zinc (dissolved)	mg/L	0.002	5			< 0.002	< 0.002	0.002	< 0.002	0.003	< 0.002	< 0.002	< 0.002
Anion Sum	meq/L	-9999				23.19	16.65	47.33	59.62	205.60	18.54	31.33	30.71
Cation sum	meq/L	-9999				23.19	16.65	47.33	60.00	205.6	18.54	31.33	30.71
Ion Ratio	none	-9999				1.52	1.14	1.12	1.00	2.25	1.04	1.23	1.26
Other (ORP)													
pH	No unit	0.05	8.5			8.19	6.27	8.04	7.77	7.64	8.03	8.01	8.05
Chloride	mg/L	1	250			520	570	1400	1700	7000	350	790	770
Mercury (dissolved)	mg/L	0.00001		0.001		< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001

FINAL REPORT

CA40148-MAY25 R1

Client: Pinchin Ltd
Project: South Fredericksburgh LF-GW
Project Manager: Samantha Young
Samplers: Sam Young

MATRIX: WATER

L1 = ODWS_AO_OG / WATER / - - Table 4 - Drinking Water - Reg O.169_03
L2 = ODWS_MAC / WATER / - - Table 1,2 and 3 - Drinking Water - Reg O.169_03

Parameter	Units	RL	L1	L2	Sample Number	15	16	17	18	19
					Sample Name	Dup-2	MW9S	MW9D	MW10S	R1
					Sample Matrix	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water
					Sample Date	09/05/2025	09/05/2025	09/05/2025	09/05/2025	09/05/2025
						Result	Result	Result	Result	Result
General Chemistry										
Biochemical Oxygen Demand (BOD5)	mg/L	2				< 4 ↑	< 4 ↑	19	8	< 4 ↑
Alkalinity	mg/L as CaCO3	2	500			394	353	22	325	199
Conductivity	uS/cm	2				1800	1190	196000	2340	459
Total Suspended Solids	mg/L	2				104	45	292	64	4
Total Dissolved Solids	mg/L	30	500			943	674	283000	1280	237
Chemical Oxygen Demand	mg/L	8				17	8	123	19	19
Total Kjeldahl Nitrogen (N)	as N mg/L	0.05				0.42	0.30	3.26	0.32	0.60
Ammonia+Ammonium (N)	as N mg/L	0.04				0.40	0.26	36.9	0.24	0.21
Dissolved Organic Carbon	mg/L	10	5			2	4	13	3	5
Metals and Inorganics										
Phosphorus (total)	mg/L	0.18				0.06	< 0.03 ↓	< 0.18	0.04	0.04
Sulphate	mg/L	2	500			52	58	50	52	8
Nitrite (as N)	as N mg/L	0.03		1		< 0.03	< 0.03	< 7.5 ↑	< 0.3 ↑	< 0.03
Nitrate (as N)	as N mg/L	0.06		10		< 0.06	0.28	< 6 ↑	0.57	< 0.06
Hardness (dissolved)	mg/L as CaCO3	0.05	100			783	501	91600	699	210
Arsenic (dissolved)	mg/L	0.0002		0.01		< 0.0002	0.0012	0.0085	0.0005	0.0003
Barium (dissolved)	mg/L	0.00008		1		0.278	0.137	1.69	0.420	0.0516
Boron (dissolved)	mg/L	0.002		5		0.265	0.063	1.04	0.409	0.020
Calcium (dissolved)	mg/L	0.01				154	149	18900	168	61.5
Cadmium (dissolved)	mg/L	0.000003		0.005		< 0.000003	< 0.000003	0.000200	0.000013	0.000003
Chromium (dissolved)	mg/L	0.00008		0.05		0.00015	0.00012	0.0346	0.00020	0.00016
Copper (dissolved)	mg/L	0.001	1			< 0.001	< 0.001	< 0.001	< 0.001	0.305

FINAL REPORT

CA40148-MAY25 R1

Client: Pinchin Ltd
Project: South Fredericksburgh LF-GW
Project Manager: Samantha Young
Samplers: Sam Young

MATRIX: WATER

L1 = ODWS_AO_OG / WATER / - - Table 4 - Drinking Water - Reg O.169_03
L2 = ODWS_MAC / WATER / - - Table 1,2 and 3 - Drinking Water - Reg O.169_03

Parameter	Units	RL	L1	L2	Sample Number: 15	16	17	18	19
					Sample Name: Dup-2	MW9S	MW9D	MW10S	R1
					Sample Matrix: Ground Water	Ground Water	Ground Water	Ground Water	Ground Water
					Sample Date: 09/05/2025	09/05/2025	09/05/2025	09/05/2025	09/05/2025
					Result	Result	Result	Result	Result
Metals and Inorganics (continued)									
Iron (dissolved)	mg/L	0.007	0.3		0.016	0.790	4.30	0.704	0.511
Potassium (dissolved)	mg/L	0.009			6.59	4.88	509	16.8	2.10
Magnesium (dissolved)	mg/L	0.001			97.0	31.6	10800	67.8	13.8
Manganese (dissolved)	mg/L	0.00001	0.05		0.0484	0.0693	0.332	0.0191	0.261
Sodium (dissolved)	mg/L	0.01	200	20	83.0	107	41100	389	3.21
Lead (dissolved)	mg/L	0.00009		0.01	< 0.00009	0.00126	< 0.00009	< 0.00009	0.00217
Zinc (dissolved)	mg/L	0.002	5		< 0.002	< 0.002	0.008	0.005	0.019
Anion Sum	meq/L	-9999			18.63	15.71	4466.24	23.58	4.22
Cation sum	meq/L	-9999			18.63	15.71	4466.24	23.58	4.22
Ion Ratio	none	-9999			1.04	0.95	0.81	1.33	1.05
Other (ORP)									
pH	No unit	0.05	8.5		8.02	7.98	6.06	8.09	8.33
Chloride	mg/L	1	250		340	260	160000	570	3
Mercury (dissolved)	mg/L	0.00001		0.001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001

EXCEEDANCE SUMMARY

Parameter	Method	Units	Result	ODWS_AO_OG / WATER / - - Table 4 - Drinking Water - Reg O.169_03 L1	ODWS_MAC / WATER / - - Table 1,2 and 3 - Drinking Water - Reg O.169_03 L2
MW2S					
Total Dissolved Solids	SM 2540C	mg/L	1690	500	
Hardness (dissolved)	SM 3030/EPA 200.7	mg/L as CaCO3	670	100	
Iron (dissolved)	SM 3030/EPA 200.8	mg/L	1.48	0.3	
Manganese (dissolved)	SM 3030/EPA 200.8	mg/L	0.0721	0.05	
Sodium (dissolved)	SM 3030/EPA 200.8	mg/L	489	200	20
Dissolved Organic Carbon	SM 5310	mg/L	6	5	
Chloride	US EPA 325.2	mg/L	520	250	
MW1S					
Total Dissolved Solids	SM 2540C	mg/L	1260	500	
Hardness (dissolved)	SM 3030/EPA 200.7	mg/L as CaCO3	541	100	
Iron (dissolved)	SM 3030/EPA 200.8	mg/L	40.0	0.3	
Manganese (dissolved)	SM 3030/EPA 200.8	mg/L	2.24	0.05	
Sodium (dissolved)	SM 3030/EPA 200.8	mg/L	128		20
Chloride	US EPA 325.2	mg/L	570	250	
MW1D					
Total Dissolved Solids	SM 2540C	mg/L	2300	500	
Hardness (dissolved)	SM 3030/EPA 200.7	mg/L as CaCO3	1210	100	
Iron (dissolved)	SM 3030/EPA 200.8	mg/L	6.50	0.3	
Manganese (dissolved)	SM 3030/EPA 200.8	mg/L	0.108	0.05	
Sodium (dissolved)	SM 3030/EPA 200.8	mg/L	631	200	20
Chloride	US EPA 325.2	mg/L	1400	250	
MW6D					
Total Dissolved Solids	SM 2540C	mg/L	13600	500	
Hardness (dissolved)	SM 3030/EPA 200.7	mg/L as CaCO3	1390	100	
Sodium (dissolved)	SM 3030/EPA 200.8	mg/L	417	200	20
Chloride	US EPA 325.2	mg/L	1700	250	
MW11D					
Total Dissolved Solids	SM 2540C	mg/L	15700	500	
Hardness (dissolved)	SM 3030/EPA 200.7	mg/L as CaCO3	10800	100	
Barium (dissolved)	SM 3030/EPA 200.8	mg/L	3.10		1
Iron (dissolved)	SM 3030/EPA 200.8	mg/L	9.98	0.3	
Manganese (dissolved)	SM 3030/EPA 200.8	mg/L	1.78	0.05	
Sodium (dissolved)	SM 3030/EPA 200.8	mg/L	5560	200	20
Chloride	US EPA 325.2	mg/L	7000	250	
MW5S					
Total Dissolved Solids	SM 2540C	mg/L	934	500	

EXCEEDANCE SUMMARY

Parameter	Method	Units	Result	ODWS_AO_OG / WATER / - - Table 4 - Drinking Water - Reg O.169_03 L1	ODWS_MAC / WATER / - - Table 1,2 and 3 - Drinking Water - Reg O.169_03 L2
MW5S (continued)					
Hardness (dissolved)	SM 3030/EPA 200.7	mg/L as CaCO3	777	100	
Sodium (dissolved)	SM 3030/EPA 200.8	mg/L	83.7		20
Chloride	US EPA 325.2	mg/L	350	250	
Dup-1					
Total Dissolved Solids	SM 2540C	mg/L	2220	500	
Hardness (dissolved)	SM 3030/EPA 200.7	mg/L as CaCO3	1010	100	
Manganese (dissolved)	SM 3030/EPA 200.8	mg/L	0.0603	0.05	
Sodium (dissolved)	SM 3030/EPA 200.8	mg/L	403	200	20
Chloride	US EPA 325.2	mg/L	790	250	
MWSD					
Total Dissolved Solids	SM 2540C	mg/L	1960	500	
Hardness (dissolved)	SM 3030/EPA 200.7	mg/L as CaCO3	1040	100	
Manganese (dissolved)	SM 3030/EPA 200.8	mg/L	0.0602	0.05	
Sodium (dissolved)	SM 3030/EPA 200.8	mg/L	398	200	20
Chloride	US EPA 325.2	mg/L	770	250	
Dup-2					
Total Dissolved Solids	SM 2540C	mg/L	943	500	
Hardness (dissolved)	SM 3030/EPA 200.7	mg/L as CaCO3	783	100	
Sodium (dissolved)	SM 3030/EPA 200.8	mg/L	83.0		20
Chloride	US EPA 325.2	mg/L	340	250	
MW9S					
Total Dissolved Solids	SM 2540C	mg/L	674	500	
Hardness (dissolved)	SM 3030/EPA 200.7	mg/L as CaCO3	501	100	
Iron (dissolved)	SM 3030/EPA 200.8	mg/L	0.790	0.3	
Manganese (dissolved)	SM 3030/EPA 200.8	mg/L	0.0693	0.05	
Sodium (dissolved)	SM 3030/EPA 200.8	mg/L	107		20
Chloride	US EPA 325.2	mg/L	260	250	
MW9D					
Nitrite as Nitrogen	EPA300/MA300-Ions1.3	as N mg/L	< 7.5		1
Total Dissolved Solids	SM 2540C	mg/L	283000	500	
Hardness (dissolved)	SM 3030/EPA 200.7	mg/L as CaCO3	91600	100	
Barium (dissolved)	SM 3030/EPA 200.8	mg/L	1.69		1
Iron (dissolved)	SM 3030/EPA 200.8	mg/L	4.30	0.3	
Manganese (dissolved)	SM 3030/EPA 200.8	mg/L	0.332	0.05	
Sodium (dissolved)	SM 3030/EPA 200.8	mg/L	41100	200	20
Dissolved Organic Carbon	SM 5310	mg/L	13	5	

EXCEEDANCE SUMMARY

Parameter	Method	Units	Result	ODWS_AO_OG / WATER / - - Table 4 - Drinking Water - Reg O.169_03 L1	ODWS_MAC / WATER / - - Table 1,2 and 3 - Drinking Water - Reg O.169_03 L2
MW9D (continued)					
Chloride	US EPA 325.2	mg/L	160000	250	
MW10S					
Total Dissolved Solids	SM 2540C	mg/L	1280	500	
Hardness (dissolved)	SM 3030/EPA 200.7	mg/L as CaCO3	699	100	
Iron (dissolved)	SM 3030/EPA 200.8	mg/L	0.704	0.3	
Sodium (dissolved)	SM 3030/EPA 200.8	mg/L	389	200	20
Chloride	US EPA 325.2	mg/L	570	250	
R1					
Hardness (dissolved)	SM 3030/EPA 200.7	mg/L as CaCO3	210	100	
Iron (dissolved)	SM 3030/EPA 200.8	mg/L	0.511	0.3	
Manganese (dissolved)	SM 3030/EPA 200.8	mg/L	0.261	0.05	

QC SUMMARY

Alkalinity

Method: SM 2320 | Internal ref.: ME-CA-[ENV]EWL-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Alkalinity	EWL0331-MAY25	mg/L as CaCO3	2	< 2	1	20	98	80	120	NA		

Ammonia by SFA

Method: SM 4500 | Internal ref.: ME-CA-[ENV]SFA-LAK-AN-007

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Ammonia+Ammonium (N)	SKA0153-MAY25	mg/L	0.04	<0.04	ND	10	98	90	110	99	75	125
Ammonia+Ammonium (N)	SKA0163-MAY25	mg/L	0.04	<0.04	0	10	100	90	110	100	75	125

QC SUMMARY

Anions by discrete analyzer

Method: US EPA 325.2 | Internal ref.: ME-CA-[ENVIEWL-LAK-AN-026

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Chloride	DIO8031-MAY25	mg/L	1	<1	ND	20	100	80	120	99	75	125
Sulphate	DIO8031-MAY25	mg/L	2	<2	0	20	105	80	120	75	75	125
Sulphate	DIO8032-MAY25	mg/L	2	<2	1	20	100	80	120	71	75	125
Chloride	DIO8035-MAY25	mg/L	1	<1	0	20	97	80	120	NV	75	125

QC SUMMARY

Anions by IC

Method: EPA300/MA300-Ions1.3 | Internal ref.: ME-CA-[ENV]IC-LAK-AN-001

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Nitrite (as N)	DIO0352-MAY25	mg/L	0.03	<0.03	NV	20	98	90	110	NV	75	125
Nitrate (as N)	DIO0352-MAY25	mg/L	0.06	<0.06	ND	20	102	90	110	104	75	125
Nitrite (as N)	DIO0356-MAY25	mg/L	0.03	<0.03	ND	20	97	90	110	101	75	125
Nitrate (as N)	DIO0356-MAY25	mg/L	0.06	<0.06	ND	20	102	90	110	109	75	125
Nitrite (as N)	DIO0363-MAY25	mg/L	0.03	<0.03	ND	20	99	90	110	91	75	125
Nitrate (as N)	DIO0363-MAY25	mg/L	0.06	<0.06	ND	20	101	90	110	78	75	125
Nitrite (as N)	DIO0365-MAY25	mg/L	0.03	<0.03	ND	20	97	90	110	103	75	125
Nitrate (as N)	DIO0365-MAY25	mg/L	0.06	<0.06	ND	20	101	90	110	104	75	125
Nitrite (as N)	DIO0379-MAY25	mg/L	0.03	<0.03	ND	20	97	90	110	103	75	125
Nitrite (as N)	DIO0395-MAY25	mg/L	0.03	<0.03	ND	20	98	90	110	105	75	125
Nitrate (as N)	DIO0395-MAY25	mg/L	0.06	<0.06	ND	20	102	90	110	105	75	125

Biochemical Oxygen Demand

Method: SM 5210 | Internal ref.: ME-CA-[ENV]EWL-LAK-AN-007

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Biochemical Oxygen Demand (BOD5)	BOD0027-MAY25	mg/L	2	< 2	11	30	102	70	130	83	70	130

QC SUMMARY

Carbon by SFA

Method: SM 5310 | Internal ref.: ME-CA-[ENV]SFA-LAK-AN-009

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Dissolved Organic Carbon	SKA0171-MAY25	mg/L	10	<1	5	20	98	90	110	83	75	125
Dissolved Organic Carbon	SKA0182-MAY25	mg/L	10	<1	0	20	101	90	110	97	75	125

Chemical Oxygen Demand

Method: HACH 8000 | Internal ref.: ME-CA-[ENV]EWL-LAK-AN-009

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Chemical Oxygen Demand	EWL0336-MAY25	mg/L	8	<8	4	20	106	80	120	98	75	125
Chemical Oxygen Demand	EWL0410-MAY25	mg/L	8	<8	4	20	100	80	120	87	75	125
Chemical Oxygen Demand	EWL0559-MAY25	mg/L	8	<8	7	20	90	80	120	93	75	125

QC SUMMARY

Conductivity

Method: SM 2510 | Internal ref.: ME-CA-[ENV]EWL-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Conductivity	EWL0331-MAY25	uS/cm	2	< 2	0	20	99	90	110	NA		

Mercury by CVAAS

Method: EPA 7471A/SM 3112B | Internal ref.: ME-CA-[ENV]SPE-LAK-AN-004

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Mercury (dissolved)	EHG0019-MAY25	mg/L	0.00001	< 0.00001	13	20	118	80	120	92	70	130

QC SUMMARY

Metals in aqueous samples - ICP-MS

Method: SM 3030/EPA 200.8 | Internal ref.: ME-CA-[ENVISPE-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Arsenic (dissolved)	EMS0156-MAY25	mg/L	0.0002	<0.0002	ND	20	102	90	110	100	70	130
Barium (dissolved)	EMS0156-MAY25	mg/L	0.00008	<0.00008	ND	20	102	90	110	104	70	130
Boron (dissolved)	EMS0156-MAY25	mg/L	0.002	<0.002	ND	20	103	90	110	100	70	130
Calcium (dissolved)	EMS0156-MAY25	mg/L	0.01	<0.01	5	20	104	90	110	105	70	130
Cadmium (dissolved)	EMS0156-MAY25	mg/L	0.000003	<0.000003	ND	20	97	90	110	99	70	130
Chromium (dissolved)	EMS0156-MAY25	mg/L	0.00008	<0.00008	ND	20	98	90	110	108	70	130
Copper (dissolved)	EMS0156-MAY25	mg/L	0.001	<0.001	ND	20	101	90	110	98	70	130
Iron (dissolved)	EMS0156-MAY25	mg/L	0.007	<0.007	ND	20	106	90	110	100	70	130
Potassium (dissolved)	EMS0156-MAY25	mg/L	0.009	<0.009	9	20	106	90	110	107	70	130
Magnesium (dissolved)	EMS0156-MAY25	mg/L	0.001	<0.001	0	20	103	90	110	101	70	130
Manganese (dissolved)	EMS0156-MAY25	mg/L	0.00001	<0.00001	17	20	101	90	110	103	70	130
Sodium (dissolved)	EMS0156-MAY25	mg/L	0.01	<0.01	2	20	102	90	110	97	70	130
Lead (dissolved)	EMS0156-MAY25	mg/L	0.00009	<0.00009	ND	20	97	90	110	92	70	130
Zinc (dissolved)	EMS0156-MAY25	mg/L	0.002	<0.002	ND	20	98	90	110	102	70	130
Arsenic (dissolved)	EMS0168-MAY25	mg/L	0.0002	<0.0002	ND	20	99	90	110	102	70	130
Barium (dissolved)	EMS0168-MAY25	mg/L	0.00008	<0.00008	3	20	98	90	110	95	70	130
Boron (dissolved)	EMS0168-MAY25	mg/L	0.002	<0.002	ND	20	96	90	110	95	70	130
Calcium (dissolved)	EMS0168-MAY25	mg/L	0.01	<0.01	19	20	97	90	110	101	70	130
Cadmium (dissolved)	EMS0168-MAY25	mg/L	0.000003	<0.000003	11	20	96	90	110	100	70	130
Chromium (dissolved)	EMS0168-MAY25	mg/L	0.00008	<0.00008	ND	20	99	90	110	107	70	130

QC SUMMARY

Metals in aqueous samples - ICP-MS (continued)

Method: SM 3030/EPA 200.8 | Internal ref.: ME-CA-[ENV]SPE-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Copper (dissolved)	EMS0168-MAY25	mg/L	0.001	<0.001	ND	20	98	90	110	102	70	130
Iron (dissolved)	EMS0168-MAY25	mg/L	0.007	<0.007	0	20	103	90	110	125	70	130
Potassium (dissolved)	EMS0168-MAY25	mg/L	0.009	<0.009	0	20	97	90	110	84	70	130
Magnesium (dissolved)	EMS0168-MAY25	mg/L	0.001	<0.001	2	20	99	90	110	98	70	130
Manganese (dissolved)	EMS0168-MAY25	mg/L	0.00001	<0.00001	0	20	97	90	110	99	70	130
Sodium (dissolved)	EMS0168-MAY25	mg/L	0.01	<0.01	7	20	98	90	110	95	70	130
Lead (dissolved)	EMS0168-MAY25	mg/L	0.00009	<0.00009	8	20	97	90	110	96	70	130
Zinc (dissolved)	EMS0168-MAY25	mg/L	0.002	<0.002	1	20	99	90	110	105	70	130

pH

Method: SM 4500 | Internal ref.: ME-CA-[ENV]EWL-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
pH	EWL0331-MAY25	No unit	0.05	NA	0		101			NA		

QC SUMMARY

Phosphorus by SFA

Method: SM 4500-P J | Internal ref.: ME-CA-IENVISFA-LAK-AN-003

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Phosphorus (total)	SKA0148-MAY25	mg/L	0.18	<0.03	0	10	98	90	110	94	75	125
Phosphorus (total)	SKA0161-MAY25	mg/L	0.18	<0.03	4	10	104	90	110	89	75	125

Solids Analysis

Method: SM 2540C | Internal ref.: ME-CA-IENVIEWL-LAK-AN-005

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Total Dissolved Solids	EWL0462-MAY25	mg/L	30	<30	1	20	97	80	120	NA		
Total Dissolved Solids	EWL0352-MAY25	mg/L	30	<30	0	20	95	80	120	NA		

QC SUMMARY

Suspended Solids

Method: SM 2540D | Internal ref.: ME-CA-IENVIEWL-LAK-AN-004

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Total Suspended Solids	EWL0351-MAY25	mg/L	2	< 2	2	10	97	90	110	NA		
Total Suspended Solids	EWL0374-MAY25	mg/L	2	< 2	1	10	97	90	110	NA		

Total Nitrogen

Method: SM 4500-N C/4500-NO3- F | Internal ref.: ME-CA-IENVISFA-LAK-AN-002

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Total Kjeldahl Nitrogen (N)	SKA0149-MAY25	mg/L	0.05	<0.05	4	10	96	90	110	87	75	125
Total Kjeldahl Nitrogen (N)	SKA0162-MAY25	mg/L	0.05	<0.05	4	10	104	90	110	94	75	125
Total Kjeldahl Nitrogen (N)	SKA0175-MAY25	mg/L	0.05	<0.05	0	10	100	90	110	96	75	125

QC SUMMARY

Method Blank: a blank matrix that is carried through the entire analytical procedure. Used to assess laboratory contamination.
Duplicate: Paired analysis of a separate portion of the same sample that is carried through the entire analytical procedure. Used to evaluate measurement precision.
LCS/Spike Blank: Laboratory control sample or spike blank refer to a blank matrix to which a known amount of analyte has been added. Used to evaluate analyte recovery and laboratory accuracy without sample matrix effects.
Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate laboratory accuracy with sample matrix effects.
Reference Material: a material or substance matrix matched to the samples that contains a known amount of the analyte of interest. A reference material may be used in place of a matrix spike.
RL: Reporting limit
RPD: Relative percent difference
AC: Acceptance criteria

Multielement Scan Qualifier: as the number of analytes in a scan increases, so does the chance of a limit exceedance by random chance as opposed to a real method problem. Thus, in multielement scans, for the LCS and matrix spike, up to 10% of the analytes may exceed the quoted limits by up to 10% absolute and the spike is considered acceptable.
Duplicate Qualifier: for duplicates as the measured result approaches the RL, the uncertainty associated with the value increases dramatically, thus duplicate acceptance limits apply only where the average of the two duplicates is greater than five times the RL.
Matrix Spike Qualifier: for matrix spikes, as the concentration of the native analyte increases, the uncertainty of the matrix spike recovery increases. Thus, the matrix spike acceptance limits apply only when the concentration of the matrix spike is greater than or equal to the concentration of the native analyte.

LEGEND

FOOTNOTES

NSS Insufficient sample for analysis.
RL Reporting Limit.
↑ Reporting limit raised.
↓ Reporting limit lowered.
NA The sample was not analysed for this analyte
ND Non Detect

Results relate only to the sample tested.
Data reported represent the sample as submitted to SGS. Solid samples expressed on a dry weight basis.
"Temperature Upon Receipt" is representative of the whole shipment and may not reflect the temperature of individual samples.
Analysis conducted on samples submitted pursuant to or as part of Reg. 153/04, are in accordance to the "Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act and Excess Soil Quality" published by the Ministry and dated March 9, 2004 as amended.

SGS provides criteria information (such as regulatory or guideline limits and summary of limit exceedances) as a service. Every attempt is made to ensure the criteria information in this report is accurate and current, however, it is not guaranteed. Comparison to the most current criteria is the responsibility of the client and SGS assumes no responsibility for the accuracy of the criteria levels indicated.

SGS Canada Inc. statement of conformity decision rule does not consider uncertainty when analytical results are compared to a specified standard or regulation.
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This report supersedes all previous versions.

-- End of Analytical Report --

SGS

Request for Laboratory Services and CHAIN OF CUSTODY (General)

SGS Environmental Services - Lakefield: 185 Concession St., Lakefield, ON K0L 2H0 Phone: 705-652-2000 Toll Free: 877-747-7658 Fax: 705-652-6365 Web: www.ca.sgs.com {4}

SGS Environmental Services - London: 657 Consortium Court, London, ON, N6E 2S8 Phone: 519-672-4500 Toll Free: 877-848-8060 Fax: 519-672-0361 Web: www.ca.sgs.com {4}

Laboratory Information Section

Received Date (mm/dd/yyyy): 05/13/2025

Received Time (After Hours Only): 08:30

LAB LIMS #: CA-40148-May25

Temperature Upon Receipt (°C): 9 CK 3

Billing & Reporting Information

Invoice/Receipt to {3}:

Company: Pinchin

Attention: Samantha Young

Address: 1456 Centennial Drive, Suite 2, Kingston ON K7L 0K4

Email: SRyoung@pinchin.com

Project Name/Number: South Fredericksburgh LF - GW Pg 2

P.O. #:

Quote #: 2024 1378

Attached Parameter List: ☑ YES ☐ NO

Turnaround Time

Is *Rush Turnaround Time Required? ☐ YES ☑ NO

Specify:

* Rush TA Requests Require Lab Approval

Client Information/Report To:

Client Lab #:

Company Name:	**Pinchin Ltd.**	**Phone Number:**	**613-796-2342**
Contact Name:	**Samantha Young**	**Fax Number:**	
Address:	**1456 Centennial Drive, Suite 2, Kingston ON**	**E-mail:**	**SRyoung@pinchin.com**
Copy to:			

Sample Information

Sample Identifier	Date Sampled (mm/dd/yy)	Time Sampled	# of Bottles	Field Filtered	Field Temp (°C)	Field pH		GW Monitoring Package			
MW2S	5/9/25	PM	10	Y	9.88	6.78		X			
[illegible]											
MW1S					10.8	7.51		X			
MW1D					11.92	7.37		X			
MW6D					9.37	7.22		X			
MW11D					12.04	6.97		X			
MW5S					10.05	8.07		X			
Dup-1					10.05	8.07		X			
MW5D					9.73	7.51		X			
Dup-2					9.73	7.51		X			
MW9S					11.26	7.78		X			
MW9D					11.80	6.03		X			
MW10S					10.15	8.30		X			
R1					—	—		X			

Analysis Requested (please enter the analysis required below and check off which analysis applies to each sample)

Sampled By {1}:	(Name) Sam Young	(Signature)		**Date:**	05/09/25 (mm/dd/yy)
Relinquished by {2}:	(Name) Sam Young	(Signature)		**Date:**	05/12/25 (mm/dd/yy)

Note: {1} Submission of samples to SGS is acknowledgement that you have been provided direction on sample collection/handling and transportation of samples. {2} Submission of samples to SGS is considered authorization for completion of work. Signatures may appear on this form or be retained on file in the contract, or in an alternative format (e.g. shipping documents). {3} Results may be sent by email to an unlimited number of addresses for no additional cost. Fax is available upon request. {4} Completion of work may require the subcontracting of samples between the London and Lakefield laboratories.

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Revision #: 2.3
Date of Issue: 24 Jun. 2014

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START SURVEY

FINAL REPORT

CA15658-OCT25 R

South Frederickburgh LF-GW

Prepared for

Pinchin Ltd

FINAL REPORT

CA15658-OCT25 R

First Page

CLIENT DETAILS		LABORATORY DETAILS	
Client	Pinchin Ltd	Project Specialist	Brad Moore Hon. B.Sc
Address	1456 Centennial Drive, Kingston Canada, K7P 0K4 Phone: 613-796-2342. Fax:	Laboratory Address	SGS Canada Inc. 185 Concession St., Lakefield ON, K0L 2H0
Contact	Samantha Young		
Telephone	613-796-2342	Telephone	705-652-2143
Facsimile		Facsimile	705-652-6365
Email	sryoung@pinchin.com	Email	brad.moore@sgs.com
Works #		SGS Reference	CA15658-OCT25
Project	South Frederickburgh LF-GW	Received	2025-10-22
Reference		Approved	11/05/2025
Batch		Report Number	CA15658-OCT25 R
Samples	WATER (12)	Date Reported	11/05/2025

COMMENTS

Temperature of Sample upon Receipt: 5 degrees C

TAG 15 NH>TKN due to sample matrix

SIGNATORIES

Brad Moore Hon. B.Sc

FINAL REPORT

CA15658-OCT25 R

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FINAL REPORT

CA15658-OCT25 R

Client: Pinchin Ltd
Project: South Frederickburgh LF-GW
Project Manager: Samantha Young
Samplers: Samantha Young

MATRIX: WATER

L1 = ODWS_AO_OG / WATER / - - Table 4 - Drinking Water - Reg O.169_03
L2 = ODWS_MAC / WATER / - - Table 1,2 and 3 - Drinking Water - Reg O.169_03

					Sample Number	7	8	9	10	11	12	13	14
					Sample Name	MW6-S	MW6-D	DUP-1	MW3-S	MW3-D	MW2-S	MW10-S	MW9-S
					Sample Matrix	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water
					Sample Date	2025-10-21 00:00	2025-10-21 00:00	2025-10-21 00:00	2025-10-21 00:00	2025-10-21 00:00	2025-10-21 00:00	2025-10-21 00:00	2025-10-21 00:00
Parameter	**Units**	**RL**	**L1**	**L2**		**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**
Acid Rock Drainage													
pH Check <2	pH	0.05				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
General Chemistry													
Temperature @ pH	°C	0				23.0	23.1	23.2	22.9	23.0	23.1	23.2	23.2
Alkalinity	mg/L as CaCO3	2	500			412	429	327	315	329	416	320	465
Total Suspended Solids	mg/L	2				69	557	186	5810	406	13	13	35
Biochemical Oxygen Demand (BOD5)	mg/L	2				< 4 ↑	22	25	4	20	< 4 ↑	< 4 ↑	< 4 ↑
Conductivity	uS/cm	2				5820	11400	57700	20900	30600	1720	986	2900
Total Dissolved Solids	mg/L	30	500			3300	7290	44400	12900	20800	831	551	1670
Chemical Oxygen Demand	mg/L	8				35	128	112	41	102	18	< 8	20
Total Kjeldahl Nitrogen	as N mg/L	1				6	24	28	3	17	9	8	12
Ammonia+Ammonium (N)	as N mg/L	0.1				3.2	19.0	18.8	3.3	10.1	1.1	< 0.1	2.0
Dissolved Organic Carbon	mg/L	1	5			2	2	2	3	5	6	3	3
Metals and Inorganics													
Phosphorus (total)	mg/L	0.3				3.0	7.2	2.8	5.8	3.6	2.4	2.3	3.8
Sulphate	mg/L	2	500			150	140	140	120	< 2	37	46	53
Nitrite (as N)	as N mg/L	0.03		1		< 0.03	< 0.03	< 0.03	1.64	< 0.03	< 0.03	< 0.03	< 0.03
Nitrate (as N)	as N mg/L	0.06		10		< 0.06	< 0.06	< 0.06	14.8	< 0.06	< 0.06	0.29	< 0.06
Hardness (dissolved)	mg/L as CaCO3	0.05	100			921	1300	1320	5380	3940	516	736	417
Iron (dissolved)	mg/L	0.007	0.3			0.210	0.045	0.044	0.014	0.053	1.10	4.20	0.039
Calcium (dissolved)	mg/L	0.01				146	233	239	981	727	95.4	154	113
Potassium (dissolved)	mg/L	0.009				20.6	16.3	17.3	82.8	59.6	12.5	19.8	7.23

FINAL REPORT

CA15658-OCT25 R

Client: Pinchin Ltd
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Project Manager: Samantha Young
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MATRIX: WATER

L1 = ODWS_AO_OG / WATER / - - Table 4 - Drinking Water - Reg O.169_03
L2 = ODWS_MAC / WATER / - - Table 1,2 and 3 - Drinking Water - Reg O.169_03

					Sample Number	7	8	9	10	11	12	13	14
					Sample Name	MW6-S	MW6-D	DUP-1	MW3-S	MW3-D	MW2-S	MW10-S	MW9-S
					Sample Matrix	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water
					Sample Date	2025-10-21 00:00	2025-10-21 00:00	2025-10-21 00:00	2025-10-21 00:00	2025-10-21 00:00	2025-10-21 00:00	2025-10-21 00:00	2025-10-21 00:00
Parameter	**Units**	**RL**	**L1**	**L2**		**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**
Metals and Inorganics (continued)													
Magnesium (dissolved)	mg/L	0.001				135	174	176	711	515	67.5	85.1	32.5
Sodium (dissolved)	mg/L	0.01	200	20		587	493	522	3110	2930	239	505	126
Arsenic (dissolved)	mg/L	0.0002		0.01		< 0.0002	< 0.0002	< 0.0002	0.0006	0.0027	0.0011	0.0052	0.0002
Barium (dissolved)	mg/L	0.00008		1		0.381	0.313	0.341	0.781	1.75	0.311	0.510	0.151
Boron (dissolved)	mg/L	0.002		5		0.988	0.829	0.732	2.04	1.44	0.253	0.360	0.095
Cadmium (dissolved)	mg/L	0.000003		0.005		0.000013	0.000003	< 0.000003	0.000048	0.000027	0.000004	< 0.000003	0.000016
Chromium (dissolved)	mg/L	0.00008		0.05		0.00049	0.00029	0.00034	0.00117	0.00084	0.00027	0.00057	0.00019
Copper (dissolved)	mg/L	0.001	1			< 0.001	< 0.001	< 0.001	0.002	< 0.001	< 0.001	< 0.001	< 0.001
Lead (dissolved)	mg/L	0.00009		0.01		< 0.00009	< 0.00009	< 0.00009	< 0.00009	< 0.00009	< 0.00009	< 0.00009	0.0129
Manganese (dissolved)	mg/L	0.00001	0.05			0.0124	0.0391	0.0399	0.116	1.00	0.0364	0.0604	0.00216
Zinc (dissolved)	mg/L	0.002	5			0.007	< 0.002	< 0.002	0.004	0.003	< 0.002	< 0.002	< 0.002
Anion Sum	meq/L	-9999				57.22	872.83	865.95	210.87	233.57	16.36	9.85	30.20
Anion-Cation Balance	% difference	-9999				-12.54	-89.40	-88.97	7.44	-5.76	12.75	58.31	-36.61
Cation sum	meq/L	-9999				44.47	48.87	50.52	244.75	208.12	21.14	37.39	14.01
Ion Ratio	none	-9999				0.78	0.06	0.06	1.16	0.89	1.29	3.8	0.46
Langeliers Index 4° C	@ 4° C	-9999				0.62	0.65	0.11	1.06	0.71	0.93	0.50	0.55
Saturation pH 4°C	pHs @ 4°C	-9999				7.27	7.16	7.27	6.63	6.74	7.41	7.32	7.30

FINAL REPORT

CA15658-OCT25 R

Client: Pinchin Ltd
Project: South Frederickburgh LF-GW
Project Manager: Samantha Young
Samplers: Samantha Young

MATRIX: WATER

L1 = ODWS_AO_OG / WATER / - - Table 4 - Drinking Water - Reg O.169_03
L2 = ODWS_MAC / WATER / - - Table 1,2 and 3 - Drinking Water - Reg O.169_03

Parameter	Units	RL	L1	L2	Sample Number	7	8	9	10	11	12	13	14
					Sample Name	MW6-S	MW6-D	DUP-1	MW3-S	MW3-D	MW2-S	MW10-S	MW9-S
					Sample Matrix	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water
					Sample Date	2025-10-21 00:00	2025-10-21 00:00	2025-10-21 00:00	2025-10-21 00:00	2025-10-21 00:00	2025-10-21 00:00	2025-10-21 00:00	2025-10-21 00:00
						Result	Result	Result	Result	Result	Result	Result	Result
Other (ORP)													
pH	No unit	0.05	8.5			7.89	7.81	7.38	7.69	7.45	8.34	7.82	7.85
Chloride	mg/L	1	250			1600	31000	30000	7200	8000	260	88	700
Mercury (dissolved)	mg/L	0.00001		0.001		< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001

MATRIX: WATER

L1 = ODWS_AO_OG / WATER / - - Table 4 - Drinking Water - Reg O.169_03
L2 = ODWS_MAC / WATER / - - Table 1,2 and 3 - Drinking Water - Reg O.169_03

Parameter	Units	RL	L1	L2	Sample Number	15	16	17	18
					Sample Name	MW9-D	MW5-D	DUP-2	MW5-S
					Sample Matrix	Ground Water	Ground Water	Ground Water	Ground Water
					Sample Date	2025-10-21 00:00	2025-10-21 00:00	2025-10-21 00:00	2025-10-21 00:00
						Result	Result	Result	Result
Acid Rock Drainage									
pH Check <2	pH	0.05				1.00	1.00	1.00	1.00
General Chemistry									
Temperature @ pH	°C	0				23.2	23.0	23.3	23.1
Alkalinity	mg/L as CaCO3	2	500			21	423	437	359
Total Suspended Solids	mg/L	2				177	96	77	65
Biochemical Oxygen Demand (BOD5)	mg/L	2				14	6	8	8
Conductivity	uS/cm	2				196000	4000	4270	2420
Total Dissolved Solids	mg/L	30	500			240000	2060	2270	1270
Chemical Oxygen Demand	mg/L	8				276	34	33	17
Total Kjeldahl Nitrogen	as N mg/L	1				28	6	6	4
Ammonia+Ammonium (N)	as N mg/L	0.1				65.6	3.5	3.5	1.0

FINAL REPORT

CA15658-OCT25 R

Client: Pinchin Ltd
Project: South Frederickburgh LF-GW
Project Manager: Samantha Young
Samplers: Samantha Young

MATRIX: WATER

L1 = ODWS_AO_OG / WATER / - - Table 4 - Drinking Water - Reg O.169_03
L2 = ODWS_MAC / WATER / - - Table 1,2 and 3 - Drinking Water - Reg O.169_03

Sample Number					15	16	17	18
Sample Name					MW9-D	MW5-D	DUP-2	MW5-S
Sample Matrix					Ground Water	Ground Water	Ground Water	Ground Water
Sample Date					2025-10-21 00:00	2025-10-21 00:00	2025-10-21 00:00	2025-10-21 00:00
Parameter		**Units**	**RL**	**L1**	**L2**	**Result**	**Result**	**Result**	**Result**
General Chemistry (continued)								
Dissolved Organic Carbon		mg/L	1	5		14	2	2	2
Metals and Inorganics								
Phosphorus (total)		mg/L	0.3			1.2	4.4	4.0	5.4
Sulphate		mg/L	2	500		43	19	20	40
Nitrite (as N)	as N	mg/L	0.03		1	< 0.03	< 0.03	< 0.03	< 0.03
Nitrate (as N)	as N	mg/L	0.06		10	< 0.06	< 0.06	< 0.06	< 0.06
Hardness (dissolved)	mg/L as CaCO3		0.05	100		99500	765	775	869
Iron (dissolved)		mg/L	0.007	0.3		0.500	0.095	0.117	0.020
Calcium (dissolved)		mg/L	0.01			20600	130	135	153
Potassium (dissolved)		mg/L	0.009			564	12.5	13.0	11.4
Magnesium (dissolved)		mg/L	0.001			11700	107	106	118
Sodium (dissolved)		mg/L	0.01	200	20	43900	248	262	145
Arsenic (dissolved)		mg/L	0.0002		0.01	0.0042	0.0006	0.0006	< 0.0002
Barium (dissolved)		mg/L	0.00008		1	1.91	0.241	0.255	0.558
Boron (dissolved)		mg/L	0.002		5	1.14	0.729	0.611	0.512
Cadmium (dissolved)		mg/L	0.000003		0.005	< 0.000003	0.000015	0.000013	< 0.000003
Chromium (dissolved)		mg/L	0.00008		0.05	0.0117	0.00016	0.00036	0.00038
Copper (dissolved)		mg/L	0.001	1		0.002	< 0.001	< 0.001	< 0.001
Lead (dissolved)		mg/L	0.00009		0.01	< 0.00009	< 0.00009	< 0.00009	< 0.00009
Manganese (dissolved)		mg/L	0.00001	0.05		0.385	0.0299	0.0334	0.0457
Zinc (dissolved)		mg/L	0.002	5		0.016	0.007	0.006	< 0.002

FINAL REPORT

CA15658-OCT25 R

Client: Pinchin Ltd
Project: South Frederickburgh LF-GW
Project Manager: Samantha Young
Samplers: Samantha Young

MATRIX: WATER

L1 = ODWS_AO_OG / WATER / - - Table 4 - Drinking Water - Reg O.169_03
L2 = ODWS_MAC / WATER / - - Table 1,2 and 3 - Drinking Water - Reg O.169_03

Sample Number					15	16	17	18
Sample Name					MW9-D	MW5-D	DUP-2	MW5-S
Sample Matrix					Ground Water	Ground Water	Ground Water	Ground Water
Sample Date					2025-10-21 00:00	2025-10-21 00:00	2025-10-21 00:00	2025-10-21 00:00
Parameter	**Units**	**RL**	**L1**	**L2**	**Result**	**Result**	**Result**	**Result**
Metals and Inorganics (continued)								
Anion Sum	meq/L	-9999			3941.19	44.94	45.26	22.76
Anion-Cation Balance	% difference	-9999			-0.34	-26.03	-24.90	2.67
Cation sum	meq/L	-9999			3914.69	26.38	27.21	24.00
Ion Ratio	none	-9999			0.99	0.59	0.6	1.05
Langeliers Index 4° C	@ 4° C	-9999			-0.99	0.59	0.62	0.58
Saturation pH 4°C	pHs @ 4°C	-9999			6.61	7.30	7.27	7.28
Other (ORP)								
pH	No unit	0.05	8.5		5.62	7.89	7.89	7.86
Chloride	mg/L	1	250		140000	1300	1300	520
Mercury (dissolved)	mg/L	0.00001		0.001	< 0.00001	< 0.00001	< 0.00001	< 0.00001

EXCEEDANCE SUMMARY

Parameter	Method	Units	Result	ODWS_AO_OG / WATER / - - Table 4 - Drinking Water - Reg O.169_03 L1	ODWS_MAC / WATER / - - Table 1,2 and 3 - Drinking Water - Reg O.169_03 L2
MW6-S					
Total Dissolved Solids	SM 2540C	mg/L	3300	500	
Hardness (dissolved)	SM 3030/EPA 200.7	mg/L as CaCO3	921	100	
Sodium (dissolved)	SM 3030/EPA 200.8	mg/L	587	200	20
Chloride	US EPA 325.2	mg/L	1600	250	
MW6-D					
Total Dissolved Solids	SM 2540C	mg/L	7290	500	
Hardness (dissolved)	SM 3030/EPA 200.7	mg/L as CaCO3	1300	100	
Sodium (dissolved)	SM 3030/EPA 200.8	mg/L	493	200	20
Chloride	US EPA 325.2	mg/L	31000	250	
DUP-1					
Total Dissolved Solids	SM 2540C	mg/L	44400	500	
Hardness (dissolved)	SM 3030/EPA 200.7	mg/L as CaCO3	1320	100	
Sodium (dissolved)	SM 3030/EPA 200.8	mg/L	522	200	20
Chloride	US EPA 325.2	mg/L	30000	250	
MW3-S					
Total Dissolved Solids	SM 2540C	mg/L	12900	500	
Hardness (dissolved)	SM 3030/EPA 200.7	mg/L as CaCO3	5380	100	
Manganese (dissolved)	SM 3030/EPA 200.8	mg/L	0.116	0.05	
Sodium (dissolved)	SM 3030/EPA 200.8	mg/L	3110	200	20
Chloride	US EPA 325.2	mg/L	7200	250	
Nitrate as Nitrogen	US EPA 353.2	as N mg/L	14.8		10
Nitrite as Nitrogen	US EPA 353.2	as N mg/L	1.64		1
MW3-D					
Total Dissolved Solids	SM 2540C	mg/L	20800	500	
Hardness (dissolved)	SM 3030/EPA 200.7	mg/L as CaCO3	3940	100	
Barium (dissolved)	SM 3030/EPA 200.8	mg/L	1.75		1
Manganese (dissolved)	SM 3030/EPA 200.8	mg/L	1.00	0.05	
Sodium (dissolved)	SM 3030/EPA 200.8	mg/L	2930	200	20
Chloride	US EPA 325.2	mg/L	8000	250	
MW2-S					
Total Dissolved Solids	SM 2540C	mg/L	831	500	
Hardness (dissolved)	SM 3030/EPA 200.7	mg/L as CaCO3	516	100	
Iron (dissolved)	SM 3030/EPA 200.8	mg/L	1.10	0.3	
Sodium (dissolved)	SM 3030/EPA 200.8	mg/L	239	200	20
Dissolved Organic Carbon	SM 5310	mg/L	6	5	
Chloride	US EPA 325.2	mg/L	260	250	

EXCEEDANCE SUMMARY

Parameter	Method	Units	Result	ODWS_AO_OG / WATER / - - Table 4 - Drinking Water - Reg O.169_03 L1	ODWS_MAC / WATER / - - Table 1,2 and 3 - Drinking Water - Reg O.169_03 L2
MW10-S					
Total Dissolved Solids	SM 2540C	mg/L	551	500	
Hardness (dissolved)	SM 3030/EPA 200.7	mg/L as CaCO3	736	100	
Iron (dissolved)	SM 3030/EPA 200.8	mg/L	4.20	0.3	
Manganese (dissolved)	SM 3030/EPA 200.8	mg/L	0.0604	0.05	
Sodium (dissolved)	SM 3030/EPA 200.8	mg/L	505	200	20
MW9-S					
Total Dissolved Solids	SM 2540C	mg/L	1670	500	
Hardness (dissolved)	SM 3030/EPA 200.7	mg/L as CaCO3	417	100	
Lead (dissolved)	SM 3030/EPA 200.8	mg/L	0.0129		0.01
Sodium (dissolved)	SM 3030/EPA 200.8	mg/L	126		20
Chloride	US EPA 325.2	mg/L	700	250	
MW9-D					
Total Dissolved Solids	SM 2540C	mg/L	240000	500	
Hardness (dissolved)	SM 3030/EPA 200.7	mg/L as CaCO3	99500	100	
Barium (dissolved)	SM 3030/EPA 200.8	mg/L	1.91		1
Iron (dissolved)	SM 3030/EPA 200.8	mg/L	0.500	0.3	
Manganese (dissolved)	SM 3030/EPA 200.8	mg/L	0.385	0.05	
Sodium (dissolved)	SM 3030/EPA 200.8	mg/L	43900	200	20
Dissolved Organic Carbon	SM 5310	mg/L	14	5	
Chloride	US EPA 325.2	mg/L	140000	250	
MW5-D					
Total Dissolved Solids	SM 2540C	mg/L	2060	500	
Hardness (dissolved)	SM 3030/EPA 200.7	mg/L as CaCO3	765	100	
Sodium (dissolved)	SM 3030/EPA 200.8	mg/L	248	200	20
Chloride	US EPA 325.2	mg/L	1300	250	
DUP-2					
Total Dissolved Solids	SM 2540C	mg/L	2270	500	
Hardness (dissolved)	SM 3030/EPA 200.7	mg/L as CaCO3	775	100	
Sodium (dissolved)	SM 3030/EPA 200.8	mg/L	262	200	20
Chloride	US EPA 325.2	mg/L	1300	250	
MW5-S					
Total Dissolved Solids	SM 2540C	mg/L	1270	500	
Hardness (dissolved)	SM 3030/EPA 200.7	mg/L as CaCO3	869	100	
Sodium (dissolved)	SM 3030/EPA 200.8	mg/L	145		20
Chloride	US EPA 325.2	mg/L	520	250	

QC SUMMARY

Alkalinity

Method: SM 2320 | Internal ref.: ME-CA-[ENV]EWL-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Alkalinity	EWL0565-OCT25	mg/L as CaCO3	2	< 2	1	20	109	80	120	NA		

Ammonia by SFA

Method: SM 4500 | Internal ref.: ME-CA-[ENV]SFA-LAK-AN-007

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Ammonia+Ammonium (N)	SKA0212-OCT25	as N mg/L	0.1	<0.1	ND	10	99	90	110	103	75	125
Ammonia+Ammonium (N)	SKA0224-OCT25	as N mg/L	0.1	<0.1	ND	10	101	90	110	95	75	125
Ammonia+Ammonium (N)	SKA0242-OCT25	as N mg/L	0.1	<0.1	4	10	100	90	110	85	75	125

QC SUMMARY

Anions by discrete analyzer

Method: US EPA 325.2 | Internal ref.: ME-CA-[ENV]EWL-LAK-AN-026

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High
Chloride	DIO5022-OCT25	mg/L	1	<1	ND	20	98	70	130	94	70	130
Chloride	DIO8045-OCT25	mg/L	1	<1	ND	20	90	70	130	95	70	130
Nitrite (as N)	DIO8045-OCT25	mg/L	0.03	< 0.03	0	20	99	80	120	103	75	125
Sulphate	DIO8045-OCT25	mg/L	2	<2	1	20	96	80	120	102	75	125

Biochemical Oxygen Demand

Method: SM 5210 | Internal ref.: ME-CA-[ENV]EWL-LAK-AN-007

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High
Biochemical Oxygen Demand (BOD5)	BOD0047-OCT25	mg/L	2	< 2	0	30	86	70	130	79	70	130

QC SUMMARY

Carbon by SFA

Method: SM 5310 | Internal ref.: ME-CA-[ENV]SFA-LAK-AN-009

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Dissolved Organic Carbon	SKA0208-OCT25	mg/L	1	<1	3	20	102	90	110	99	75	125
Dissolved Organic Carbon	SKA0231-OCT25	mg/L	1	<1	1	20	103	90	110	96	75	125

Chemical Oxygen Demand

Method: HACH 8000 | Internal ref.: ME-CA-[ENV]EWL-LAK-AN-009

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Chemical Oxygen Demand	EWL0593-OCT25	mg/L	8	<8	14	20	94	80	120	92	75	125
Chemical Oxygen Demand	EWL0623-OCT25	mg/L	8	<8	5	20	108	80	120	104	75	125
Chemical Oxygen Demand	EWL0632-OCT25	mg/L	8	<8	ND	20	88	80	120	89	75	125

QC SUMMARY

Conductivity

Method: SM 2510 | Internal ref.: ME-CA-[ENV]EWL-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Conductivity	EWL0565-OCT25	uS/cm	2	< 2	0	10	98	90	110	NA		

Mercury by CVAAS

Method: EPA 7471A/SM 3112B | Internal ref.: ME-CA-[ENV]SPE-LAK-AN-004

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Mercury (dissolved)	EHG0049-OCT25	mg/L	0.00001	< 0.00001	ND	20	113	80	120	128	70	130
Mercury (dissolved)	EHG0052-OCT25	mg/L	0.00001	< 0.00001	ND	20	116	80	120	116	70	130

QC SUMMARY

Metals in aqueous samples - ICP-MS

Method: SM 3030/EPA 200.8 | Internal ref.: ME-CA-[ENVISPE-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Arsenic (dissolved)	EMS0279-OCT25	mg/L	0.0002	<0.0002	ND	20	93	90	110	114	70	130
Barium (dissolved)	EMS0279-OCT25	mg/L	0.00008	<0.00008	2	20	98	90	110	98	70	130
Boron (dissolved)	EMS0279-OCT25	mg/L	0.002	<0.002	ND	20	100	90	110	98	70	130
Calcium (dissolved)	EMS0279-OCT25	mg/L	0.01	<0.01	ND	20	95	90	110	113	70	130
Cadmium (dissolved)	EMS0279-OCT25	mg/L	0.000003	<0.000003	ND	20	95	90	110	110	70	130
Chromium (dissolved)	EMS0279-OCT25	mg/L	0.00008	<0.00008	ND	20	100	90	110	110	70	130
Copper (dissolved)	EMS0279-OCT25	mg/L	0.001	<0.001	ND	20	97	90	110	108	70	130
Iron (dissolved)	EMS0279-OCT25	mg/L	0.007	<0.007	ND	20	99	90	110	100	70	130
Potassium (dissolved)	EMS0279-OCT25	mg/L	0.009	<0.009	ND	20	95	90	110	104	70	130
Magnesium (dissolved)	EMS0279-OCT25	mg/L	0.001	<0.001	ND	20	99	90	110	119	70	130
Manganese (dissolved)	EMS0279-OCT25	mg/L	0.00001	<0.00001	3	20	95	90	110	105	70	130
Sodium (dissolved)	EMS0279-OCT25	mg/L	0.01	<0.01	ND	20	98	90	110	116	70	130
Lead (dissolved)	EMS0279-OCT25	mg/L	0.00009	<0.00009	ND	20	96	90	110	111	70	130
Zinc (dissolved)	EMS0279-OCT25	mg/L	0.002	<0.002	13	20	95	90	110	102	70	130

QC SUMMARY

pH

Method: SM 4500 I Internal ref.: ME-CA-IENVIEWL-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High
pH	EWL0565-OCT25	No unit	0.05	NA	0		100			NA		

Phosphorus by SFA

Method: SM 4500-P J I Internal ref.: ME-CA-IENVISFA-LAK-AN-003

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High
Phosphorus (total)	SKA5090-OCT25	mg/L	0.3	<0.3	ND	20	94	80	120	83	75	125

Solids Analysis

Method: SM 2540C I Internal ref.: ME-CA-IENVIEWL-LAK-AN-005

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High
Total Dissolved Solids	EWL0663-OCT25	mg/L	30	<30	2	20	98	80	120	NA		
Total Dissolved Solids	EWL0693-OCT25	mg/L	30	<30	4	20	103	80	120	NA		

QC SUMMARY

Suspended Solids

Method: SM 2540D | Internal ref.: ME-CA-IENVIEWL-LAK-AN-004

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Total Suspended Solids	EWL0556-OCT25	mg/L	2	< 2	1	10	91	90	110	NA		
Total Suspended Solids	EWL0558-OCT25	mg/L	2	< 2	1	10	101	90	110	NA		
Total Suspended Solids	EWL0621-OCT25	mg/L	2	< 2	1	10	96	90	110	NA		
Total Suspended Solids	EWL0624-OCT25	mg/L	2	< 2	1	10	98	90	110	NA		

Total Kjeldahl Nitrogen by SFA

Method: SM 4500-N C/4500-NO3- F | Internal ref.: ME-CA-IENVISFA-LAK-AN-001

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Total Kjeldahl Nitrogen	SKA5090-OCT25	as N mg/L	1	<1.0	4	20	95	80	120	75	75	125

QC SUMMARY

Method Blank: a blank matrix that is carried through the entire analytical procedure. Used to assess laboratory contamination.
Duplicate: Paired analysis of a separate portion of the same sample that is carried through the entire analytical procedure. Used to evaluate measurement precision.
LCS/Spike Blank: Laboratory control sample or spike blank refer to a blank matrix to which a known amount of analyte has been added. Used to evaluate analyte recovery and laboratory accuracy without sample matrix effects.
Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate laboratory accuracy with sample matrix effects.
Reference Material: a material or substance matrix matched to the samples that contains a known amount of the analyte of interest. A reference material may be used in place of a matrix spike.
RL: Reporting limit
RPD: Relative percent difference
AC: Acceptance criteria

Multielement Scan Qualifier: as the number of analytes in a scan increases, so does the chance of a limit exceedance by random chance as opposed to a real method problem. Thus, in multielement scans, for the LCS and matrix spike, up to 10% of the analytes may exceed the quoted limits by up to 10% absolute and the spike is considered acceptable.
Duplicate Qualifier: for duplicates as the measured result approaches the RL, the uncertainty associated with the value increases dramatically, thus duplicate acceptance limits apply only where the average of the two duplicates is greater than five times the RL.
Matrix Spike Qualifier: for matrix spikes, as the concentration of the native analyte increases, the uncertainty of the matrix spike recovery increases. Thus, the matrix spike acceptance limits apply only when the concentration of the matrix spike is greater than or equal to the concentration of the native analyte.

LEGEND

FOOTNOTES

NSS Insufficient sample for analysis.
RL Reporting Limit.
↑ Reporting limit raised.
↓ Reporting limit lowered.
NA The sample was not analysed for this analyte
ND Non Detect

Results relate only to the sample tested.
Data reported represent the sample as submitted to SGS.

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Please refer to SGS General Conditions of Services located at http://www.sgs.com/terms_and_conditions.htm (Printed copies are available upon request.)

Test method information available upon request.
"Temperature Upon Receipt" is representative of the whole shipment and may not reflect the temperature of individual samples.

SGS Canada Inc. statement of conformity decision rule does not consider uncertainty when analytical results are compared to a specified standard or regulation.

-- End of Analytical Report --

SGS

Request for Laboratory Services and CHAIN OF CUSTODY (General)

SGS Environmental Services - Lakefield: 185 Concession St., Lakefield, ON K0L 2H0 Phone: 705-652-2000 Toll Free: 877-747-7658 Fax: 705-652-6365 Web: www.ca.sgs.com {4}

SGS Environmental Services - London: 657 Consortium Court, London, ON, N6E 2S8 Phone: 519-672-4500 Toll Free: 877-848-8060 Fax: 519-672-0361 Web: www.ca.sgs.com {4}

Laboratory Information Section

Received Date (mm/dd/yyyy): OCT 22 2025

Received Time (After Hours Only): __:__

LAB LIMS #: CA-15658-OCT25 NP

Temperature Upon Receipt (°C): 5.5 ; 9

Billing & Reporting Information

Invoice/Receipt to {3}:

Company: Pinchin

Attention: Samantha Young

Address: 1456 Centennial Drive, Suite 2, Kingston, ON K7L 0K4

Email: SRyoung@pinchin.com

Quote #: 2024 1378

Attached Parameter List: ☑ YES ☐ NO

Turnaround Time

Is *Rush Turnaround Time Required? ☐ YES ☑ NO

Specify:

* Rush TA Requests Require Lab Approval

Project Name/Number: South Fredericksburgh LF - GW Pg 1

P.O. #:

Client Information/Report To:

Client Lab #:

Company Name:	Pinchin Ltd.	Phone Number:	613-796-2342
Contact Name:	Samantha Young	Fax Number:	
Address:	1456 Centennial Drive, Suite 2, Kingston ON	E-mail:	SRyoung@pinchin.com
Copy to:			

Sample Information

Sample Identifier	Date Sampled (mm/dd/yy)	Time Sampled	# of Bottles	Analysis Requested (please enter the analysis required below and check off which analysis applies to each sample)							
				Field Filtered	Field Temp (°C)	Field pH		GW Monitoring Package			
MW6-S	10/21/2025	AM	10	Y				X			
MW6-D	10/21/2025	AM	10	Y				X			
DUP-1	10/21/2025	AM	10	Y				X			
MW3-S	10/21/2025	AM	10	Y				X			
MW3-D	10/21/2025	AM	10	Y				X			
MW2-S	10/21/2025	AM	10	Y				X			
MW10-D	10/21/2025	AM	10	Y				X			
MW9-S	10/21/2025	AM	10	Y				X			
MW9-D	10/21/2025	AM	10	Y				X			
MW5-D	10/21/2025	AM	10	Y				X			
DUP-2	10/21/2025	AM	10	Y				X			
MW5-S	10/21/2025	AM	10	Y				X			

Sampled By {1}: (Name) Samantha Young (Signature) Samy Date: 10/21/25 (mm/dd/yy)

Relinquished by {2}: (Name) Samantha Young (Signature) Samy Date: 10/21/25 (mm/dd/yy)

Note: {1} Submission of samples to SGS is acknowledgement that you have been provided direction on sample collection, handling and transportation of samples. {2} Submission of samples to SGS is considered authorization for completion of work. Signatures may appear on this form or be retained on file in the contract, or in an alternative format (e.g. shipping documents). {3} Results may be sent by email to an unlimited number of addresses for no additional cost. Fax is available upon request. {4} Completion of work may require the subcontracting of samples between the London and Lakefield laboratories.

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RIN NP 10:15

Revision #: 2.3
Date of Issue: 24 Jun. 2014



FINAL REPORT

CA15363-MAY25 R

South Fredericksburg SW

Prepared for

Pinchin Ltd

TE-GL-ENVLAB-IT-011v1.6.3

FINAL REPORT

CA15363-MAY25 R

First Page

CLIENT DETAILS		LABORATORY DETAILS	
Client	Pinchin Ltd	Project Specialist	Brad Moore Hon. B.Sc
		Laboratory	SGS Canada Inc.
Address	1456 Centennial Drive, Kingston Canada, K7P 0K4 Phone: 613-796-2342, Fax:	Address	185 Concession St., Lakefield ON, K0L 2H0
Contact	Samantha Young	Telephone	705-652-2143
Telephone	613-796-2342	Facsimile	705-652-6365
Facsimile		Email	brad.moore@sgs.com
Email	sryoung@pinchin.com	SGS Reference	CA15363-MAY25
Project	South Fredericksburg SW	Received	05/15/2025
Order Number		Approved	05/27/2025
Samples	Surface Water (5)	Report Number	CA15363-MAY25 R
		Date Reported	05/27/2025

COMMENTS

Temperature of Sample upon Receipt: 6 degrees C

SIGNATORIES

Brad Moore Hon. B.Sc

FINAL REPORT

CA15363-MAY25 R

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FINAL REPORT

CA15363-MAY25 R

Client: Pinchin Ltd
Project: South Fredericksburg SW
Project Manager: Samantha Young
Samplers: Samantha Young

MATRIX: WATER

L1 = PWQO_L / WATER / - - Table 2 - General - July 1999 PIBS 3303E

Sample Number				7	8	9	10	11
Sample Name				SW1	DUP3	SW2	SW3	SW5
Sample Matrix				Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sample Date				13/05/2025	13/05/2025	13/05/2025	13/05/2025	13/05/2025
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**	**Result**	**Result**
Acid Rock Drainage								
pH Check <2	pH	0.05		1.00	1.00	1.00	1.00	1.00
General Chemistry								
Temperature @ pH	°C	0		22.4	22.6	22.6	22.6	22.6
Alkalinity	mg/L as CaCO3	2		506	511	235	186	180
Total Suspended Solids	mg/L	2		4	7	24	17	3
Biochemical Oxygen Demand (BOD5)	mg/L	2		< 4↑	< 4↑	< 4↑	< 4↑	< 4↑
Conductivity	uS/cm	2		1380	1390	667	356	351
Total Dissolved Solids	mg/L	30		851	814	391	203	229
Chemical Oxygen Demand	mg/L	8		58	58	30	35	48
Total Kjeldahl Nitrogen	as N mg/L	0.5		1.2	1.1	0.8	1.0	0.8
Ammonia+Ammonium (N)	as N mg/L	0.1		< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Dissolved Organic Carbon	mg/L	1		18	17	8	8	15
Metals and Inorganics								
Sulphate	mg/L	2		90	89	35	5	< 2
Nitrite (as N)	as N mg/L	0.03		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Nitrate (as N)	as N mg/L	0.06		< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Hardness	mg/L as CaCO3	0.05		524	528	249	186	180
Iron (total)	mg/L	0.007	0.3	0.186	0.187	0.141	0.236	0.242
Calcium (total)	mg/L	0.01		142	143	60.8	51.4	50.5
Potassium (total)	mg/L	0.009		18.6	18.8	5.64	1.67	1.48
Magnesium (total)	mg/L	0.001		41.3	41.6	23.6	14.0	13.0

FINAL REPORT

CA15363-MAY25 R

Client: Pinchin Ltd
Project: South Fredericksburg SW
Project Manager: Samantha Young
Samplers: Samantha Young

MATRIX: WATER

L1 = PWQO_L / WATER / - - Table 2 - General - July 1999 PIBS 3303E

Sample Number				7	8	9	10	11	
Sample Name				SW1	DUP3	SW2	SW3	SW5	
Sample Matrix				Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	
Sample Date				13/05/2025	13/05/2025	13/05/2025	13/05/2025	13/05/2025	
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**	**Result**	**Result**	
Metals and Inorganics (continued)									
Sodium (total)	mg/L	0.01		81.5	82.4	37.0	1.78	4.04	
Arsenic (total)	mg/L	0.0002	0.005	0.0005	0.0005	0.0004	0.0004	0.0004	
Barium (total)	mg/L	0.00008		0.0662	0.0656	0.0615	0.0299	0.0268	
Boron (total)	mg/L	0.002	0.2	**0.541**	**0.560**	0.186	0.020	0.007	
Cadmium (total)	mg/L	0.000003	0.0005	0.000008	0.000019	0.000004	0.000004	0.000006	
Chromium (total)	mg/L	0.00008		0.00035	0.00031	0.00020	0.00019	0.00023	
Copper (total)	mg/L	0.001	0.005	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	
Lead (total)	mg/L	0.00009	0.025	< 0.00009	< 0.00009	< 0.00009	< 0.00009	< 0.00009	
Manganese (total)	mg/L	0.00001		0.222	0.222	0.0330	0.0349	0.0379	
Zinc (total)	mg/L	0.002	0.02	0.004	0.004	< 0.002	< 0.002	< 0.002	
Phosphorus (total)	mg/L	0.03	0.01	**0.05**	**0.05**	**< 0.03**	**< 0.03**	**0.022**	
Anion Sum	meq/L	-9999		15.58	15.67	6.89	3.84	3.78	
Anion-Cation Balance	% difference	-9999		-3.50	-3.42	-1.12	0.12	0.49	
Cation sum	meq/L	-9999		14.53	14.64	6.74	3.85	3.82	
Ion Ratio	none	-9999		0.93	0.93	0.98	1.00	1.01	
Langeliers Index 4° C	@ 4° C	-9999		1.06	1.12	0.46	0.25	-0.03	
Saturation pH 4°C	pHs @ 4°C	-9999		7.14	7.14	7.81	7.95	7.98	

FINAL REPORT

CA15363-MAY25 R

Client: Pinchin Ltd
Project: South Fredericksburg SW
Project Manager: Samantha Young
Samplers: Samantha Young

MATRIX: WATER

L1 = PWQO_L / WATER / - - Table 2 - General - July 1999 PIBS 3303E

Sample Number				7	8	9	10	11
Sample Name				SW1	DUP3	SW2	SW3	SW5
Sample Matrix				Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sample Date				13/05/2025	13/05/2025	13/05/2025	13/05/2025	13/05/2025
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**	**Result**	**Result**
Other (ORP)								
pH	No unit	0.05	8.6	8.20	8.26	8.27	8.20	7.95
Chloride	mg/L	1		130	130	52	< 1	5
Mercury (dissolved)	mg/L	0.00001	0.0002	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001

EXCEEDANCE SUMMARY

Parameter	Method	Units	Result	PWQO_L / WATER / - - Table 2 - General - July 1999 PIBS 3303E L1
SW1				
Boron	SM 3030/EPA 200.8	mg/L	0.541	0.2
Phosphorus	SM 4500-P J	mg/L	0.05	0.01
DUP3				
Boron	SM 3030/EPA 200.8	mg/L	0.560	0.2
Phosphorus	SM 4500-P J	mg/L	0.05	0.01
SW2				
Phosphorus	SM 4500-P J	mg/L	< 0.03	0.01
SW3				
Phosphorus	SM 4500-P J	mg/L	< 0.03	0.01
SW5				
Phosphorus	SM 4500-P J	mg/L	0.022	0.01

QC SUMMARY

Alkalinity

Method: SM 2320 | Internal ref.: ME-CA-[ENV]EWL-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Alkalinity	EWL0384-MAY25	mg/L as CaCO3	2	< 2	1	20	96	80	120	NA		

Ammonia by SFA

Method: SM 4500 | Internal ref.: ME-CA-[ENV]SFA-LAK-AN-007

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Ammonia+Ammonium (N)	SKA0176-MAY25	as N mg/L	0.1	<0.1	ND	10	99	90	110	102	75	125

QC SUMMARY

Anions by discrete analyzer

Method: US EPA 325.2 | Internal ref.: ME-CA-IENVIEWL-LAK-AN-026

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Chloride	DIO8036-MAY25	mg/L	1	<1	4	20	97	80	120	99	75	125
Sulphate	DIO8036-MAY25	mg/L	2	<2	1	20	105	80	120	98	75	125

Anions by IC

Method: EPA300/MA300-Ions1.3 | Internal ref.: ME-CA-IENVIIC-LAK-AN-001

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Nitrite (as N)	DIO0415-MAY25	mg/L	0.03	<0.03	ND	20	98	90	110	105	75	125
Nitrate (as N)	DIO0415-MAY25	mg/L	0.06	<0.06	ND	20	101	90	110	105	75	125
Nitrite (as N)	DIO0416-MAY25	mg/L	0.03	<0.03	ND	20	99	90	110	106	75	125
Nitrate (as N)	DIO0416-MAY25	mg/L	0.06	<0.06	ND	20	101	90	110	104	75	125

QC SUMMARY

Biochemical Oxygen Demand

Method: SM 5210 I Internal ref.: ME-CA-[ENV]EWL-LAK-AN-007

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Biochemical Oxygen Demand (BOD5)	BOD0032-MAY25	mg/L	2	< 2	8	30	99	70	130	118	70	130

Carbon by SFA

Method: SM 5310 I Internal ref.: ME-CA-[ENV]SFA-LAK-AN-009

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Dissolved Organic Carbon	SKA0171-MAY25	mg/L	1	<1	5	20	98	90	110	83	75	125

Chemical Oxygen Demand

Method: HACH 8000 I Internal ref.: ME-CA-[ENV]EWL-LAK-AN-009

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Chemical Oxygen Demand	EWL0411-MAY25	mg/L	8	<8	6	20	100	80	120	NV	75	125

QC SUMMARY

Conductivity

Method: SM 2510 | Internal ref.: ME-CA-[ENV]EWL-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Conductivity	EWL0384-MAY25	uS/cm	2	< 2	0	20	99	90	110	NA		

Mercury by CVAAS

Method: EPA 7471A/SM 3112B | Internal ref.: ME-CA-[ENV]SPE-LAK-AN-004

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Mercury (dissolved)	EHG0022-MAY25	mg/L	0.00001	< 0.00001	ND	20	119	80	120	130	70	130

QC SUMMARY

Metals in aqueous samples - ICP-MS

Method: SM 3030/EPA 200.8 | Internal ref.: ME-CA-[ENVISPE-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Arsenic (total)	EMS0168-MAY25	mg/L	0.0002	<0.0002	ND	20	99	90	110	102	70	130
Barium (total)	EMS0168-MAY25	mg/L	0.00008	<0.00008	3	20	98	90	110	95	70	130
Boron (total)	EMS0168-MAY25	mg/L	0.002	<0.002	ND	20	96	90	110	95	70	130
Calcium (total)	EMS0168-MAY25	mg/L	0.01	<0.01	19	20	97	90	110	101	70	130
Cadmium (total)	EMS0168-MAY25	mg/L	0.000003	<0.000003	11	20	96	90	110	100	70	130
Chromium (total)	EMS0168-MAY25	mg/L	0.00008	<0.00008	ND	20	99	90	110	107	70	130
Copper (total)	EMS0168-MAY25	mg/L	0.001	<0.001	ND	20	98	90	110	102	70	130
Iron (total)	EMS0168-MAY25	mg/L	0.007	<0.007	0	20	103	90	110	125	70	130
Potassium (total)	EMS0168-MAY25	mg/L	0.009	<0.009	0	20	97	90	110	84	70	130
Magnesium (total)	EMS0168-MAY25	mg/L	0.001	<0.001	2	20	99	90	110	98	70	130
Manganese (total)	EMS0168-MAY25	mg/L	0.00001	<0.00001	0	20	97	90	110	99	70	130
Sodium (total)	EMS0168-MAY25	mg/L	0.01	<0.01	7	20	98	90	110	95	70	130
Lead (total)	EMS0168-MAY25	mg/L	0.00009	<0.00009	8	20	97	90	110	96	70	130
Zinc (total)	EMS0168-MAY25	mg/L	0.002	<0.002	1	20	99	90	110	105	70	130

QC SUMMARY

pH

Method: SM 4500 | Internal ref.: ME-CA-[ENV]EWL-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
pH	EWL0384-MAY25	No unit	0.05	NA	0		100			NA		

Phosphorus by SFA

Method: SM 4500-P J | Internal ref.: ME-CA-[ENV]SFA-LAK-AN-003

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Phosphorus (total)	SKA0168-MAY25	mg/L	0.03	<0.03	5	10	100	90	110	92	75	125
Phosphorus (total)	SKA0189-MAY25	mg/L	0.03	<0.03	6	10	99	90	110	86	75	125
Phosphorus (total)	SKA0200-MAY25	mg/L	0.03	<0.03	0	10	100	90	110	93	75	125

QC SUMMARY

Solids Analysis

Method: SM 2540C | Internal ref.: ME-CA-IENVIEWL-LAK-AN-005

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Total Dissolved Solids	EWL0462-MAY25	mg/L	30	<30	1	20	97	80	120	NA		

Suspended Solids

Method: SM 2540D | Internal ref.: ME-CA-IENVIEWL-LAK-AN-004

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Total Suspended Solids	EWL0409-MAY25	mg/L	2	< 2	2	10	109	90	110	NA		

Total Nitrogen

Method: SM 4500-N C/4500-NO3- F | Internal ref.: ME-CA-IENVISFA-LAK-AN-002

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Total Kjeldahl Nitrogen	SKA0162-MAY25	as N mg/L	0.5	<0.5	4	10	104	90	110	94	75	125

QC SUMMARY

Method Blank: a blank matrix that is carried through the entire analytical procedure. Used to assess laboratory contamination.
Duplicate: Paired analysis of a separate portion of the same sample that is carried through the entire analytical procedure. Used to evaluate measurement precision.
LCS/Spike Blank: Laboratory control sample or spike blank refer to a blank matrix to which a known amount of analyte has been added. Used to evaluate analyte recovery and laboratory accuracy without sample matrix effects.
Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate laboratory accuracy with sample matrix effects.
Reference Material: a material or substance matrix matched to the samples that contains a known amount of the analyte of interest. A reference material may be used in place of a matrix spike.
RL: Reporting limit
RPD: Relative percent difference
AC: Acceptance criteria

Multielement Scan Qualifier: as the number of analytes in a scan increases, so does the chance of a limit exceedance by random chance as opposed to a real method problem. Thus, in multielement scans, for the LCS and matrix spike, up to 10% of the analytes may exceed the quoted limits by up to 10% absolute and the spike is considered acceptable.
Duplicate Qualifier: for duplicates as the measured result approaches the RL, the uncertainty associated with the value increases dramatically, thus duplicate acceptance limits apply only where the average of the two duplicates is greater than five times the RL.
Matrix Spike Qualifier: for matrix spikes, as the concentration of the native analyte increases, the uncertainty of the matrix spike recovery increases. Thus, the matrix spike acceptance limits apply only when the concentration of the matrix spike is greater than or equal to the concentration of the native analyte.

LEGEND

FOOTNOTES

NSS Insufficient sample for analysis.
RL Reporting Limit.
↑ Reporting limit raised.
↓ Reporting limit lowered.
NA The sample was not analysed for this analyte
ND Non Detect

Results relate only to the sample tested.
Data reported represent the sample as submitted to SGS. Solid samples expressed on a dry weight basis.
"Temperature Upon Receipt" is representative of the whole shipment and may not reflect the temperature of individual samples.
Analysis conducted on samples submitted pursuant to or as part of Reg. 153/04, are in accordance to the "Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act and Excess Soil Quality" published by the Ministry and dated March 9, 2004 as amended.

SGS provides criteria information (such as regulatory or guideline limits and summary of limit exceedances) as a service. Every attempt is made to ensure the criteria information in this report is accurate and current, however, it is not guaranteed. Comparison to the most current criteria is the responsibility of the client and SGS assumes no responsibility for the accuracy of the criteria levels indicated.

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This report supersedes all previous versions.

-- End of Analytical Report --

SGS

Request for Laboratory Services and CHAIN OF CUSTODY (General)

SGS Environmental Services - Lakefield: 185 Concession St., Lakefield, ON K0L 2H0 Phone: 705-652-2000 Toll Free: 877-747-7658 Fax: 705-652-6365 Web: www.ca.sgs.com {4}

SGS Environmental Services - London: 657 Consortium Court, London, ON, N6E 2S8 Phone: 519-672-4500 Toll Free: 877-848-8060 Fax: 519-672-0361 Web: www.ca.sgs.com {4}

Laboratory Information Section

Received Date (mm/dd/yyyy): 05/13/2025 LAB LIMS #: CA-15363-May25

Received Time (After Hours Only): __:__ Temperature Upon Receipt (°C): 6x3

Billing & Reporting Information

Invoice/Receipt to {3}:

Company: Pinchin

Attention: Samantha Young

Address: 1456 Centennial Drive, Suite 2, Kingston, ON K7L 0K4

Email: SRyoung@pinchin.com

Project Name/Number: South Fredericksburgh LF - SW P.O. #:

Quote #: 2024 1378

Attached Parameter List: ☐ YES ☑ NO

Turnaround Time

Is *Rush Turnaround Time Required? ☐ YES ☑ NO

Specify:

* Rush TA Requests Require Lab Approval

Client Information/Report To: Client Lab #:

Company Name:	**Pinchin Ltd.**	**Phone Number:**	**613-796-2342**
Contact Name:	**Samantha Young**	**Fax Number:**	
Address:	**1456 Centennial Drive, Suite 2, Kingston ON**	**E-mail:**	**SRyoung@pinchin.com**
Copy to:			

Sample Information

Sample Identifier	Date Sampled (mm/dd/yy)	Time Sampled	# of Bottles	Analysis Requested (please enter the analysis required below and check off which analysis applies to each sample)							
				Field Filtered	Field Temp (°C)	Field pH		SW Monitoring Package			
SW1	05/13/25	AM	11	N	18.06	7.73		X			
DUP3	05/13/25	AM	11	N	18.06	7.73		X			
SW2	05/13/25	AM	11	N	22.05	8.21		X			
SW3	05/13/25	AM	11	N	19.83	8.63		X			
SW5	05/13/25	AM	11	N	20.96	8.45		X			

Sampled By {1}: (Name) Samantha Young (Signature) SY Date: 05/13/25 (mm/dd/yy)

Relinquished by {2}: (Name) Samantha Young (Signature) SY Date: 05/14/25 (mm/dd/yy)

Note: {1} Submission of samples to SGS is acknowledgement that you have been provided direction on sample collection/handling and transportation of samples. {2} Submission of samples to SGS is considered authorization for completion of work. Signatures may appear on this form or be retained on file in the contract, or in an alternative format (e.g. shipping documents). {3} Results may be sent by email to an unlimited number of addresses for no additional cost. Fax is available upon request. {4} Completion of work may require the subcontracting of samples between the London and Lakefield laboratories.

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Revision #: 2.3
Date of Issue: 24 Jun. 2014

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10:00 AM

FINAL REPORT

CA15371-AUG25 R

350221.001, South Fredericksburgh LF SW

Prepared for

Pinchin Ltd

FINAL REPORT

CA15371-AUG25 R

First Page

CLIENT DETAILS		LABORATORY DETAILS	
Client	Pinchin Ltd	Project Specialist	Maarit Wolfe, Hon.B.Sc
		Laboratory	SGS Canada Inc.
Address	1456 Centennial Drive, Kingston Canada, K7P 0K4 Phone: 613-796-2342, Fax:	Address	185 Concession St., Lakefield ON, K0L 2H0
Contact	Samantha Young	Telephone	705-652-2000
Telephone	613-796-2342	Facsimile	705-652-6365
Facsimile		Email	Maarit.Wolfe@sgs.com
Email	sryoung@pinchin.com	SGS Reference	CA15371-AUG25
Project	350221.001, South Fredericksburgh LF SW	Received	08/29/2025
Order Number		Approved	09/08/2025
Samples	Surface Water (2)	Report Number	CA15371-AUG25 R
		Date Reported	09/08/2025

COMMENTS

Temperature of Sample upon Receipt: 6 degrees C

COD DUP RPD % high, results within RL

SIGNATORIES

Maarit Wolfe, Hon.B.Sc

FINAL REPORT

CA15371-AUG25 R

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FINAL REPORT

CA15371-AUG25 R

Client: Pinchin Ltd
Project: 350221.001, South Fredericksburgh LF SW
Project Manager: Samantha Young
Samplers: Sam Young

MATRIX: WATER

L1 = PWQO_L / WATER / - - Table 2 - General - July 1999 PIBS 3303E

				Sample Number	7	8
				Sample Name	SW3	DUP-1
				Sample Matrix	Surface Water	Surface Water
				Sample Date	27/08/2025	27/08/2025
Parameter		**Units**	**RL**	**L1**	**Result**	**Result**
General Chemistry						
Temperature @ pH		°C	0		20.2	20.4
Alkalinity		mg/L as CaCO3	2		200	199
Total Suspended Solids		mg/L	2		6	6
Biochemical Oxygen Demand (BOD5)		mg/L	2		< 4 ↑	< 4 ↑
Conductivity		uS/cm	2		358	359
Total Dissolved Solids		mg/L	30		243	254
Chemical Oxygen Demand		mg/L	8		24	26
Total Kjeldahl Nitrogen		as N mg/L	0.5		0.8	0.6
Ammonia+Ammonium (N)		as N mg/L	0.1		< 0.1	< 0.1
Dissolved Organic Carbon		mg/L	1		9	9
Metals and Inorganics						
Sulphate		mg/L	2		< 2	< 2
Nitrite (as N)		as N mg/L	0.03		< 0.03	< 0.03
Nitrate (as N)		as N mg/L	0.06		< 0.06	< 0.06
Hardness		mg/L as CaCO3	0.05		214	206
Iron (total)		mg/L	0.007	0.3	**0.728**	**0.748**
Calcium (total)		mg/L	0.01		56.6	54.5
Potassium (total)		mg/L	0.009		3.37	3.20
Magnesium (total)		mg/L	0.001		17.8	16.9
Sodium (total)		mg/L	0.01		9.92	9.28
Arsenic (total)		mg/L	0.0002	0.005	0.0005	0.0005
Barium (total)		mg/L	0.00008		0.0472	0.0461

FINAL REPORT

CA15371-AUG25 R

Client: Pinchin Ltd
Project: 350221.001, South Fredericksburgh LF SW
Project Manager: Samantha Young
Samplers: Sam Young

MATRIX: WATER

L1 = PWQO_L / WATER / - - Table 2 - General - July 1999 PIBS 3303E

			Sample Number	7	8
			Sample Name	SW3	DUP-1
			Sample Matrix	Surface Water	Surface Water
			Sample Date	27/08/2025	27/08/2025
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**
Metals and Inorganics (continued)					
Boron (total)	mg/L	0.002	0.2	0.035	0.033
Cadmium (total)	mg/L	0.000003	0.0005	< 0.000003	0.000004
Chromium (total)	mg/L	0.00008		0.00026	0.00026
Copper (total)	mg/L	0.001	0.005	< 0.001	< 0.001
Lead (total)	mg/L	0.00009	0.025	< 0.00009	0.00011
Manganese (total)	mg/L	0.00001		0.334	0.341
Zinc (total)	mg/L	0.002	0.02	< 0.002	< 0.002
Phosphorus (total)	mg/L	0.03	0.01	**< 0.03**	**< 0.03**
Anion Sum	meq/L	-9999		4.62	4.60
Anion-Cation Balance	% difference	-9999		2.61	0.68
Cation sum	meq/L	-9999		4.87	4.66
Ion Ratio	none	-9999		1.05	1.01
Langeliers Index 4° C	@ 4° C	-9999		-0.53	-0.47
Saturation pH 4°C	pHs @ 4°C	-9999		7.89	7.91

FINAL REPORT

CA15371-AUG25 R

Client: Pinchin Ltd
Project: 350221.001, South Fredericksburgh LF SW
Project Manager: Samantha Young
Samplers: Sam Young

MATRIX: WATER

L1 = PWQO_L / WATER / - - Table 2 - General - July 1999 PIBS 3303E

Sample Number	7	8
Sample Name	SW3	DUP-1
Sample Matrix	Surface Water	Surface Water
Sample Date	27/08/2025	27/08/2025

Parameter	Units	RL	L1	Result	Result
Other (ORP)					
pH	No unit	0.05	8.6	7.36	7.44
Chloride	mg/L	1		21	21
Mercury (dissolved)	mg/L	0.00001	0.0002	< 0.00001	< 0.00001

EXCEEDANCE SUMMARY

Parameter	Method	Units	Result	PWQO_L / WATER / - - Table 2 - General - July 1999 PIBS 3303E L1
SW3				
Iron	SM 3030/EPA 200.8	mg/L	0.728	0.3
Phosphorus	SM 4500-P J	mg/L	< 0.03	0.01
DUP-1				
Iron	SM 3030/EPA 200.8	mg/L	0.748	0.3
Phosphorus	SM 4500-P J	mg/L	< 0.03	0.01

QC SUMMARY

Alkalinity

Method: SM 2320 | Internal ref.: ME-CA-[ENV]EWL-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Alkalinity	EWL0058-SEP25	mg/L as CaCO3	2	< 2	1	20	94	80	120	NA		

Ammonia by SFA

Method: SM 4500 | Internal ref.: ME-CA-[ENV]SFA-LAK-AN-007

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Ammonia+Ammonium (N)	SKA0012-SEP25	as N mg/L	0.1	<0.1	0	10	99	90	110	102	75	125
Ammonia+Ammonium (N)	SKA0031-SEP25	as N mg/L	0.1	0.13	0	10	103	90	110	97	75	125

QC SUMMARY

Anions by discrete analyzer

Method: US EPA 325.2 | Internal ref.: ME-CA-IENVIEWL-LAK-AN-026

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Chloride	DIO8000-SEP25	mg/L	1	<1	0	20	94	70	130	84	70	130
Nitrite (as N)	DIO8000-SEP25	mg/L	0.03	< 0.03	ND	20	102	80	120	104	75	125
Sulphate	DIO8000-SEP25	mg/L	2	<2	0	20	101	80	120	103	75	125

Biochemical Oxygen Demand

Method: SM 5210 | Internal ref.: ME-CA-IENVIEWL-LAK-AN-007

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Biochemical Oxygen Demand (BOD5)	BOD0056-AUG25	mg/L	2	< 2	11	30	86	70	130	80	70	130

QC SUMMARY

Carbon by SFA

Method: SM 5310 | Internal ref.: ME-CA-[ENV]SFA-LAK-AN-009

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Dissolved Organic Carbon	SKA0024-SEP25	mg/L	1	<1	1	20	100	90	110	105	75	125

Chemical Oxygen Demand

Method: HACH 8000 | Internal ref.: ME-CA-[ENV]EWL-LAK-AN-009

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Chemical Oxygen Demand	EWL0009-SEP25	mg/L	8	<8	19	20	88	80	120	106	75	125

Conductivity

Method: SM 2510 | Internal ref.: ME-CA-[ENV]EWL-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Conductivity	EWL0058-SEP25	uS/cm	2	< 2	2	10	99	90	110	NA		

QC SUMMARY

Mercury by CVAAS

Method: EPA 7471A/SM 3112B | Internal ref.: ME-CA-[ENV]SPE-LAK-AN-004

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Mercury (dissolved)	EHG0001-SEP25	mg/L	0.00001	< 0.00001	11	20	116	80	120	104	70	130

QC SUMMARY

Metals in aqueous samples - ICP-MS

Method: SM 3030/EPA 200.8 | Internal ref.: ME-CA-[ENVISPE-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Arsenic (total)	EMS0029-SEP25	mg/L	0.0002	<0.0002	10	20	99	90	110	97	70	130
Barium (total)	EMS0029-SEP25	mg/L	0.00008	<0.00008	5	20	101	90	110	94	70	130
Boron (total)	EMS0029-SEP25	mg/L	0.002	<0.002	10	20	100	90	110	95	70	130
Calcium (total)	EMS0029-SEP25	mg/L	0.01	<0.01	8	20	101	90	110	99	70	130
Cadmium (total)	EMS0029-SEP25	mg/L	0.000003	<0.000003	15	20	100	90	110	87	70	130
Chromium (total)	EMS0029-SEP25	mg/L	0.00008	<0.00008	0	20	99	90	110	96	70	130
Copper (total)	EMS0029-SEP25	mg/L	0.001	<0.001	12	20	105	90	110	99	70	130
Iron (total)	EMS0029-SEP25	mg/L	0.007	<0.007	ND	20	102	90	110	100	70	130
Potassium (total)	EMS0029-SEP25	mg/L	0.009	<0.009	10	20	102	90	110	75	70	130
Magnesium (total)	EMS0029-SEP25	mg/L	0.001	<0.001	9	20	104	90	110	103	70	130
Manganese (total)	EMS0029-SEP25	mg/L	0.00001	<0.00001	8	20	102	90	110	97	70	130
Sodium (total)	EMS0029-SEP25	mg/L	0.01	<0.01	12	20	105	90	110	100	70	130
Lead (total)	EMS0029-SEP25	mg/L	0.00009	<0.00009	8	20	99	90	110	95	70	130
Zinc (total)	EMS0029-SEP25	mg/L	0.002	<0.002	ND	20	102	90	110	97	70	130

QC SUMMARY

pH

Method: SM 4500 I Internal ref.: ME-CA-IENVIEWL-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
pH	EWL0044-SEP25	No unit	0.05	NA	0		100			NA		

Phosphorus by SFA

Method: SM 4500-P J I Internal ref.: ME-CA-IENVISFA-LAK-AN-003

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Phosphorus (total)	SKA0005-SEP25	mg/L	0.03	<0.03	5	10	101	90	110	NV	75	125

Solids Analysis

Method: SM 2540C I Internal ref.: ME-CA-IENVIEWL-LAK-AN-005

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Total Dissolved Solids	EWL0643-AUG25	mg/L	30	<30	1	20	106	80	120	NA		

QC SUMMARY

Suspended Solids

Method: SM 2540D | Internal ref.: ME-CA-IENVIEWL-LAK-AN-004

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Total Suspended Solids	EWL0004-SEP25	mg/L	2	< 2	2	10	99	90	110	NA		

Total Nitrogen

Method: SM 4500-N C/4500-NO3- F | Internal ref.: ME-CA-IENVISFA-LAK-AN-002

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Total Kjeldahl Nitrogen	SKA0004-SEP25	as N mg/L	0.5	<0.5	2	10	99	90	110	100	75	125
Total Kjeldahl Nitrogen	SKA0020-SEP25	as N mg/L	0.5	<0.5	3	10	100	90	110	100	75	125

QC SUMMARY

Method Blank: a blank matrix that is carried through the entire analytical procedure. Used to assess laboratory contamination.
Duplicate: Paired analysis of a separate portion of the same sample that is carried through the entire analytical procedure. Used to evaluate measurement precision.
LCS/Spike Blank: Laboratory control sample or spike blank refer to a blank matrix to which a known amount of analyte has been added. Used to evaluate analyte recovery and laboratory accuracy without sample matrix effects.
Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate laboratory accuracy with sample matrix effects.
Reference Material: a material or substance matrix matched to the samples that contains a known amount of the analyte of interest. A reference material may be used in place of a matrix spike.
RL: Reporting limit
RPD: Relative percent difference
AC: Acceptance criteria

Multielement Scan Qualifier: as the number of analytes in a scan increases, so does the chance of a limit exceedance by random chance as opposed to a real method problem. Thus, in multielement scans, for the LCS and matrix spike, up to 10% of the analytes may exceed the quoted limits by up to 10% absolute and the spike is considered acceptable.
Duplicate Qualifier: for duplicates as the measured result approaches the RL, the uncertainty associated with the value increases dramatically, thus duplicate acceptance limits apply only where the average of the two duplicates is greater than five times the RL.
Matrix Spike Qualifier: for matrix spikes, as the concentration of the native analyte increases, the uncertainty of the matrix spike recovery increases. Thus, the matrix spike acceptance limits apply only when the concentration of the matrix spike is greater than or equal to the concentration of the native analyte.

LEGEND

FOOTNOTES

NSS Insufficient sample for analysis.
RL Reporting Limit.
↑ Reporting limit raised.
↓ Reporting limit lowered.
NA The sample was not analysed for this analyte
ND Non Detect

Results relate only to the sample tested.
Data reported represent the sample as submitted to SGS. Solid samples expressed on a dry weight basis.
"Temperature Upon Receipt" is representative of the whole shipment and may not reflect the temperature of individual samples.
Analysis conducted on samples submitted pursuant to or as part of Reg. 153/04, are in accordance to the "Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act and Excess Soil Quality" published by the Ministry and dated March 9, 2004 as amended.

SGS provides criteria information (such as regulatory or guideline limits and summary of limit exceedances) as a service. Every attempt is made to ensure the criteria information in this report is accurate and current, however, it is not guaranteed. Comparison to the most current criteria is the responsibility of the client and SGS assumes no responsibility for the accuracy of the criteria levels indicated.

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This report supersedes all previous versions.

-- End of Analytical Report --

SGS

Request for Laboratory Services and CHAIN OF CUSTODY (General)

SGS Environmental Services - Lakefield: 185 Concession St., Lakefield, ON K0L 2H0 Phone: 705-652-2000 Toll Free: 877-747-7658 Fax: 705-652-6365 Web: www.ca.sgs.com {4}

SGS Environmental Services - London: 657 Consortium Court, London, ON, N6E 2S8 Phone: 519-672-4500 Toll Free: 877-848-8060 Fax: 519-672-0361 Web: www.ca.sgs.com {4}

Laboratory Information Section

Received Date (mm/dd/yyyy): AUG 28 2025

Received Time (After Hours Only): : :

LAB LIMS #: CA 15371 AUG25 LA

Temperature Upon Receipt (°C): 6 X 3

Billing & Reporting Information

Invoice/Receipt to {3}:

Company: Pinchin

Attention: Samantha Young

Address: 1456 Centennial Drive, Suite 2, Kingston, ON K7L 0K4

Email: SRyoung@pinchin.com

Quote #: 2024 1378

Attached Parameter List: ☑ YES ☐ NO

Turnaround Time

Is *Rush Turnaround Time Required? ☐ YES ☑ NO

Specify:

* Rush TA Requests Require Lab Approval

Project Name/Number: South Fredericksburgh LF - SW

P.O. #: 3502210

Client Information/Report To:

Client Lab #:

Company Name:	**Pinchin Ltd.**	**Phone Number:**	**613-796-2342**
Contact Name:	**Samantha Young**	**Fax Number:**	
Address:	**1456 Centennial Drive, Suite 2, Kingston ON**	**E-mail:**	**SRyoung@pinchin.com**
Copy to:			

Sample Information

Sample Identifier	Date Sampled (mm/dd/yy)	Time Sampled	# of Bottles	Analysis Requested (please enter the analysis required below and check off which analysis applies to each sample)							
				Field Filtered	Field Temp (°C)	Field pH		SW Monitoring Package			
SW3	08/27/25	AM	1	N	22.5	7.46		X			
DUP-1	↓	↓	1	N	22.5	7.46		X			
								X			
								X			

Sampled By {1}: (Name) Sam Young (Signature) SY Date: 08/28/25 (mm/dd/yy)

Relinquished by {2}: (Name) Sam Young (Signature) SY Date: 08/28/25 (mm/dd/yy)

Note: {1} Submission of samples to SGS is acknowledgement that you have been provided direction on sample collection/handling and transportation of samples. {2} Submission of samples to SGS is considered authorization for completion of work. Signatures may appear on this form or be retained on file in the contract or in an alternative format (e.g. shipping documents). {3} Results may be sent by email to an unlimited number of addresses for no additional cost. Fax is available upon request. {4} Completion of work may require the subcontracting of samples between the London and Lakefield laboratories.

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Revision #: 2.3
Date of Issue: 24 Jun. 2014

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START SURVEY

FINAL REPORT

CA15528-OCT25 R

350221.001, South Fredricksburgh LF - Fall SW

Prepared for

Pinchin Ltd

TE-GL-ENVLAB-IT-011v2.6.4

FINAL REPORT

CA15528-OCT25 R

First Page

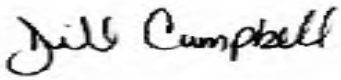
CLIENT DETAILS		LABORATORY DETAILS	
Client	Pinchin Ltd	Project Specialist	Jill Campbell, B.Sc.,GISAS
Address	1456 Centennial Drive, Kingston Canada, K7P 0K4 Phone: 613-796-2342. Fax:	Laboratory Address	SGS Canada Inc. 185 Concession St., Lakefield ON, K0L 2H0
Contact	Samantha Young		
Telephone	613-796-2342	Telephone	2165
Facsimile		Facsimile	705-652-6365
Email	sryoung@pinchin.com	Email	jill.campbell@sgs.com
Works #		SGS Reference	CA15528-OCT25
Project	350221.001, South Fredricksburgh LF - Fall SW	Received	2025-10-09
Reference		Approved	10/27/2025
Batch		Report Number	CA15528-OCT25 R
Samples	WATER (2)	Date Reported	10/27/2025

COMMENTS

Temperature of Sample upon Receipt: 5 degrees C

SIGNATORIES

Jill Campbell, B.Sc.,GISAS



FINAL REPORT

CA15528-OCT25 R

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FINAL REPORT

CA15528-OCT25 R

Client: Pinchin Ltd
Project: 350221.001, South Fredricksburgh LF - Fall SW
Project Manager: Samantha Young
Samplers: Sam Young

MATRIX: WATER

L1 = PWQO_L / WATER / - - Table 2 - General - July 1999 PIBS 3303E

Sample Number	7	8
Sample Name	SW3	DUP
Sample Matrix	Surface Water	Surface Water
Sample Date	2025-10-08 00:00	2025-10-08 00:00

Parameter	Units	RL	L1	Result	Result
General Chemistry					
Temperature @ pH	°C	0		19.6	19.6
Alkalinity	mg/L as CaCO3	2		192	187
Total Suspended Solids	mg/L	2		3	4
Biochemical Oxygen Demand (BOD5)	mg/L	2		< 4 ↑	< 4 ↑
Conductivity	uS/cm	2		362	401
Total Dissolved Solids	mg/L	30		243	217
Chemical Oxygen Demand	mg/L	8		26	24
Total Kjeldahl Nitrogen	as N mg/L	0.5		0.8	0.8
Ammonia+Ammonium (N)	as N mg/L	0.1		< 0.1	< 0.1
Dissolved Organic Carbon	mg/L	1		9	9
Metals and Inorganics					
Sulphate	mg/L	2		< 2	< 2
Nitrite (as N)	as N mg/L	0.03		< 0.03	< 0.03
Nitrate (as N)	as N mg/L	0.06		< 0.06	< 0.06
Hardness	mg/L as CaCO3	0.05		205	203
Iron (total)	mg/L	0.007	0.3	0.892	0.976
Calcium (total)	mg/L	0.01		53.5	52.5
Potassium (total)	mg/L	0.009		2.85	2.79
Magnesium (total)	mg/L	0.001		17.2	17.6
Sodium (total)	mg/L	0.01		10.9	11.1
Arsenic (total)	mg/L	0.0002	0.005	0.0003	0.0003

FINAL REPORT

CA15528-OCT25 R

Client: Pinchin Ltd
Project: 350221.001, South Fredricksburgh LF - Fall SW
Project Manager: Samantha Young
Samplers: Sam Young

MATRIX: WATER

L1 = PWQO_L / WATER / - - Table 2 - General - July 1999 PIBS 3303E

Sample Number				7	8
Sample Name				SW3	DUP
Sample Matrix				Surface Water	Surface Water
Sample Date				2025-10-08 00:00	2025-10-08 00:00
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**
Metals and Inorganics (continued)					
Barium (total)	mg/L	0.00008		0.0398	0.0402
Boron (total)	mg/L	0.002	0.2	0.046	0.045
Cadmium (total)	mg/L	0.000003	0.0005	0.000003	0.000003
Chromium (total)	mg/L	0.00008		< 0.00008	< 0.00008
Copper (total)	mg/L	0.001	0.005	< 0.001	< 0.001
Lead (total)	mg/L	0.00009	0.025	< 0.00009	< 0.00009
Manganese (total)	mg/L	0.00001		0.304	0.281
Zinc (total)	mg/L	0.002	0.02	< 0.002	< 0.002
Phosphorus (total)	mg/L	0.03	0.01	**0.04**	**0.03**
Anion Sum	meq/L	-9999		4.55	4.44
Anion-Cation Balance	% difference	-9999		1.73	2.71
Cation sum	meq/L	-9999		4.71	4.69
Ion Ratio	none	-9999		1.04	1.06
Langeliers Index 4° C	@ 4° C	-9999		-0.12	-0.15
Saturation pH 4°C	pHs @ 4°C	-9999		7.93	7.95

FINAL REPORT

CA15528-OCT25 R

Client: Pinchin Ltd
Project: 350221.001, South Fredricksburgh LF - Fall SW
Project Manager: Samantha Young
Samplers: Sam Young

MATRIX: WATER

L1 = PWQO_L / WATER / - - Table 2 - General - July 1999 PIBS 3303E

			Sample Number	7	8
			Sample Name	SW3	DUP
			Sample Matrix	Surface Water	Surface Water
			Sample Date	2025-10-08 00:00	2025-10-08 00:00
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**
Other (ORP)					
pH	No unit	0.05	8.6	7.81	7.80
Chloride	mg/L	1		24	24
Mercury (dissolved)	mg/L	0.00001	0.0002	< 0.00001	< 0.00001

EXCEEDANCE SUMMARY

Parameter	Method	Units	Result	PWQO_L / WATER / - - Table 2 - General - July 1999 PIBS 3303E L1
SW3				
Iron	SM 3030/EPA 200.8	mg/L	0.892	0.3
Phosphorus	SM 4500-P J	mg/L	0.04	0.01
DUP				
Iron	SM 3030/EPA 200.8	mg/L	0.976	0.3
Phosphorus	SM 4500-P J	mg/L	0.03	0.01

QC SUMMARY

Alkalinity

Method: SM 2320 | Internal ref.: ME-CA-[ENV]EWL-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Alkalinity	EWL0294-OCT25	mg/L as CaCO3	2	< 2	0	20	98	80	120	NA		

Ammonia by SFA

Method: SM 4500 | Internal ref.: ME-CA-[ENV]SFA-LAK-AN-007

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Ammonia+Ammonium (N)	SKA0120-OCT25	as N mg/L	0.1	<0.1	ND	10	101	90	110	101	75	125

QC SUMMARY

Anions by discrete analyzer

Method: US EPA 325.2 I Internal ref.: ME-CA-IENVIEWL-LAK-AN-026

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Chloride	DIO8019-OCT25	mg/L	1	<1	3	20	92	70	130	97	70	130
Nitrite (as N)	DIO8019-OCT25	mg/L	0.03	< 0.03	ND	20	98	80	120	99	75	125
Sulphate	DIO8019-OCT25	mg/L	2	<2	ND	20	97	80	120	101	75	125

Biochemical Oxygen Demand

Method: SM 5210 I Internal ref.: ME-CA-IENVIEWL-LAK-AN-007

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Biochemical Oxygen Demand (BOD5)	BOD0025-OCT25	mg/L	2	< 2	5	30	115	70	130	89	70	130

QC SUMMARY

Carbon by SFA

Method: SM 5310 I Internal ref.: ME-CA-IENVISFA-LAK-AN-009

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Dissolved Organic Carbon	SKA0097-OCT25	mg/L	1	<1	1	20	98	90	110	97	75	125
Dissolved Organic Carbon	SKA0107-OCT25	mg/L	1	<1	1	20	98	90	110	NV	75	125

Chemical Oxygen Demand

Method: HACH 8000 I Internal ref.: ME-CA-IENVIEWL-LAK-AN-009

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Chemical Oxygen Demand	EWL0261-OCT25	mg/L	8	<8	3	20	98	80	120	82	75	125

Conductivity

Method: SM 2510 I Internal ref.: ME-CA-IENVIEWL-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Conductivity	EWL0294-OCT25	uS/cm	2	< 2	0	10	99	90	110	NA		

QC SUMMARY

Mercury by CVAAS

Method: EPA 7471A/SM 3112B | Internal ref.: ME-CA-[ENV]SPE-LAK-AN-004

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Mercury (dissolved)	EHG0033-OCT25	mg/L	0.00001	< 0.00001	ND	20	84	80	120	112	70	130

QC SUMMARY

Metals in aqueous samples - ICP-MS

Method: SM 3030/EPA 200.8 | Internal ref.: ME-CA-[ENVISPE-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Arsenic (total)	EMS0273-OCT25	mg/L	0.0002	<0.0002	2	20	98	90	110	95	70	130
Barium (total)	EMS0273-OCT25	mg/L	0.00008	<0.00008	0	20	103	90	110	92	70	130
Boron (total)	EMS0273-OCT25	mg/L	0.002	<0.002	2	20	105	90	110	101	70	130
Calcium (total)	EMS0273-OCT25	mg/L	0.01	<0.01	1	20	105	90	110	98	70	130
Cadmium (total)	EMS0273-OCT25	mg/L	0.000003	<0.000003	2	20	103	90	110	95	70	130
Chromium (total)	EMS0273-OCT25	mg/L	0.00008	<0.00008	17	20	102	90	110	84	70	130
Copper (total)	EMS0273-OCT25	mg/L	0.001	<0.001	3	20	100	90	110	82	70	130
Iron (total)	EMS0273-OCT25	mg/L	0.007	<0.007	0	20	106	90	110	100	70	130
Potassium (total)	EMS0273-OCT25	mg/L	0.009	<0.009	1	20	103	90	110	96	70	130
Magnesium (total)	EMS0273-OCT25	mg/L	0.001	<0.001	6	20	104	90	110	101	70	130
Manganese (total)	EMS0273-OCT25	mg/L	0.00001	<0.00001	1	20	101	90	110	101	70	130
Sodium (total)	EMS0273-OCT25	mg/L	0.01	<0.01	1	20	102	90	110	100	70	130
Lead (total)	EMS0273-OCT25	mg/L	0.00009	<0.00009	4	20	100	90	110	94	70	130
Zinc (total)	EMS0273-OCT25	mg/L	0.002	<0.002	1	20	102	90	110	97	70	130

QC SUMMARY

pH

Method: SM 4500 I Internal ref.: ME-CA-IENVIEWL-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
pH	EWL0294-OCT25	No unit	0.05	NA	0		100			NA		

Phosphorus by SFA

Method: SM 4500-P J I Internal ref.: ME-CA-IENVISFA-LAK-AN-003

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Phosphorus (total)	SKA0215-OCT25	mg/L	0.03	<0.03	0	10	96	90	110	95	75	125

Solids Analysis

Method: SM 2540C I Internal ref.: ME-CA-IENVIEWL-LAK-AN-005

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Total Dissolved Solids	EWL0312-OCT25	mg/L	30	<30	1	20	101	80	120	NA		

QC SUMMARY

Suspended Solids

Method: SM 2540D | Internal ref.: ME-CA-[ENVIEWL-LAK-AN-004

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Total Suspended Solids	EWL0289-OCT25	mg/L	2	< 2	0	10	100	90	110	NA		

Total Nitrogen

Method: SM 4500-N C/4500-NO3- F | Internal ref.: ME-CA-[ENVISFA-LAK-AN-002

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Total Kjeldahl Nitrogen	SKA0134-OCT25	as N mg/L	0.5	<0.5	1	10	100	90	110	86	75	125

QC SUMMARY

Method Blank: a blank matrix that is carried through the entire analytical procedure. Used to assess laboratory contamination.
Duplicate: Paired analysis of a separate portion of the same sample that is carried through the entire analytical procedure. Used to evaluate measurement precision.
LCS/Spike Blank: Laboratory control sample or spike blank refer to a blank matrix to which a known amount of analyte has been added. Used to evaluate analyte recovery and laboratory accuracy without sample matrix effects.
Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate laboratory accuracy with sample matrix effects.
Reference Material: a material or substance matrix matched to the samples that contains a known amount of the analyte of interest. A reference material may be used in place of a matrix spike.
RL: Reporting limit
RPD: Relative percent difference
AC: Acceptance criteria

Multielement Scan Qualifier: as the number of analytes in a scan increases, so does the chance of a limit exceedance by random chance as opposed to a real method problem. Thus, in multielement scans, for the LCS and matrix spike, up to 10% of the analytes may exceed the quoted limits by up to 10% absolute and the spike is considered acceptable.
Duplicate Qualifier: for duplicates as the measured result approaches the RL, the uncertainty associated with the value increases dramatically, thus duplicate acceptance limits apply only where the average of the two duplicates is greater than five times the RL.
Matrix Spike Qualifier: for matrix spikes, as the concentration of the native analyte increases, the uncertainty of the matrix spike recovery increases. Thus, the matrix spike acceptance limits apply only when the concentration of the matrix spike is greater than or equal to the concentration of the native analyte.

LEGEND

FOOTNOTES

NSS Insufficient sample for analysis.
RL Reporting Limit.
↑ Reporting limit raised.
↓ Reporting limit lowered.
NA The sample was not analysed for this analyte
ND Non Detect

Results relate only to the sample tested.
Data reported represent the sample as submitted to SGS.

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Please refer to SGS General Conditions of Services located at http://www.sgs.com/terms_and_conditions.htm (Printed copies are available upon request.)

Test method information available upon request.
"Temperature Upon Receipt" is representative of the whole shipment and may not reflect the temperature of individual samples.

SGS Canada Inc. statement of conformity decision rule does not consider uncertainty when analytical results are compared to a specified standard or regulation.

-- End of Analytical Report --

SGS

Request for Laboratory Services and CHAIN OF CUSTODY (General)

SGS Environmental Services - Lakefield: 185 Concession St., Lakefield, ON K0L 2H0 Phone: 705-652-2000 Toll Free: 877-747-7658 Fax: 705-652-6365 Web: www.ca.sgs.com {4}

SGS Environmental Services - London: 657 Consortium Court, London, ON, N6E 2S8 Phone: 519-672-4500 Toll Free: 877-848-8060 Fax: 519-672-0361 Web: www.ca.sgs.com {4}

Laboratory Information Section

Received Date (mm/dd/yyyy): 10/09/25 | LAB LIMS #: CA 15528-OCT25

Received Time (After Hours Only): __:__ | Temperature Upon Receipt (°C): 4.5; 7.

Billing & Reporting Information

Invoice/Receipt to {3}:

Company: Pinchin

Attention: Samantha Young

Address: 1456 Centennial Drive, Suite 2, Kingston, ON K7L 0K4

Email: SRyoung@pinchin.com

Project Name/Number: South Fredericksburgh LF - SW | P.O. #: 350221.001

Quote #: 2024 1378

Attached Parameter List: ☑ YES ☐ NO

Turnaround Time

Is *Rush Turnaround Time Required? ☐ YES ☑ NO

Specify:

* Rush TA Requests Require Lab Approval

Client Information/Report To: | Client Lab #:

Company Name:	Pinchin Ltd.	Phone Number:	613-796-2342
Contact Name:	Samantha Young	Fax Number:	
Address:	1456 Centennial Drive, Suite 2, Kingston ON	E-mail:	SRyoung@pinchin.com
Copy to:			

Sample Information

Sample Identifier	Date Sampled (mm/dd/yy)	Time Sampled	# of Bottles	Analysis Requested: Field Filtered	Field Temp (°C)	Field pH		SW Monitoring Package			
SW3	10/08/25	AM	9	N	15.69	8.08		x			
DUP	"	AM	9	N	15.69	8.08		x			
SW8								X			
SW5								X			
[illegible]								X			

Sampled By {1}: (Name) Sam Young (Signature) Sam Young Date: 10/08/25 (mm/dd/yy)

Relinquished by {2}: (Name) Sam Young (Signature) Sam Young Date: 10/08/25 (mm/dd/yy)

Note: {1} Submission of samples to SGS is acknowledgement that you have been provided direction on sample collection/handling and transportation of samples. {2} Submission of samples to SGS is considered authorization for completion of work. Signatures may appear on this form or be retained on file in the contract, or in an alternative format (e.g. shipping documents). {3} Results may be sent by email to an unlimited number of addresses for no additional cost. Fax is available upon request. {4} Completion of work may require the subcontracting of samples between the London and Lakefield laboratories.

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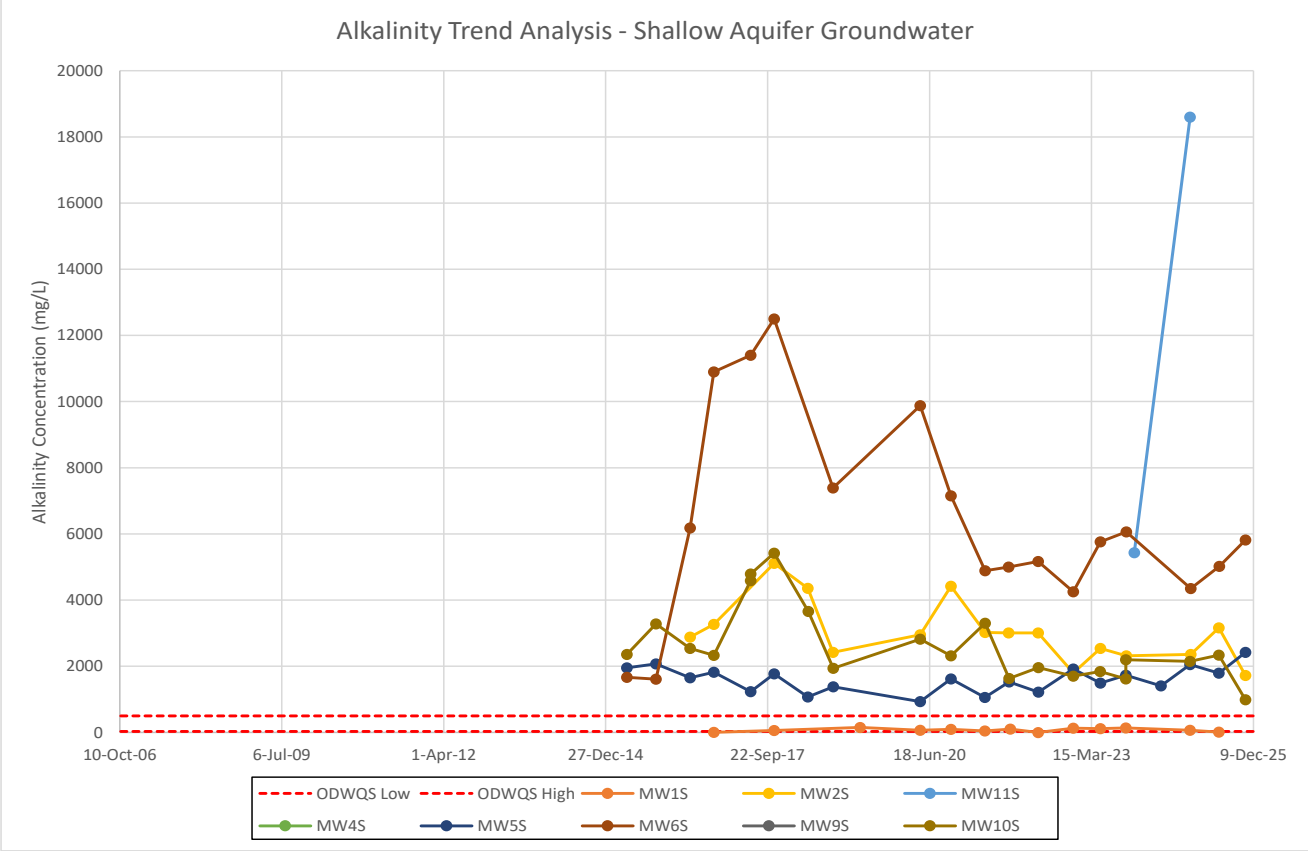
Revision #: 2.3
Date of Issue: 24 Jun. 2014

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APPENDIX IX

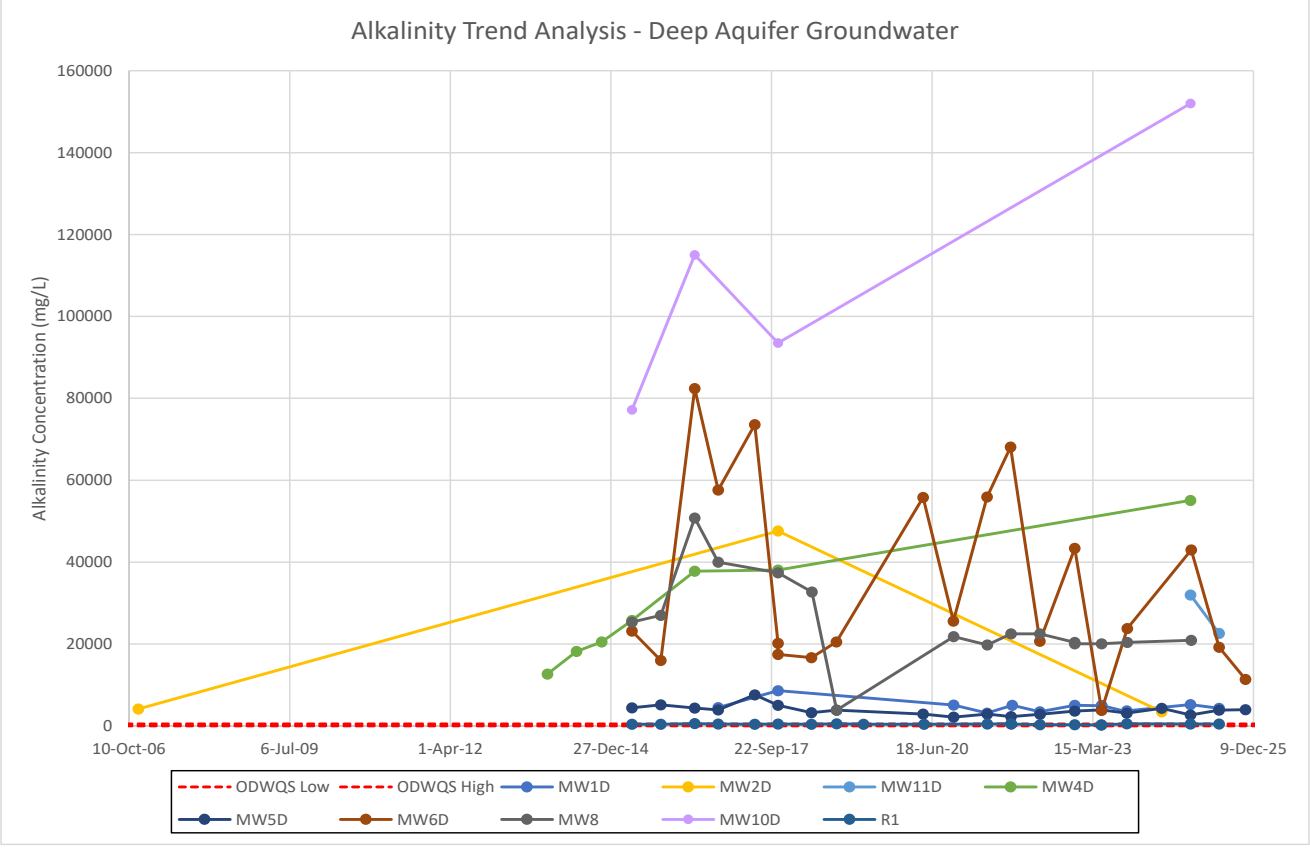
Groundwater Time Versus Concentration Graphs

Town of Napanee, Ontario
South Fredericksburgh Waste Disposal Site
Napanee, Ontario
April 2026



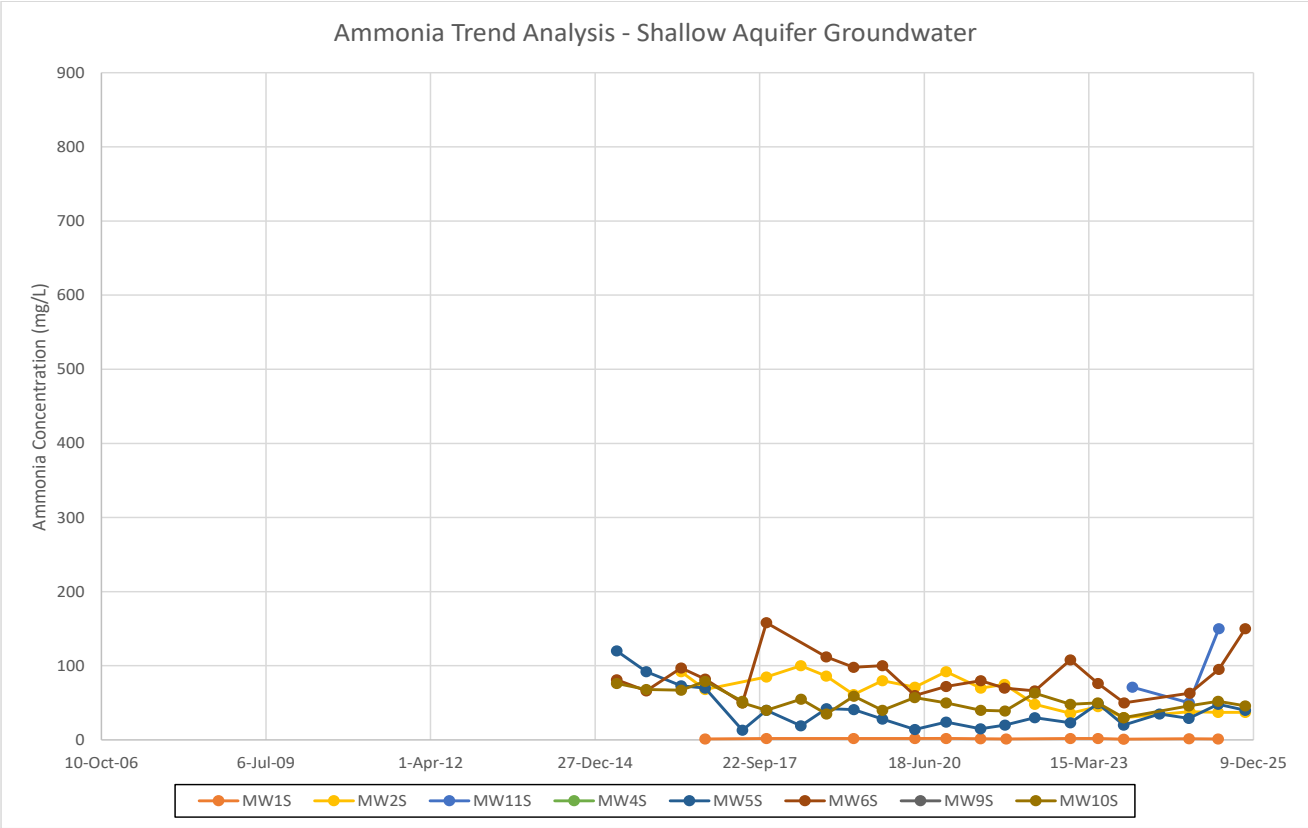
Pinchin Project No. **350221.001**

Town of Napanee, Ontario
South Fredericksburgh Waste Disposal Site
Napanee, Ontario
April 2026



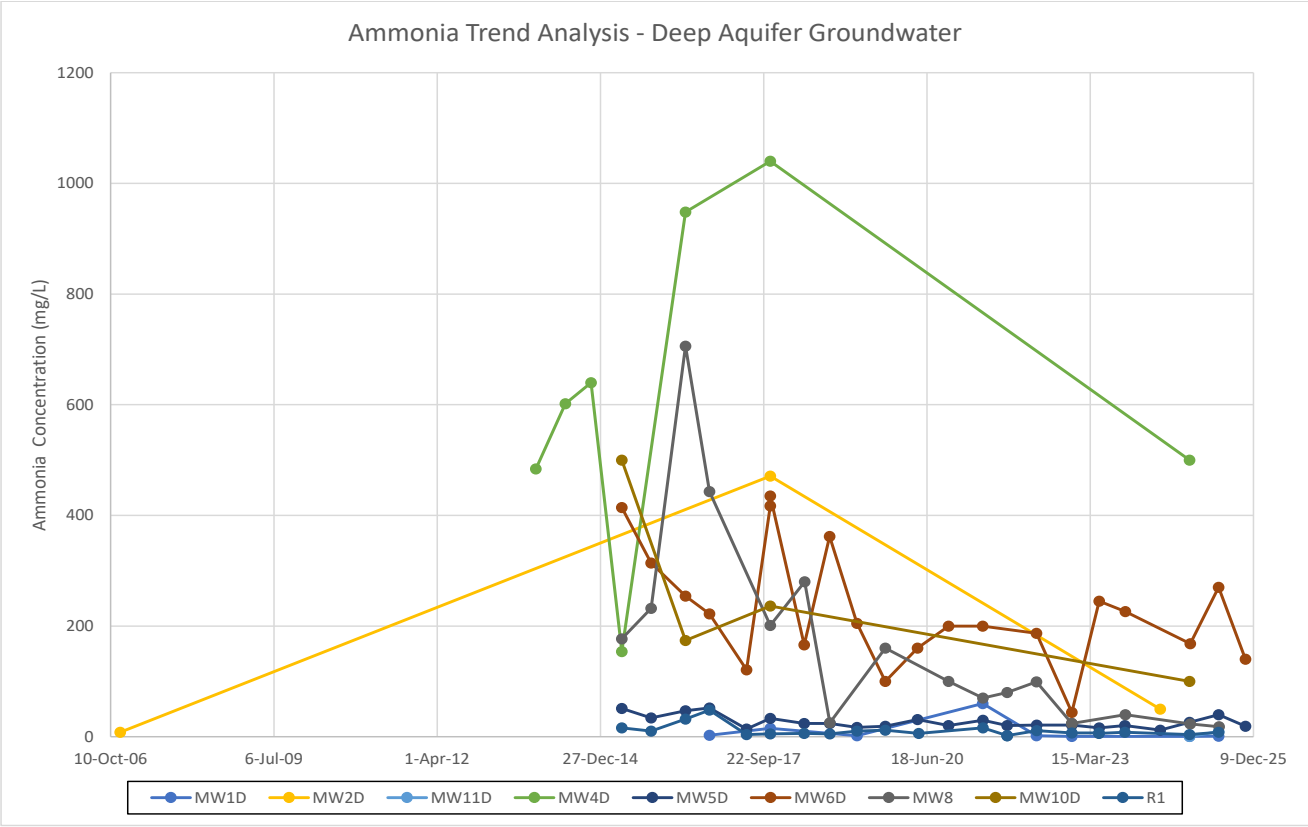
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Town of Napanee, Ontario
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Napanee, Ontario
April 2026



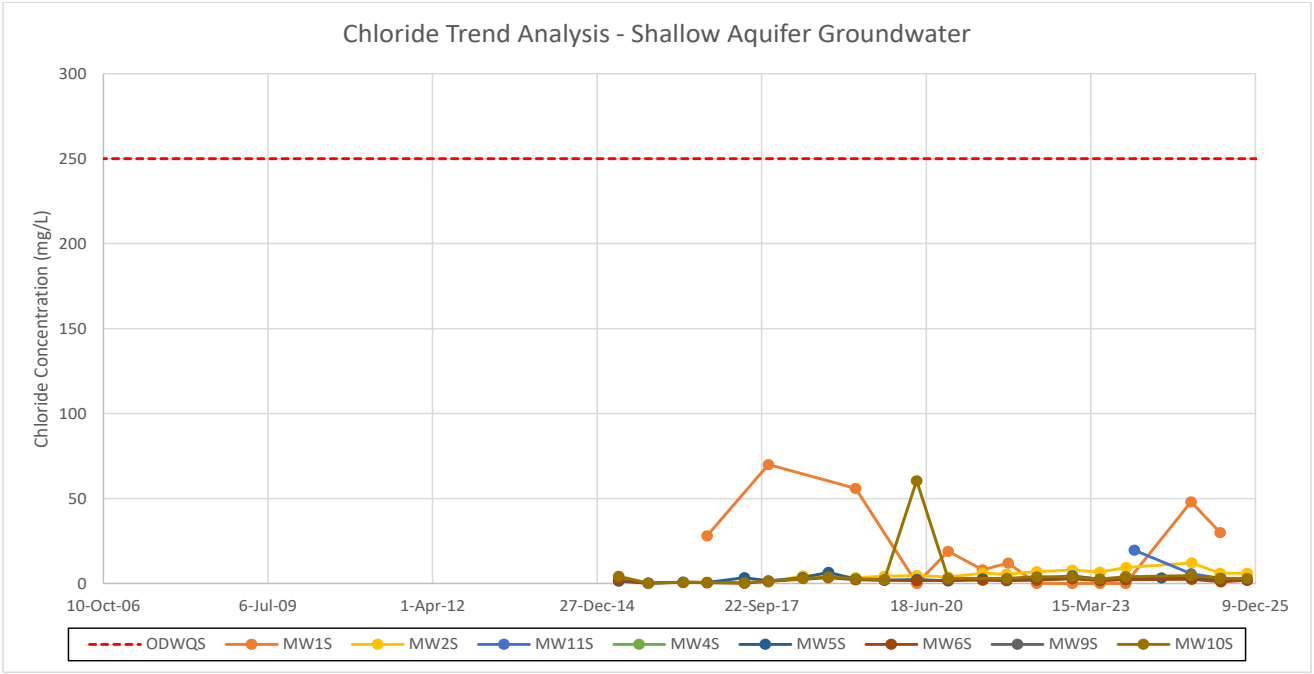
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South Fredericksburgh Waste Disposal Site
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April 2026



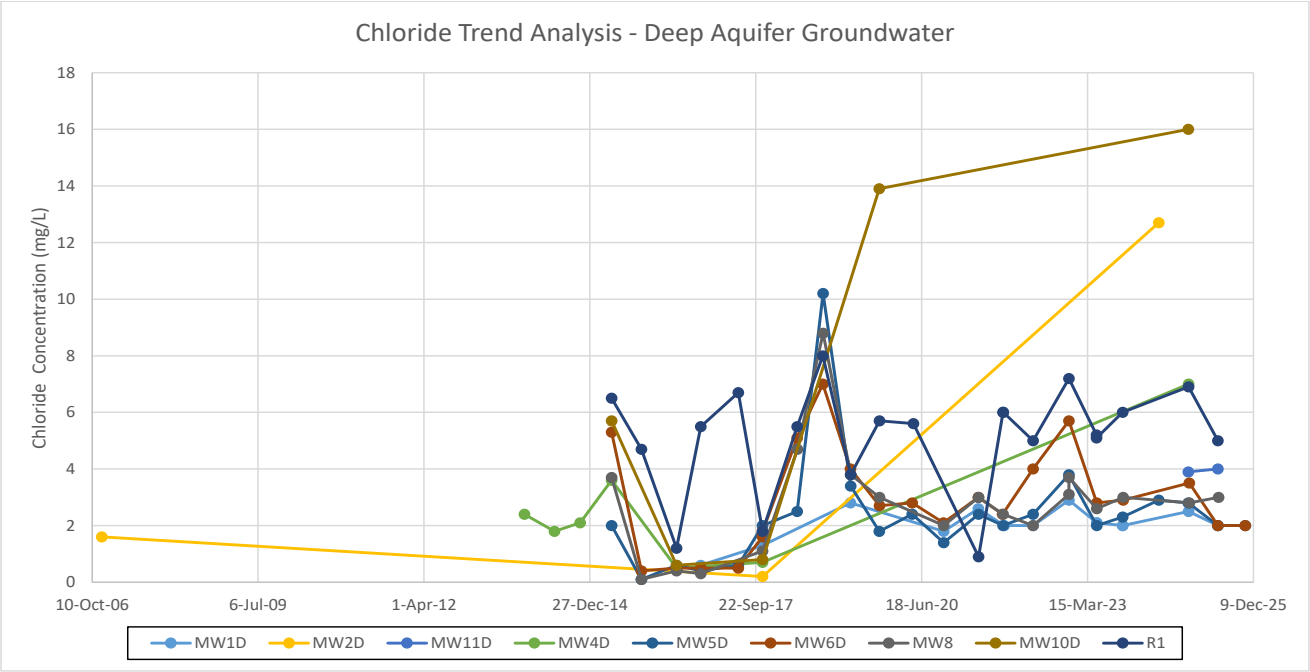
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Town of Napanee, Ontario
South Fredericksburgh Waste Disposal Site
Napanee, Ontario
April 2026



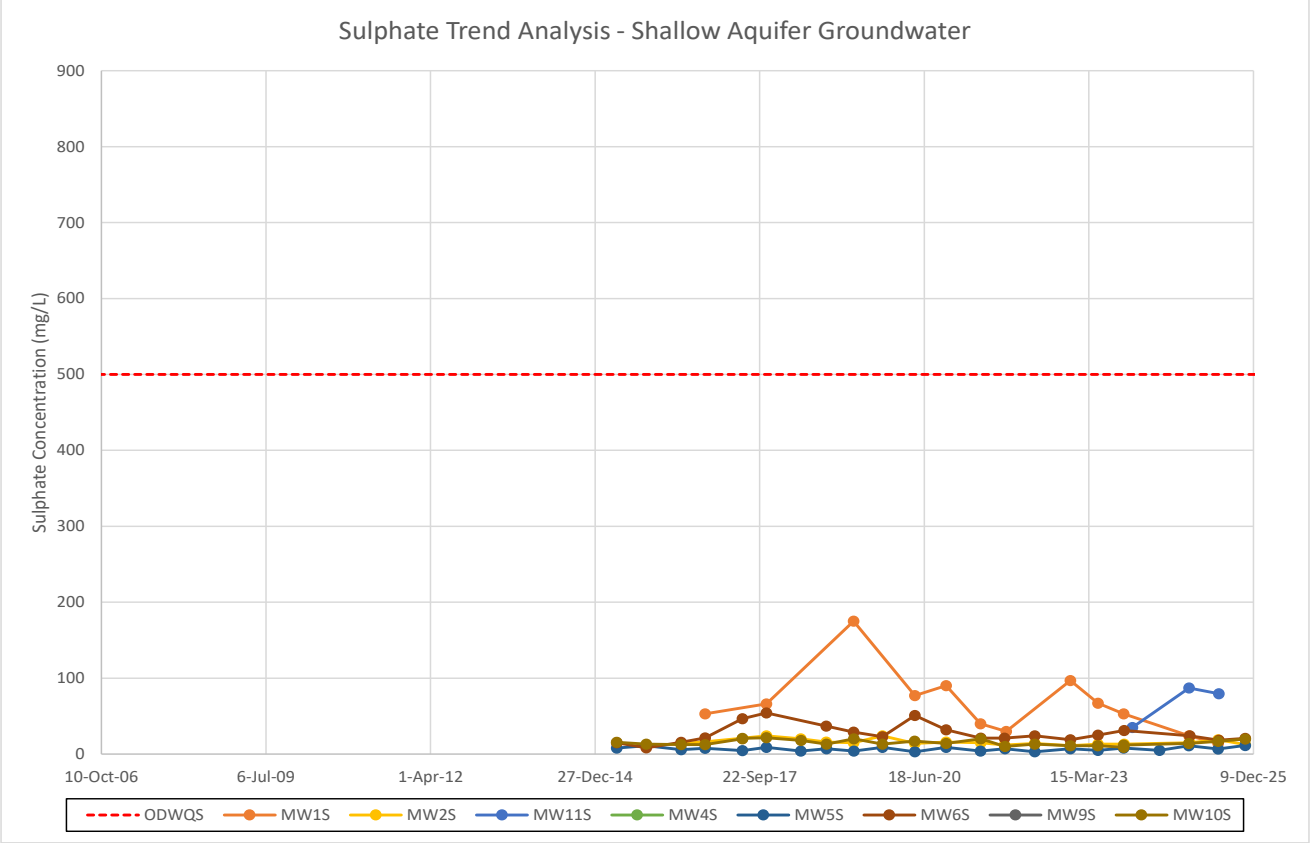
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Town of Napanee, Ontario
South Fredericksburgh Waste Disposal Site
Napanee, Ontario
April 2026



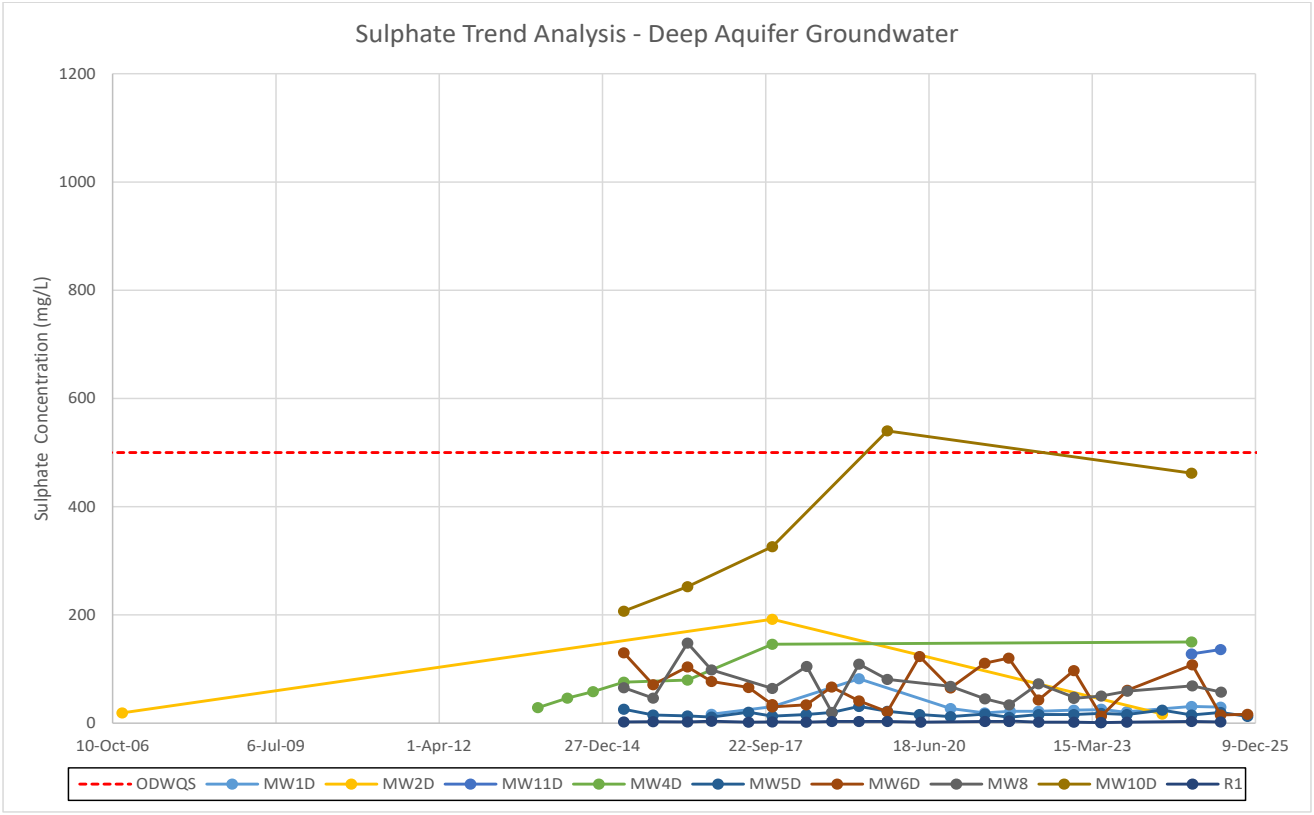
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Town of Napanee, Ontario
South Fredericksburgh Waste Disposal Site
Napanee, Ontario
April 2026



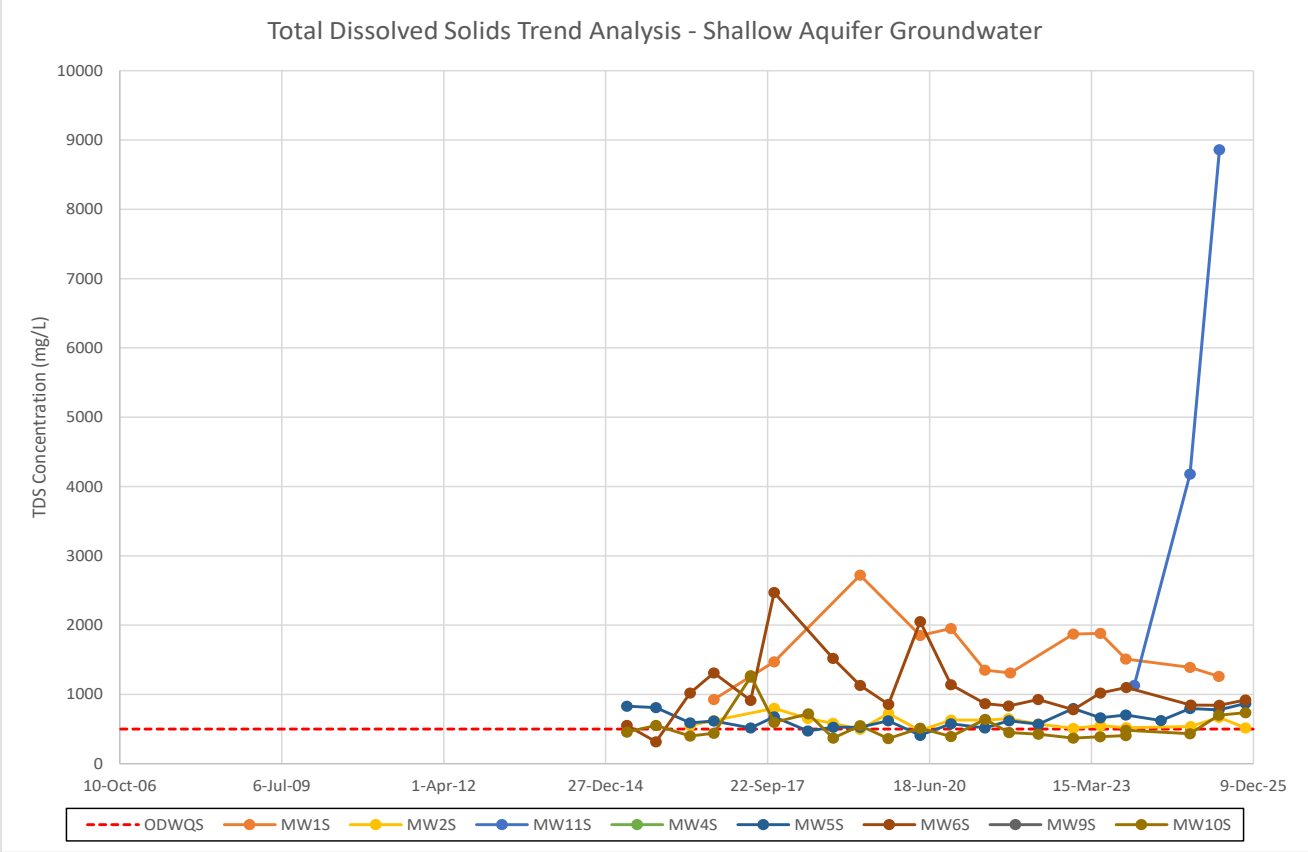
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Town of Napanee, Ontario
South Fredericksburgh Waste Disposal Site
Napanee, Ontario
April 2026



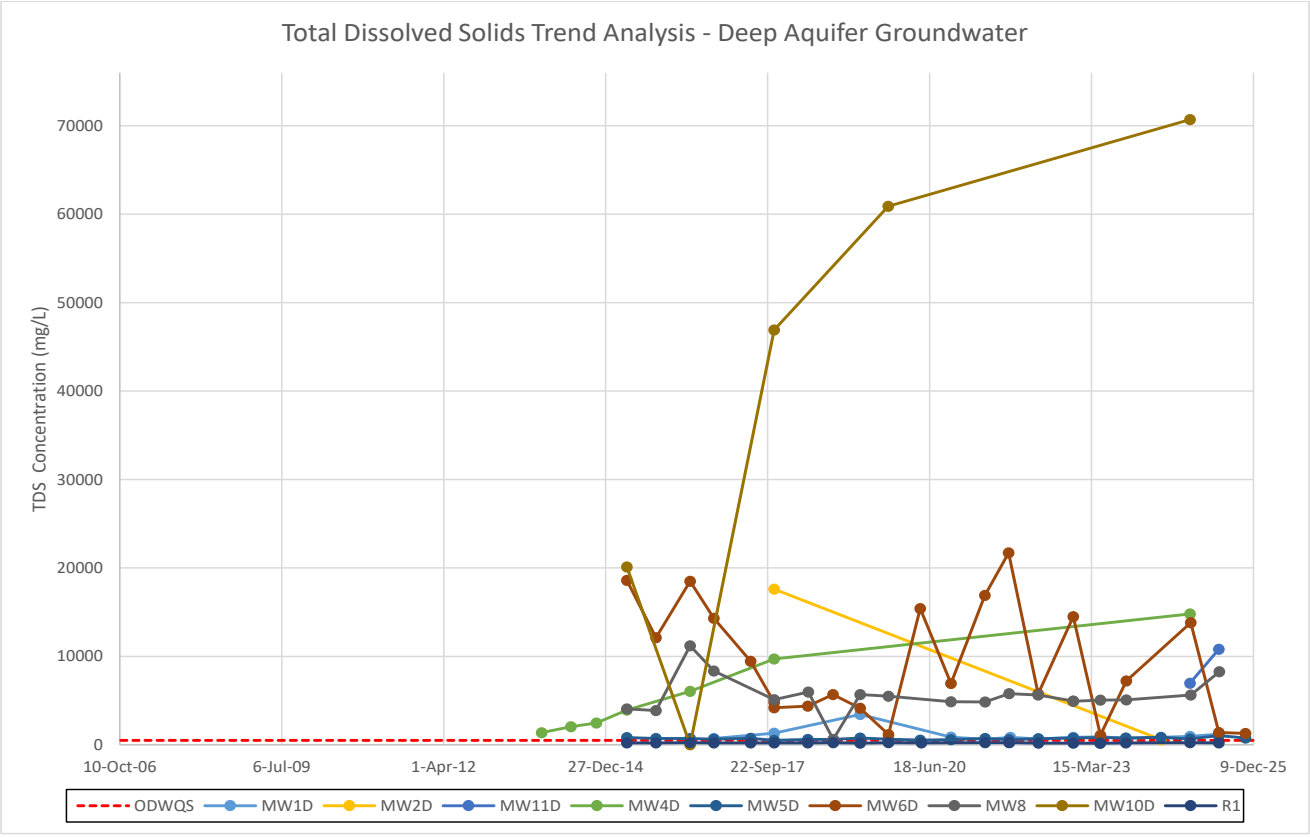
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Town of Napanee, Ontario
South Fredericksburgh Waste Disposal Site
Napanee, Ontario
April 2026



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Town of Napanee, Ontario
South Fredericksburgh Waste Disposal Site
Napanee, Ontario
April 2026



Pinchin Project No. **350221.001**

APPENDIX X

Surface Water Summary Tables

TABLE 28
Surface Water Quality Results - SW1
South Fredricksburgh Waste Disposal Site
Town of Greater Napanee, Ontario

Parameter	Units	Sample Designation																									PWQO
		Sample Collection Date (dd/mm/yyyy)																									
		SW1																									
		07-05-2015	*03-11-2015*	*01-06-2016*	*09-06-2017*	*14-07-2017*	*02-11-2017*	*29-05-2018*	*31-10-2018*	*16-04-2019*	*22-04-2020*	*17-09-2020*	*29-10-2020*	*26-05-2021*	*16-07-2021*	*19-10-2021*	*20-04-2022*	*24-08-2022*	*23-11-2022*	*09-05-2023*	*31-08-2023*	*12-10-2023*	*15-05-2024*	*01-08-2024*	*13-05-2025*	*13-05-2025*	*27-08-2025*	*08-10-2025*	
pH	pH	8.06	7.83	7.79	7.78	7.91	7.74	8.00	7.91	7.87	8.07	DRY	8.13	7.96	7.69	DRY	8.25	7.74	7.54	8.10	8.27	DRY	7.82	7.89	8.20	8.26	DRY	DRY	6.5-8.5
Conductivity	uS/cm	1310	1410	1560	76	1470	1280	1720	1820	854	1520	-	2000	1450	1440	-	1100	3130	1480	1370	1260	-	41	1100	1380	1390	-	-	-
Alkalinity	mg/L	467	469	613	547	506	277	516	505	331	549	-	454	522	296	-	408	162	323	507	365	-	92	408	506	511	-	-	-
Hardness	mg/L	633	628	2150	654	520	566	694	720	367	648	-	910	578	609	-	461	1820	610	582	451	-	100	437	524	528	-	-	-
Total Dissolved Solids	mg/L	721	777	858	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	851	814	-	-	-
Chloride	mg/L	93	118	127	71	119	85	189	183	62	98	-	172	150	108	-	82	231	155	110	126	-	6	102	130	130	-	-	-
Sodium	mg/L	55.80	67.50	85.60	67.50	-	54.30	110.00	116.00	41.00	85.00	-	131.00	119.00	105.00	-	65.00	184.00	89.00	89.00	101.00	-	<0.020	87.00	81.50	82.40	-	-	-
Calcium	mg/L	165.00	156.00	731.00	166.00	-	150.00	159.00	176.00	104.00	187.00	-	254.00	126.00	158.00	-	127.00	517.00	162.00	154.00	98.00	-	30.00	114.00	142.00	143.00	-	-	-
Magnesium	mg/L	53.30	57.90	78.40	56.80	-	46.50	72.00	68.00	26.00	44.00	-	67.00	64.00	52.00	-	35.00	128.00	50.00	48.00	50.00	-	6.00	37.00	41.30	41.60	-	-	-
Potassium	mg/L	21.90	27.00	35.10	26.70	-	19.00	37.00	22.00	11.00	18.00	-	16.00	18.00	10.00	-	14.00	16.00	12.00	17.00	8.00	-	<1	12.00	18.60	18.80	-	-	-
Sulphate	mg/L	137.00	133.00	64.00	108.00	43.00	218.00	166.00	245.00	56.00	170.00	-	466.00	120.00	355.00	-	94.00	1920.00	303.00	130.00	173.00	-	3.00	42.00	90.00	89.00	-	-	-
Ammonia	mg/L	0.02	0.05	0.13	0.08	0.08	0.02	0.11	0.11	0.04	0.075	-	<0.010	<0.010	<0.010	-	0.012	1.77	<0.020	0.038	0.079	-	<0.020	0.04	< 0.1	< 0.1	-	-	-
Nitrate	mg/L	0.1	0.1	0.1	0.05	0.05	0.05	0.12	<0.10	0.049	<0.10	-	<1.0	<1.0	<0.50	-	<0.10	<0.10	<0.10	<0.10	<0.10	-	<0.10	<0.50	< 0.06	< 0.06	-	-	-
Nitrite	mg/L	0.100	0.100	0.100	0.050	0.050	0.050	<0.10	<0.10	<0.10	<0.10	-	<1.0	<1.0	<0.50	-	<0.10	<0.10	<0.10	<0.10	<0.10	-	-	<0.50	< 0.03	< 0.03	-	-	-
Total Kjedhal Nitrogen	mg/L	1.000	1.800	3.000	1.630	1.970	1.400	2.000	2.600	0.700	1.740	-	2.300	1.540	12.200	-	0.975	5.290	1.170	1.250	5.980	-	1.980	1.590	1.200	1.100	-	-	-
Phenols	mg/L	0.001	0.001	0.001	0.001	0.001	0.001	-	-	**0.006**	**0.006**	-	**0.007**	**0.002**	**0.008**	-	<0.001	**0.009**	<0.001	<0.001	<0.001	-	<0.001	<0.001	-	-	-	-	0.001
Dissolved Organic Carbon	mg/L	-	-	-	3.200	34.600	14.700	26.700	18.500	12.500	16.600	-	16.600	28.400	15.100	-	13.000	53.000	18.700	19.200	23.500	-	6.400	21.100	18.000	17.000	-	-	-
Chemical Oxygen Demand	mg/L	68.000	58.000	110.000	1450.000	87.000	41.000	70.000	71.000	34.000	56.000	-	61.000	63.000	49.000	-	24.000	107.000	58.000	59.000	65.000	-	41.000	47.000	58.000	58.000	-	-	-
BOD	mg/L	3	15	30	5	8	-	2	11	2	1	-	4	23	5	-	2	6	2	2	10	-	4	5	< 4	< 4	-	-	-
Iron	mg/L	0.14	**0.63**	**7.82**	**0.31**	**0.38**	0.20	0.24	**0.65**	0.24	**0.42**	-	**0.52**	**0.77**	**4.31**	-	0.06	**0.68**	0.05	0.13	**4.19**	-	0.21	0.22	0.19	0.19	-	-	0.30
Manganese	mg/L	0.14	2.79	39.70	1.45	1.81	0.57	0.65	1.74	0.10	0.14	-	2.06	0.05	1.58	-	0.02	4.54	0.12	0.03	1.36	-	0.06	0.59	0.22	0.22	-	-	-
Total Phosphorus	mg/L	0.03	**0.16**	**0.38**	**0.16**	**0.212**	**0.1**	**0.1**	**0.11**	**0.049**	**0.052**	-	**0.086**	0.005	**0.237**	-	**0.064**	**0.343**	0.022	**0.036**	**0.56**	-	0.016	**0.062**	**0.05**	**0.05**	-	-	0.03
Total Suspended Solids	mg/L	14	32	8800	16	24	8	26	74	24	8	-	10	2	164	-	8	58	3	<2	45	-	15	100	4	7	-	-	-
Bicarbonate	mg/L	467	469	613	547	506	277	516	505	331	549	-	454	522	296	-	408	162	323	507	365	-	92	408	-	-	-	-	-
Carbonate	mg/L	633.00	628.00	2150.00	654.00	520.00	566.00	694.00	720.00	367.00	648.00	-	910.00	578.00	609.00	-	461.00	1820.00	610.00	582.00	451.00	-	100.00	437.00	-	-	-	-	-
Anion Sum	-	14.8	15.5	17.2	14.7	14.4	12.5	19.1	20.4	9.54	17.3	-	23.6	17.2	16.4	-	12.4	49.7	17.1	16	14.5	-	2.07	11.9	15.58	15.67	-	-	-
Cation Sum	-	15.6	16.2	49.7	16.6	14.7	14.2	19.6	20	9.4	17.1	-	24.3	17.2	17	-	12.4	44.9	16.4	15.9	13.6	-	2.21	12.8	14.53	14.64	-	-	-
Ion Ratio	-	0.947	0.955	0.345	0.884	0.97	0.878	1.03	0.98	0.98	0.99	-	1.03	1	1.04	-	1	0.9	0.96	1	0.94	-	-	1.08	0.93	0.93	-	-	-
% Difference	-	2.73	2.32	48.6	5.14	1.51	6.49	1.24	0.92	0.73	0.49	-	1.38	0.05	1.88	-	0.11	5.14	2.29	0.02	3.03	-	3.19	3.7	-3.5	-3.42	-	-	-
Arsenic	mg/L	0.0009	0.003	0.0036	0.0008	0.0009	0.0008	<0.001	<0.001	<0.001	<0.001	-	<0.001	<0.001	0.001	-	<0.001	0.003	<0.001	<0.001	0.001	-	<0.001	<0.001	0.0005	0.0005	-	-	0.01
Boron	mg/L	**0.548**	**0.77**	**0.774**	**0.648**	**0.762**	**0.641**	**0.76**	**0.85**	**0.31**	**0.55**	-	**0.88**	**0.32**	**1.3**	-	**0.44**	**1.6**	**0.81**	**0.62**	**1.26**	-	0.01	**0.92**	**0.541**	**0.56**	-	-	0.20
Barium	mg/L	0.058	0.079	0.794	0.095	0.095	0.075	0.08	0.07	0.05	0.06	-	0.09	0.36	0.09	-	0.05	0.11	0.07	0.04	0.18	-	0.05	0.06	0.0662	0.0656	-	-	-
Cadmium	mg/L	0.00002	0.00026	**0.00053**	0.000015	0.000171	0.000106	<0.0001	0.0001	<0.0001	<0.0001	-	0.0001	<0.0001	0.0002	-	<0.0001	<0.0001	<0.0001	<0.0001	0.0002	-	<0.0001	<0.0001	0.000008	0.000019	-	-	0.0005
Chromium	mg/L	0.002	0.002	0.004	0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001	-	<0.001	<0.001	0.001	-	<0.001	<0.001	<0.001	<0.001	0.002	-	<0.001	<0.001	0.00035	0.00031	-	-	0.01
Copper	mg/L	0.0007	0.002	**0.0146**	0.001	**0.0055**	0.0019	<0.001	0.001	<0.001	<0.001	-	0.002	0.004	**0.006**	-	0.002	**0.006**	0.002	<0.001	0.004	-	<0.001	0.002	< 0.001	< 0.001	-	-	0.01
Mercury	mg/L	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	<0.0001	<0.0001	<0.0001	<0.0001	-	<0.0001	<0.0001	<0.0001	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	-	<0.0001	<0.0001	< 0.00001	< 0.00001	-	-	0.0002
Nickel	mg/L	-	0.01	-	-	-	-	-	-	<0.10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.03
Lead	mg/L	0.00002	0.00072	**0.00722**	0.00002	0.00036	0.00015	<0.001	<0.001	<0.001	<0.001	-	<0.001	<0.001	0.005	-	<0.001	<0.001	<0.001	<0.001	0.005	-	<0.001	<0.001	< 0.00009	< 0.00009	-	-	0.01
Zinc	mg/L	0.006	**0.029**	**0.381**	**0.086**	0.01	**0.055**	<0.01	**0.03**	<0.01	<0.01	-	**0.06**	<0.01	**0.13**	-	<0.01	**0.03**	0.02	<0.01	**0.18**	-	<0.01	<0.01	0.004	0.004	-	-	0.02
Langeliers Index 4° C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.06	1.12	-	-	-
Saturation pH 4°C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.14	7.14	-	-	-
Field Parameters																													
Temperature	°C	15.00	13.90	23.30	15.10	18.60	9.40	-	-	13.53	14.40	-	7.19	22.56	-	-	11.91	-	4.75	16.21	-	-	-	-	18.06	18.06	-	-	-
pH	pH Units	7.36	7.77	7.89	7.40	7.23	7.39	-	-	8.41	9.55	-	8.18	7.52	-	-	7.37	-	7.38	8.31	-	-	-	-	7.73	7.73	-	-	-
Conductivity	uS/cm	1310	1070	1668	1164	1259	1157	-	-	1060	2	-	2	2	-	-	1.18	-	1.62	1440.00	-	-	-	-	2	2	-	-	-
Total Dissolved Solids	mg/L	-	-	-	-	-	-	1120.00	1180.00		-	-	-	-	-	-	0.76	-	1.04	0.92	-	-	-	-	1.28	1.28	-	-	-
Dissolved Oxygen	mV	12.15	6.55	5.83	2.28	2.30	1.09	-	-	6.02	5.75	-	0.73	4.63	-	-	100.10	-	5.08	8.23	-	-	-	-	5.47	5.47	-	-	-
Oxidation Reduction Potential	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	70.00	70.00	-	-	-
Flow Rate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Notes:

PWQO	Provincial Water Quality Objectives
ODWQS	Ontario Drinking Water Quality Standards - Ontario Regulation 169/03 "Ontario Drinking Water Quality Standards" under the Safe Drinking Water Act", dated 2002, and "Technical Support Document for Ontario Drinking Water Standards, Objectives and Guidelines", dated June 2003.
BOLD	Exceeds PWQO
BOLD	Exceeds ODWQS
Units	All Units in mg/L Unless Otherwise Noted.

Pinchin Project No. 350221.001

TABLE 29
Surface Water Quality Results - SW2
South Fredricksburgh Waste Disposal Site
Town of Greater Napanee, Ontario

Parameter	Units	Sample Designation																			PWQO
		Sample Collection Date (dd/mm/yyyy)																			
		SW2																			
		07-05-2015	*02-11-2017*	*17-04-2019*	*22-04-2020*	*17-09-2020*	*29-10-2020*	*26-05-2021*	*16-07-2021*	*19-10-2021*	*20-04-2022*	*22-11-2022*	*08-05-2023*	*31-08-2023*	*12-10-2023*	*15-05-2024*	*01-08-2024*	*12-11-2024*	*13-05-2025*	*27-08-2025*	*08-10-2025*	
pH	pH	8.13	7.53	7.79	8.13	DRY	DRY	DRY	8.05	8.35	7.62	7.99	8.27	8.34	8.03	7.81	8.07	8.21	8.27	DRY	DRY	6.5-8.5
Conductivity	uS/cm	1430	1310	1790.00	1910.00	-	-	-	547.00	727.00	1370.00	537.00	656.00	503.00	687.00	172.00	429.00	563.00	667.00	-	-	-
Alkalinity	mg/L	360	100	409.00	437.00	-	-	-	171.00	161.00	416.00	179.00	274.00	206.00	289.00	89.00	164.00	222.00	235.00	-	-	-
Hardness	mg/L	559	432	384.00	307.00	-	-	-	172.00	239.00	406.00	201.00	262.00	160.00	254.00	100.00	156.00	229.00	249.00	-	-	-
Total Dissolved Solids	mg/L	788	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	391.00	-	-	-
Chloride	mg/L	236	267	326.00	324.00	-	-	-	69.00	72.00	191.00	46.00	42.00	44.00	68.00	6.00	34.00	47.00	52.00	-	-	-
Sodium	mg/L	86.4	69.4	215.00	342.00	-	-	-	54.00	55.00	135.00	31.00	38.00	36.00	52.00	5.00	32.00	35.00	37.00	-	-	-
Calcium	mg/L	156	133	121.00	105.00	-	-	-	36.00	48.00	138.00	46.00	67.00	31.00	54.00	30.00	31.00	52.00	60.80	-	-	-
Magnesium	mg/L	41	24.2	20.00	11.00	-	-	-	20.00	29.00	15.00	21.00	23.00	20.00	29.00	6.00	19.00	24.00	23.60	-	-	-
Potassium	mg/L	3	4.3	7.00	7.00	-	-	-	8.00	9.00	5.00	6.00	6.00	5.00	8.00	<1	5.00	7.00	5.64	-	-	-
Sulphate	mg/L	20	18	30.00	22.00	-	-	-	9.00	98.00	18.00	24.00	37.00	2.00	11.00	3.00	1.00	12.00	35.00	-	-	-
Ammonia	mg/L	0.02	0.01	0.08	0.014	-	-	-	<0.010	<0.010	0.023	0.031	<0.020	<0.020	0.073	0.02	<0.020	<0.020	< 0.1	-	-	-
Nitrate	mg/L	0.1	0.05	0.168	<0.10	-	-	-	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	< 0.06	-	-	-
Nitrite	mg/L	0.1	0.05	1.890	<0.10	-	-	-	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	-	<0.10	<0.10	< 0.03	-	-	-
Total Kjedhal Nitrogen	mg/L	0.8	0.6	0.900	2.160	-	-	-	1.280	0.873	0.650	0.739	0.556	0.974	1.280	0.570	0.872	0.585	0.800	-	-	-
Phenols	mg/L	0.001	0.001	**0.006**	**0.008**	-	-	-	**0.003**	**0.004**	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-	-	0.001
Dissolved Organic Carbon	mg/L	-	6.3	11.400	12.600	-	-	-	11.200	10.200	7.000	38.900	7.900	15.100	14.800	6.500	12.300	11.000	8.000	-	-	-
Chemical Oxygen Demand	mg/L	45	12	41.000	92.000	-	-	-	32.000	27.000	7.000	6.000	26.000	45.000	30.000	20.000	33.000	24.000	30.000	-	-	-
BOD	mg/L	3	-	3	7	-	-	-	1	<1	<1	3	<1	6	1	3	<1	<1	< 4	-	-	-
Iron	mg/L	**0.35**	**1.14**	**0.33**	**0.41**	-	-	-	**0.79**	0.16	**1.01**	**0.32**	0.06	**0.32**	**0.44**	0.23	**0.34**	0.27	0.14	-	-	0.30
Manganese	mg/L	0.21	0.25	0.45	0.22	-	-	-	0.13	0.01	0.38	0.05	<0.01	0.01	0.07	0.06	0.04	0.03	0.03	-	-	-
Total Phosphorus	mg/L	**0.04**	**0.09**	**0.168**	**0.188**	-	-	-	**0.042**	0.006	**0.098**	**0.033**	0.007	0.01	0.021	0.015	0.013	0.011	< 0.03	-	-	0.03
Total Suspended Solids	mg/L	8	20	78	176	-	-	-	26	<2	13	31	17	66	15	<2	<2	3	24	-	-	-
Bicarbonate	mg/L	360	100	409	437	-	-	-	171	161	416	179	274	206	289	89	164	222	-	-	-	-
Carbonate	mg/L	559.00	432.00	384.00	307.00	-	-	-	172.00	239.00	406.00	201.00	262.00	160.00	254.00	100.00	156.00	229.00	-	-	-	-
Anion Sum	-	14.3	9.89	18.1	18.3	-	-	-	5.55	7.29	14.1	5.38	7.44	5.4	7.93	2.01	4.26	6.02	6.89	-	-	-
Cation Sum	-	15	11.8	17.2	21.2	-	-	-	6	7.4	14.1	5.53	7.04	4.89	7.55	2.21	4.63	6.27	6.74	-	-	-
Ion Ratio	-	0.948	0.836	0.95	1.16	-	-	-	1.08	1.02	1	1.03	0.95	0.9	0.95	-	1.09	1.04	0.98	-	-	-
% Difference	-	2.65	8.92	2.59	7.24	-	-	-	3.82	0.76	0.14	1.37	2.72	5.02	2.42	4.69	4.16	2.07	-1.12	-	-	-
Arsenic	mg/L	0.0012	0.001	<0.001	<0.001	-	-	-	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.0004	-	-	0.01
Boron	mg/L	0.061	0.049	0.04	0.05	-	-	-	**0.35**	**0.24**	0.04	0.16	**0.22**	**0.37**	**0.4**	0.01	**0.33**	0.19	0.186	-	-	0.20
Barium	mg/L	0.072	0.118	0.08	0.08	-	-	-	0.06	0.06	0.08	0.06	0.04	0.04	0.08	0.05	0.04	0.06	0.0615	-	-	-
Cadmium	mg/L	0.00003	0.000125	<0.0001	<0.0001	-	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.000004	-	-	0.0005
Chromium	mg/L	0.002	0.001	<0.001	<0.001	-	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.004	0.0002	-	-	0.01
Copper	mg/L	0.0011	**0.0081**	0.001	0.001	-	-	-	0.002	0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	< 0.001	-	-	0.01
Mercury	mg/L	0.00002	0.00002	<0.0001	<0.0001	-	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	< 0.00001	-	-	0.0002
Nickel	mg/L	-	-	<0.10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.03
Lead	mg/L	0.00002	0.00066	<0.001	<0.001	-	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	< 0.00009	-	-	0.01
Zinc	mg/L	0.005	**0.042**	<0.01	<0.01	-	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	< 0.002	-	-	0.02
Langeliers Index 4° C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.46	-	-	-
Saturation pH 4°C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.81	-	-	-
Field Parameters																						
Temperature	°C	21.60	9.70	6.38	16.50	-	-	-	-	-	11.08	3.78	21.16	-	16.00	-	-	-	22.05	-	-	-
pH	pH Units	7.74	7.48	8.39	8.57	-	-	-	-	-	8.29	8.12	8.41	-	7.91	-	-	-	8.21	-	-	-
Conductivity	uS/cm	1374	1181	1660	2	-	-	-	-	-	2	0	710	-	444	-	-	-	1	-	-	-
Total Dissolved Solids	mg/L	-	-	-		-	-	-			0.96	0.30	0.46	-	-	-	-	-	0.43	-	-	-
Dissolved Oxygen	mV	2.30	4.75	7.10	4.51	-	-	-	-	-	27.40	13.07	11.81	-	4.20	-	-	-	80.90	-	-	-
Oxidation Reduction Potential	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	96.00	-	-	-
Flow Rate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Notes:

PWQO	Provincial Water Quality Objectives
ODWQS	Ontario Drinking Water Quality Standards - Ontario Regulation 169/03 "Ontario Drinking Water Quality Standards" under the Safe Drinking Water Act", dated 2002, and "Technical Support Document for Ontario Drinking Water Standards, Objectives and Guidelines", dated June 2003.
BOLD	Exceeds PWQO
BOLD	Exceeds ODWQS
Units	All Units in mg/L Unless Otherwise Noted.

Pinchin Project No. 350221.001

TABLE 30
Surface Water Quality Results - SW3
South Fredricksburgh Waste Disposal Site
Town of Greater Napanee, Ontario

Parameter	Units	Sample Designation																													PWQO
		Sample Collection Date (dd/mm/yyyy)																													
		SW3																													
		01-06-2016	22-08-2016	25-10-2016	09-06-2017	14-07-2017	02-11-2017	31-05-2018	31-10-2018	17-04-2019	29-08-2019	07-10-2019	21-04-2020	17-09-2020	29-10-2020	27-05-2021	16-07-2021	19-10-2021	21-04-2022	24-08-2022	22-11-2022	08-05-2023	31-08-2023	12-10-2023	15-05-2024	01-08-2024	12-11-2024	13-05-2025	27-08-2025	27-08-2025	08-10-2025	08-10-2025	
pH	pH	8.28	8.04	8.19	8.32	8.33	8.19	8.34	8.09	8.06	8.39	8.39	8.15	8.17	8.20	7.87	8.21	8.06	8.20	7.70	7.71	8.22	8.24	7.78	7.84	8.17	8.14	8.20	7.36	7.44	7.81	7.80	6.5-8.5
Conductivity	uS/cm	213	435	386	18	550	489	557	516	434.00	1380.00	494.00	385.00	484.00	379.00	354.00	466.00	515.00	266.00	256.00	235.00	237.00	463.00	317.00	172.00	462.00	463.00	356.00	358.00	359.00	362.00	401.00	-
Alkalinity	mg/L	108	179	141	167	156	136	170	152	227.00	122.00	-	204.00	126.00	185.00	197.00	121.00	137.00	171.00	153.00	137.00	165.00	147.00	226.00	90.00	138.00	136.00	186.00	200.00	199.00	192.00	187.00	-
Hardness	mg/L	110	207	197	239	206	186	226	176	232.00	154.00	67.00	216.00	157.00	174.00	206.00	166.00	163.00	182.00	158.00	148.00	153.00	145.00	199.00	97.00	169.00	167.00	186.00	214.00	206.00	205.00	203.00	-
Total Dissolved Solids	mg/L	117	239	212	-	-	-	-	-		-	35.00	-			-	-	-	-	-	-	-	-	-	-	-	-	203.00	243.00	254.00	243.00	217.00	-
Chloride	mg/L	2.2	20.4	9.8	42.7	42.3	41.2	60	61	11.00	63.00	39.00	3.00	58.00	13.00	4.00	56.00	58.00	2.00	14.00	7.00	<1	50.00	18.00	6.00	46.00	47.00	< 1	21.00	21.00	24.00	24.00	-
Sodium	mg/L	2.1	9.5	5.8	35.5	-	27.7	34	34	2.00	35.00	16.00	<2	36.00	6.00	3.00	36.00	34.00	2.00	6.00	4.00	1.00	32.00	10.00	5.00	32.00	31.00	1.78	9.92	9.28	10.90	11.10	-
Calcium	mg/L	22.4	52.1	55.7	64.8	-	47.7	64	44	68.00	37.00	4.00	65.00	38.00	50.00	56.00	40.00	39.00	50.00	40.00	41.00	40.00	35.00	55.00	29.00	43.00	42.00	51.40	56.60	54.50	53.50	52.50	-
Magnesium	mg/L	13.1	18.6	14.1	18.7	-	16.3	16	16	15.00	15.00	26.00	13.00	15.00	12.00	16.00	16.00	16.00	14.00	14.00	11.00	13.00	14.00	15.00	6.00	15.00	15.00	14.00	17.80	16.90	17.20	17.60	-
Potassium	mg/L	0.9	7.2	3.8	3.7	-	3.1	4	4	2.00	4.00	0.06	1.00	4.00	3.00	2.00	5.00	5.00	1.00	3.00	2.00	<1	4.00	2.00	<1	5.00	5.00	1.67	3.37	3.20	2.85	2.79	-
Sulphate	mg/L	1	7	33	30	29	26	34	31	8.00	25.00	<0.10	7.00	31.00	3.00	2.00	32.00	30.00	9.00	1.00	7.00	4.00	29.00	1.00	2.00	27.00	28.00	5.00	< 2	< 2	< 2	< 2	-
Ammonia	mg/L	0.04	0.62	0.69	0.02	0.02	0.05	0.05	0.12	0.06	0.04	<0.10	<0.010	0.781	0.612	<0.010	<0.010	<0.010	<0.010	0.052	0.044	0.099	0.02	0.122	<0.020	<0.020	<0.020	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	-
Nitrate	mg/L	0.1	0.2	0.1	0.05	0.05	0.05	<0.10	<0.10	0.039	<0.10	0.5	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	-
Nitrite	mg/L	0.1	0.1	0.1	0.05	0.05	0.05	<0.10	<0.10	<0.10	<0.10	0.002	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	-	<0.10	<0.10	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	-
Total Kjedhal Nitrogen	mg/L	0.8	1.9	1.6	0.39	0.38	0.4	<0.8	1.4	0.600	0.400	5.900	1.170	0.916	1.530	0.927	0.263	<0.100	0.499	0.884	3.880	0.526	0.673	0.863	0.450	0.731	0.714	1.000	0.800	0.600	0.80	0.80	-
Phenols	mg/L	0.001	0.001	0.001	0.001	0.001	0.001	-	-	<0.001	<0.001	**18.000**	<0.001	<0.001	<0.001	<0.0010	0.001	**0.003**	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-	-	-	-	0.001
Dissolved Organic Carbon	mg/L	-	-	-	3.6	5.3	5.1	5.6	5	8.400	6.300	7.000	6.600	5.500	8.900	9.200	5.200	5.700	7.000	31.800	7.900	7.600	8.000	9.000	6.500	7.300	6.500	8.000	9.000	9.000	9.00	9.00	-
Chemical Oxygen Demand	mg/L	33	42	34	555	14	5	9	26	12.000	<5	<0.03	23.000	13.000	20.000	12.000	14.000	20.000	5.000	34.000	18.000	22.000	28.000	15.000	28.000	15.000	18.000	35.000	24.000	26.000	26.00	24.00	-
BOD	mg/L	2	2	2	3	2	-	2	2	3	3	0.02	5	6	<1	2	2	1	1	2	1	2	5	<1	3	<1	2	< 4	< 4	< 4	< 4	< 4	-
Iron	mg/L	**0.37**	**0.70**	0.12	0.02	0.11	0.04	<0.03	<0.03	0.08	<0.03	0.01	0.26	<0.03	**0.46**	**0.65**	<0.03	<0.03	0.08	**0.55**	0.25	0.08	<0.03	**0.59**	0.26	<0.03	<0.03	0.24	**0.73**	**0.75**	**0.89**	**0.98**	0.30
Manganese	mg/L	0.30	0.09	0.03	0.01	0.02	0.02	<0.01	0.01	0.08	<0.03	4.00	0.13	0.04	0.12	0.22	0.03	0.02	0.01	0.24	0.07	<0.01	0.08	0.08	0.06	0.01	<0.01	0.03	0.33	0.34	0.30	0.28	-
Total Phosphorus	mg/L	0.03	**0.06**	0.03	0.012	0.011	0.01	**0.08**	0.006		0.006	-	**0.042**	0.004	0.016	0.025	0.008	<0.004	**0.031**	0.022	**0.031**	0.011	0.008	0.022	0.019	0.012	0.009	< 0.03	< 0.03	< 0.03	**0.04**	0.03	0.03
Total Suspended Solids	mg/L	8	3	5	5	4	3	2	3	4	<2	-	5	<2	<2	3	3	7	6	4	8	<2	6	2	33	4	3	17	6	6	3.00	4.00	-
Bicarbonate	mg/L	108	179	141	167	156	136	170	152	227	122	-	204	126	185	197	121	137	171	153	137	165	147	226	90	138	136	-	-	-	-	-	-
Carbonate	mg/L	110.00	207.00	197.00	239.00	206.00	186.00	226.00	176.00	232.00	154.00	67.00	216.00	157.00	174.00	206.00	166.00	163.00	182.00	158.00	148.00	153.00	145.00	199.00	97.00	169.00	167.00	-	0.98	-	-	-	-
Anion Sum	-	2.26	4.31	3.81	5.16	4.92	4.42	5.8	5.41	5.02	4.74	0.99	4.31	4.8	4.13	4.09	4.67	5	3.66	3.48	3.08	3.38	4.95	5.04	2.01	4.62	4.63	3.84	4.62	4.6	4.55	4.44	-
Cation Sum	-	2.34	4.77	4.34	6.41	5.47	5.01	6.09	5.1	4.77	4.71	0.41	4.34	4.85	3.86	4.29	5.01	4.87	3.76	3.49	3.18	3.12	4.39	4.47	2.16	4.9	4.81	3.85	4.87	4.66	4.71	4.69	-
Ion Ratio	-	0.964	0.903	0.876	0.805	0.899	0.882	1.05	0.94	0.95	0.99	-	1.01	1.01	0.94	1.05	1.07	0.97	1.03	1	1.03	0.92	0.89	0.89	-	1.06	1.04	1	1.05	1.01	1.04	1.06	-
% Difference	-	1.83	5.1	6.59	10.8	5.34	6.28	2.47	2.9	2.52	0.32	<0.001	0.33	0.54	3.32	2.36	3.52	1.33	1.29	0.19	1.53	4.11	5.99	6.04	3.54	2.94	1.96	0.12	2.61	0.68	1.73	2.71	-
Arsenic	mg/L	0.0004	0.0004	0.0004	0.0003	0.0003	0.0004	<0.001	<0.001	<0.001	<0.001	**0.04**	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.0004	0.0005	0.0005	0.0003	0.0003	0.01
Boron	mg/L	0.056	0.051	0.025	0.066	0.063	0.057	0.05	0.06	0.01	0.06	<0.0001	0.01	0.07	0.03	0.03	0.06	0.05	0.01	0.04	0.02	0.02	0.07	0.04	<0.01	0.06	0.05	0.02	0.035	0.033	0.046	0.045	0.20
Barium	mg/L	0.015	0.052	0.048	0.046	0.049	0.055	0.04	0.04	0.04	0.04	0.001	0.04	0.04	0.04	0.04	0.04	0.04	0.02	0.04	0.02	0.02	0.04	0.04	0.05	0.03	0.04	0.0299	0.0472	0.0461	0.0398	0.0402	-
Cadmium	mg/L	0.00002	0.00002	0.00003	0.000014	0.000014	0.000014	<0.0001	<0.0001	<0.0001	<0.0001	<0.001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.000004	< 0.000003	0.000004	0.000003	0.000003	0.0005
Chromium	mg/L	0.002	0.002	0.002	0.001	0.001	0.001	<0.001	<0.001	<0.001	0.001	<0.0001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.00019	0.00026	0.00026	< 0.00008	< 0.00008	0.01
Copper	mg/L	0.0001	0.0003	0.0017	0.0008	0.0004	0.0005	<0.001	<0.001	0.002	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.01
Mercury	mg/L	0.00002	0.00003	0.00002	0.00002	0.00002	0.00002	<0.0001	<0.0001	<0.0001	<0.0001	<0.01	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	0.0002
Nickel	mg/L	-	-	-	-	-	-	-	-	<0.10	-	-	-	-	-	-	-	-	-	-	-				-	-	-	-	-	-	-	-	0.03
Lead	mg/L	0.00003	0.00007	0.00042	0.00002	0.00006	0.00005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	< 0.00009	< 0.00009	0.00011	< 0.00009	< 0.00009	0.01
Zinc	mg/L	0.005	0.005	0.012	0.005	**0.026**	**0.028**	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	0.02
Langeliers Index 4° C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.25	-0.53	-0.47	-0.12	-0.15	-
Saturation pH 4°C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.95	7.89	7.91	7.93	7.95	-
Field Parameters																																	
Temperature	°C	20.80	22.90	6.79	21.80	23.70	11.60	-	-	12.61	-	16.60	11.30	-	7.67	22.10	-	-	7.98	-	3.03	19.25	-	15.50	-	-	-	19.83	25.05	25.05	15.69	15.69	-
pH	pH Units	8.65	7.71	7.28	8.42	7.17	8.47	-	-	8.27	-	8.31	8.46	-	7.97	7.78	-	-	8.44	-	8.20	8.70	-	8.01	-	-	-	8.63	8.64	8.64	8.08	8.08	-
Conductivity	uS/cm	318	423	260	517	522	445	-	-	417	-	539	0	-	0	1	-	-	0.44	-	0.28	355.00	-	427	-	-	-	1	1	1	0	0	-
Total Dissolved Solids	mg/L	-	-	-	-	-	-	362.00	335.00		-	268.00	-	-	-	-	-	-	0.29	-	0.18	0.23	-	0.21	-	-	-	0.33	0.34	0.34	0.29	0.29	-
Dissolved Oxygen	mV	9.05	8.23	15.01	6.75	8.64	9.50	-	-	7.28	-	125.00	10.21	-	0.00	5.31	-	-	9.64	-	16.05	12.04	-	5.00	-	-	-	26.92	24.31	24.31	8.04	8.04	-
Oxidation Reduction Potential	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	62.00	61.00	61.00	64.00	64.00	-
Flow Rate	mg/L	-	-	-	-	-	-	-	-		-	163.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Notes:

PWQO	Provincial Water Quality Objectives
BOLD	Exceeds PWQO
Units	All Units in mg/L Unless Otherwise Noted.

Pinchin Project No. 350221.001

TABLE 31
Surface Water Quality Results - SW4
South Fredricksburgh Waste Disposal Site
Town of Greater Napanee, Ontario

Parameter	Units	Sample Designation							PWQO
		Sample Collection Date (dd/mm/yyyy)							
		SW4							
		17-04-2019	*17-09-2020*	*26-05-2021*	*19-10-2021*	*13-05-2025*	*27-08-2025*	*08-10-2025*	
pH	pH	-	DRY	DRY	DRY	DRY	DRY	DRY	6.5-8.5
Conductivity	uS/cm	-	-	-	-	-	-	-	-
Alkalinity	mg/L	153	-	-	-	-	-	-	-
Hardness	mg/L	-	-	-	-	-	-	-	-
Total Dissolved Solids	mg/L	7	-	-	-	-	-	-	-
Chloride	mg/L	<2	-	-	-	-	-	-	-
Sodium	mg/L	43	-	-	-	-	-	-	-
Calcium	mg/L	11	-	-	-	-	-	-	-
Magnesium	mg/L	1	-	-	-	-	-	-	-
Potassium	mg/L	2	-	-	-	-	-	-	-
Sulphate	mg/L	0.07	-	-	-	-	-	-	-
Ammonia	mg/L	0.021	-	-	-	-	-	-	-
Nitrate	mg/L	<0.10	-	-	-	-	-	-	-
Nitrite	mg/L	0.5	-	-	-	-	-	-	-
Total Kjedhal Nitrogen	mg/L	0.002	-	-	-	-	-	-	-
Phenols	mg/L	**11.3**	-	-	-	-	-	-	0.001
Dissolved Organic Carbon	mg/L	24	-	-	-	-	-	-	-
Chemical Oxygen Demand	mg/L	4	-	-	-	-	-	-	-
BOD	mg/L	0.13	-	-	-	-	-	-	-
Iron	mg/L	<0.01	-	-	-	-	-	-	0.30
Manganese	mg/L	-	-	-	-	-	-	-	-
Total Phosphorus	mg/L	<2	-	-	-	-	-	-	0.03
Total Suspended Solids	mg/L	-	-	-	-	-	-	-	-
Bicarbonate	mg/L	153	-	-	-	-	-	-	-
Carbonate	mg/L	0.00	-	-	-	-	-	-	-
Anion Sum	-	3.08	-	-	-	-	-	-	-
Cation Sum	-	0.96	-	-	-	-	-	-	-
Ion Ratio	-	1.87	-	-	-	-	-	-	-
% Difference	-	-	-	-	-	-	-	-	-
Arsenic	mg/L	<0.01	-	-	-	-	-	-	0.01
Boron	mg/L	0.02	-	-	-	-	-	-	0.20
Barium	mg/L	<0.0001	-	-	-	-	-	-	-
Cadmium	mg/L	<0.001	-	-	-	-	-	-	0.0005
Chromium	mg/L	<0.001	-	-	-	-	-	-	0.01
Copper	mg/L	<0.0001	-	-	-	-	-	-	0.01
Mercury	mg/L	<0.10	-	-	-	-	-	-	0.0002
Nickel	mg/L	<0.001	-	-	-	-	-	-	0.03
Lead	mg/L	<0.01	-	-	-	-	-	-	0.01
Zinc	mg/L	-	-	-	-	-	-	-	0.02
Langeliers Index 4° C	-	-	-	-	-	-	-	-	
Saturation pH 4°C	-	-	-	-	-	-	-	-	
Field Parameters									
Temperature	°C		-	-	-	-	-	-	-
pH	pH Units	7.76	-	-	-	-	-	-	-
Conductivity	uS/cm	281	-	-	-	-	-	-	-
Total Dissolved Solids	mg/L	<0.001	-	-	-	-	-	-	-
Dissolved Oxygen	mV	-	-	-	-	-	-	-	-
Oxidation Reduction Potential	mg/L	-	-	-	-	-	-	-	-
Flow Rate	mg/L	148.00	-	-	-	-	-	-	-

Notes:

PWQO	Provincial Water Quality Objectives
ODWQS	Ontario Drinking Water Quality Standards - Ontario Regulation 169/03 "Ontario Drinking Water Quality Standards" under the Safe Drinking Water Act", dated 2002, and "Technical Support Document for Ontario Drinking Water Standards, Objectives and Guidelines", dated June 2003.
BOLD	Exceeds PWQO
BOLD	Exceeds ODWQS
Units	All Units in mg/L Unless Otherwise Noted.

Pinchin Project No. 350221.001

TABLE 32
Surface Water Quality Results - SW5
South Fredricksburgh Waste Disposal Site
Town of Greater Napanee, Ontario

Parameter	Units	Sample Designation																			PWQO
		Sample Collection Date (dd/mm/yyyy)																			
		SW5																			
		02-11-2017	*17-04-2019*	*29-08-2019*	*07-10-2019*	*22-04-2020*	*22-4-20 (DUP)*	*17-09-2020*	*29-10-2020*	*27-05-2021*	*16-07-2021*	*19-10-2021*	*20-04-2022*	*20-4-22 (DUP)*	*23-11-2022*	*23-11-22 (DUP)*	*08-05-2023*	*01-08-2024*	*13-05-2025*	*27-08-2025*	*08-10-2025*	
pH	pH	7.76	7.72	DRY	DRY	7.89	7.90	DRY	DRY	7.73	7.61	DRY	7.68	7.65	6.80	6.83	7.96	7.72	7.95	DRY	DRY	6.5-8.5
Conductivity	uS/cm	541	345	-	-	302.00	301.00	-	-	648.00	433.00	-	287.00	321.00	482.00	493.00	260.00	412.00	351.00	-	-	-
Alkalinity	mg/L	155	155	-	-	170.00	157.00	-	-	276.00	126.00	-	176.00	189.00	144.00	148.00	185.00	197.00	180.00	-	-	-
Hardness	mg/L	162		-	-	159.00	156.00	-	-	300.00	118.00	-	183.00	198.00	182.00	184.00	169.00	174.00	180.00	-	-	-
Total Dissolved Solids	mg/L	-	7	-	-		-	-	-	-	-	-	-	-	-	-	-	-	229.00	-	-	-
Chloride	mg/L	21.6	<2	-	-	3.00	3.00	-	-	52.00	38.00	-	10.00	19.00	30.00	30.00	3.00	15.00	5.00	-	-	-
Sodium	mg/L	46.3	44	-	-	3.00	3.00	-	-	35.00	54.00	-	7.00	12.00	30.00	28.00	4.00	30.00	4.04	-	-	-
Calcium	mg/L	55.5	11	-	-	47.00	46.00	-	-	89.00	39.00	-	52.00	58.00	58.00	59.00	48.00	55.00	50.50	-	-	-
Magnesium	mg/L	7.57	1	-	-	10.00	10.00	-	-	19.00	5.00	-	13.00	13.00	9.00	9.00	12.00	9.00	13.00	-	-	-
Potassium	mg/L	2.4	2	-	-	<1	<1	-	-	2.00	2.00	-	1.00	1.00	1.00	2.00	<1	2.00	1.48	-	-	-
Sulphate	mg/L	47	0.07	-	-	3.00	3.00	-	-	5.00	37.00	-	4.00	5.00	61.00	60.00	1.00	2.00	< 2	-	-	-
Ammonia	mg/L	0.01	0.02	-	-	<0.010	<0.010	-	-	0.028	0.013	-	0.029	0.021	<0.020	<0.020	0.145	<0.020	< 0.1	-	-	-
Nitrate	mg/L	0.05	<0.10	-	-	<0.10	<0.10	-	-	<0.10	0.13	-	<0.10	<0.10	<0.10	0.12	<0.10	<0.10	< 0.06	-	-	-
Nitrite	mg/L	0.05	0.6	-	-	<0.10	<0.10	-	-	<0.10	<0.10	-	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	< 0.03	-	-	-
Total Kjedhal Nitrogen	mg/L	0.5	0.002	-	-	0.940	1.120	-	-	1.580	2.210	-	0.426	0.635	1.610	1.490	0.789	1.200	0.800	-	-	-
Phenols	mg/L	0.001	**11.5**	-	-	**0.004**	**0.003**	-	-	<0.0010	**0.005**	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-	-	0.001
Dissolved Organic Carbon	mg/L	10.3	6	-	-	12.200	12.300	-	-	15.900	7.800	-	12.000	12.000	16.600	15.800	14.500	21.400	15.000	-	-	-
Chemical Oxygen Demand	mg/L	15	1	-	-	36.000	33.000	-	-	31.000	20.000	-	20.000	21.000	47.000	80.000	44.000	48.000	48.000	-	-	-
BOD	mg/L	-	0.13	-	-	2	4	-	-	3	2	-	4	<1	3	4	1	<1	< 4	-	-	-
Iron	mg/L	0.29	<0.01	-	-	0.21	0.22	-	-	**2.38**	0.30	-	0.09	0.09	**0.99**	**0.80**	0.19	**0.55**	0.24	-	-	0.30
Manganese	mg/L	0.08		-	-	<0.01	<0.01	-	-	0.29	0.03	-	<0.01	<0.01	0.12	0.12	<0.01	0.25	0.04	-	-	-
Total Phosphorus	mg/L	0.03	<2	-	-	0.02	0.019	-	-	**0.086**	**0.054**	-	**0.036**	**0.035**	**0.039**	0.019	0.014	**0.045**	0.022	-	-	0.03
Total Suspended Solids	mg/L	10		-	-	<2	<2	-	-	12	9	-	<2	<2	25	<2	<2	6	3	-	-	-
Bicarbonate	mg/L	155	155	-	-	170	157	-	-	276	126	-	176	189	144	148	185	197	-	-	-	-
Carbonate	mg/L	162.00	0.00	-	-	159.00	156.00	-	-	300.00	118.00	-	183.00	198.00	182.00	184.00	169.00	174.00	-	-	-	-
Anion Sum	-	4.69	3.13	-	-	3.55	3.29	-	-	7.09	4.37	-	3.89	4.42	5	5.06	3.81	4.4	3.78	-	-	-
Cation Sum	-	5.33	0.9	-	-	3.3	3.25	-	-	7.58	4.76	-	4	4.51	4.97	4.95	3.57	4.84	3.82	-	-	-
Ion Ratio	-	0.85	4.97	-	-	0.93	0.99	-	-	1.07	1.09	-	1.03	1.02	0.99	0.98	0.94	1.1	1.01	-	-	-
% Difference	-	8.11		-	-	3.63	0.59	-	-	3.33	4.24	-	1.41	1.04	0.31	1.1	3.24	4.72	0.49	-	-	-
Arsenic	mg/L	0.0003	<0.01	-	-	<0.001	<0.001	-	-	<0.001	<0.001	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.0004	-	-	0.01
Boron	mg/L	0.016	0.02	-	-	0.01	<0.01	-	-	0.02	0.03	-	<0.01	<0.01	0.07	0.06	<0.01	0.02	0.007	-	-	0.20
Barium	mg/L	0.034	<0.0001	-	-	0.02	0.02	-	-	0.05	0.03	-	0.03	0.03	0.05	0.04	0.02	0.03	0.0268	-	-	-
Cadmium	mg/L	0.000015	<0.001	-	-	<0.0001	<0.0001	-	-	<0.0001	<0.0001	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.000006	-	-	0.0005
Chromium	mg/L	0.001	<0.001	-	-	<0.001	<0.001	-	-	<0.001	<0.001	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.00023	-	-	0.01
Copper	mg/L	0.0022	<0.0001	-	-	<0.001	<0.001	-	-	<0.001	0.003	-	<0.001	<0.001	0.004	0.003	<0.001	0.002	< 0.001	-	-	0.01
Mercury	mg/L	0.00002	<0.10	-	-	<0.0001	<0.0001	-	-	<0.0001	<0.0001	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	< 0.00001	-	-	0.0002
Nickel	mg/L	-	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.03
Lead	mg/L	0.00006	<0.01	-	-	<0.001	<0.001	-	-	<0.001	<0.001	-	<0.001	<0.001	<0.001	<0.001	<0.001	**0.045**	< 0.00009	-	-	0.01
Zinc	mg/L	**0.126**	<0.01	-	-	<0.01	<0.01	-	-	<0.01	**0.03**	-	<0.01	<0.01	**0.22**	**0.13**	<0.01	<0.01	< 0.002	-	-	0.02
Langeliers Index 4° C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-0.03	-	-	
Saturation pH 4°C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.98	-	-	
Field Parameters																						
Temperature	°C	9.90	14.17	-	-	8.60	8.60	-	-	16.56	-	-	9.09	9.09	4.30	4.30	14.29	-	-	-	-	-
pH	pH Units	7.71	7.72	-	-	7.30	7.30	-	-	8.73	-	-	7.89	7.89	7.05	7.05	7.89	-	-	-	-	-
Conductivity	uS/cm	394	283	-	-	0	0	-	-	1	-	-	0	0	0	0	465	-	-	-	-	-
Total Dissolved Solids	mg/L	-	<0.001	-	-	-	-	-	-	-	-	-	0.23	0.23	0.29	0.29	0.31	-	-	-	-	-
Dissolved Oxygen	mV	3.48	5.33	-	-	3.10	3.10	-	-	3.59	-	-	77.60	77.60	1.34	1.34	2.48	-	-	-	-	-
Oxidation Reduction Potential	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Flow Rate	mg/L	-	161.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Notes:

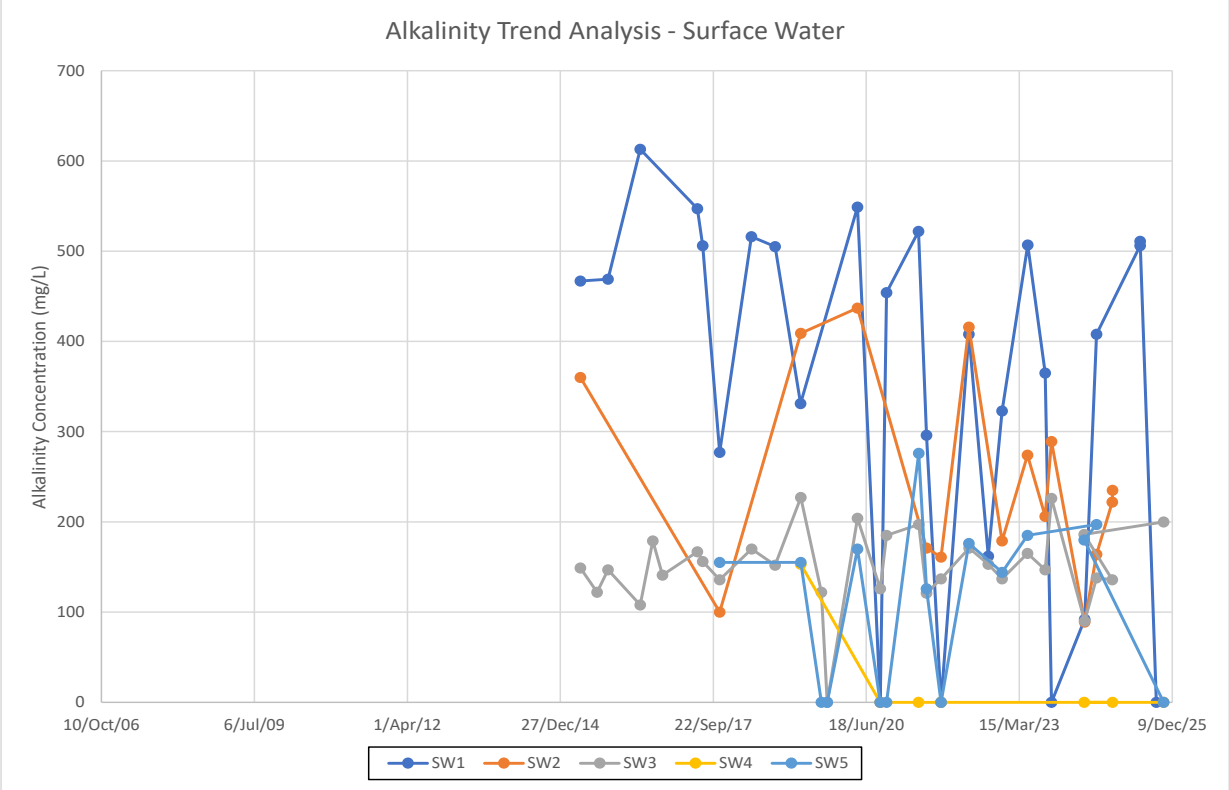
PWQO	Provincial Water Quality Objectives
ODWQS	Ontario Drinking Water Quality Standards - Ontario Regulation 169/03 "Ontario Drinking Water Quality Standards" under the Safe Drinking Water Act", dated 2002, and "Technical Support Document for Ontario Drinking Water Standards, Objectives and Guidelines", dated June 2003.
BOLD	Exceeds PWQO
BOLD	Exceeds ODWQS
Units	All Units in mg/L Unless Otherwise Noted.

Pinchin Project No. 350221.001

APPENDIX XI

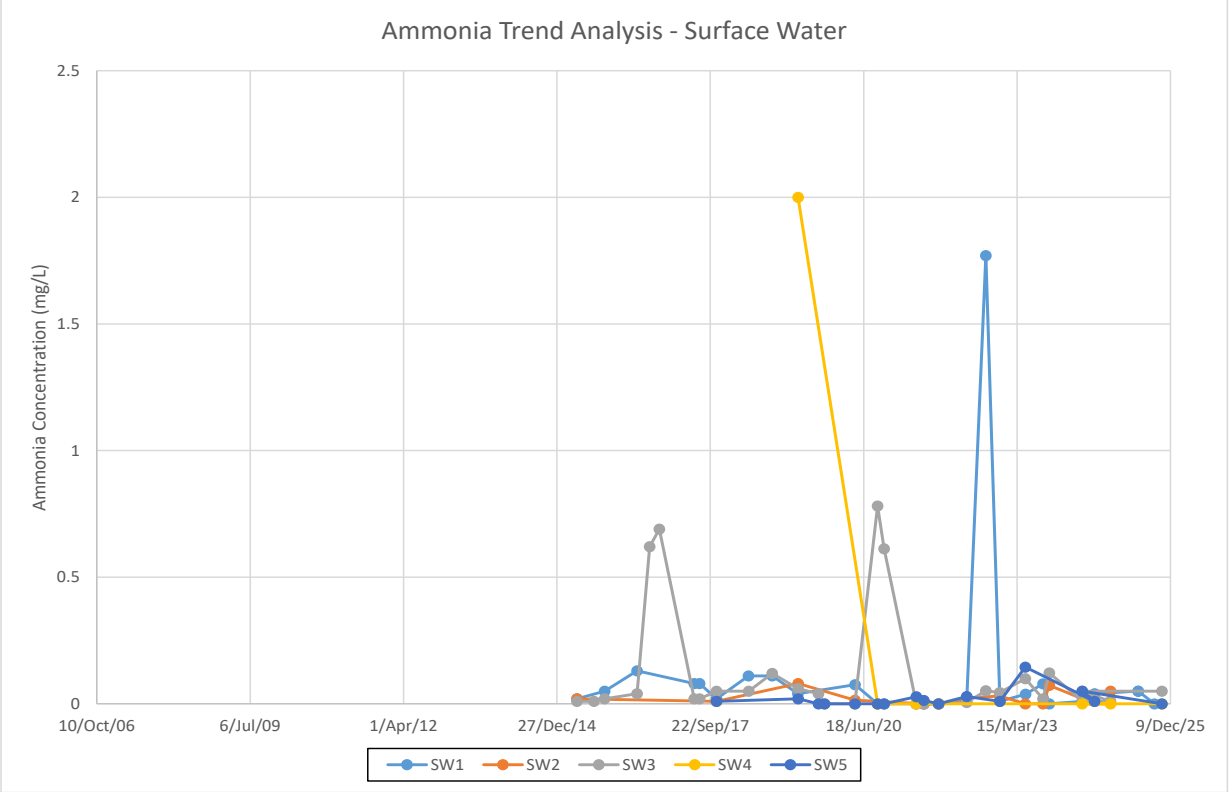
Surface Water Time-Concentration Graphs

Town of Napanee, Ontario
South Fredericksburgh Waste Disposal Site
Napanee, Ontario
April 2026



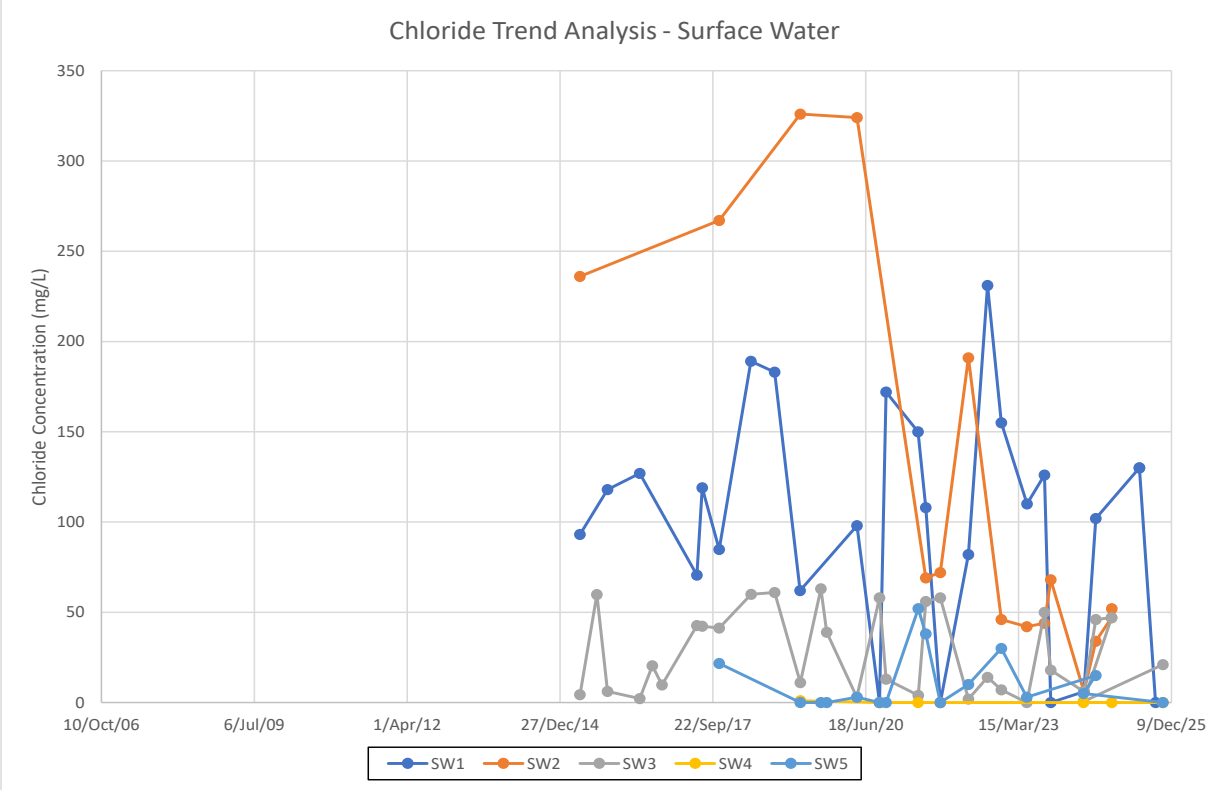
Pinchin Project No. **350221.001**

Town of Napanee, Ontario
South Fredericksburgh Waste Disposal Site
Napanee, Ontario
April 2026



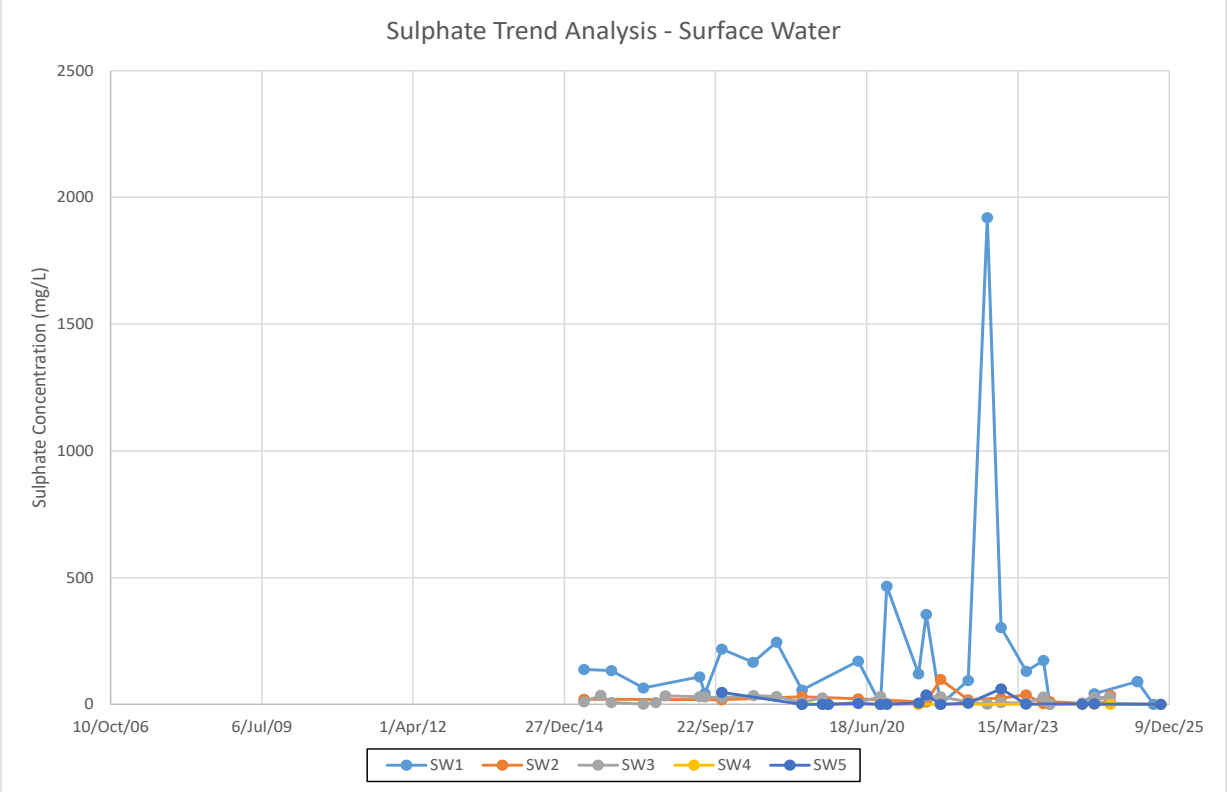
Pinchin Project No. **350221.001**

Town of Napanee, Ontario
South Fredericksburgh Waste Disposal Site
Napanee, Ontario
April 2026



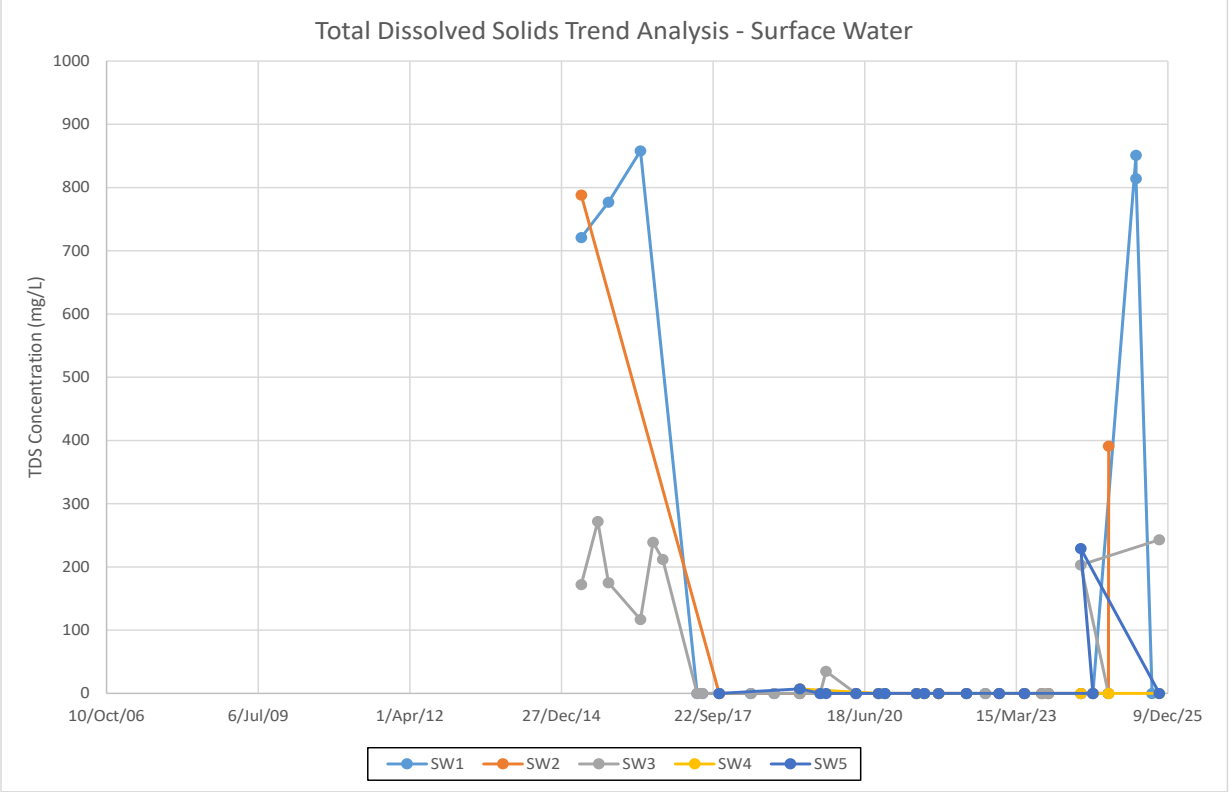
Pinchin Project No. **350221.001**

Town of Napanee, Ontario
South Fredericksburgh Waste Disposal Site
Napanee, Ontario
April 2026



Pinchin Project No. **350221.001**

Town of Napanee, Ontario
South Fredericksburgh Waste Disposal Site
Napanee, Ontario
April 2026



Pinchin Project No. **350221.001**

APPENDIX XII

Monitoring and Screening Checklist

Appendix D-Monitoring and Screening Checklist
General Information and Instructions

General Information: The checklist is to be completed, and submitted with the Monitoring Report.
Instructions: A complete checklist consists of:
(a) a completed and signed checklist, including any additional pages of information which can be attached as needed to provide further details where indicated.
(b) completed contact information for the Competent Environmental Practitioner (CEP)
(c) self-declaration that CEP(s) meet(s) the qualifications as set out below and in Section 1.2 of the Technical Guidance Document.

Definition of Groundwater CEP:
For groundwater, the CEP must have expertise in hydrogeology and meet one of the following:
(a) the person holds a licence, limited licence or temporary licence under the *Professional Engineers Act*; or
(b) the person holds a certificate of registration under the *Professional Geoscientists Act, 2000* and is a practicing member, temporary, member or limited member of the Association of Professional Geoscientists of Ontario. O. Reg. 66/08, s. 2..
Definition of Surface water CEP:
A CEP for surface water assessments is a scientist, professional engineer or professional geoscientist as described in (a) and (b) above with demonstrated experience and post-secondary education, either a diploma or degree, in hydrology, aquatic ecology, limnology, aquatic biology, physical geography with specialization in surface water, and/or water resource management.

The type of scientific work that a CEP performs must be consistent with that person's education and experience. If an individual has appropriate training and credentials in both groundwater and surface water and is responsible for both areas of expertise, the CEP may then complete and validate both sections of the checklist.

Monitoring Report and Site Information	
Waste Disposal Site Name	South Fredricksburgh Waste Disposal Site and Waste Transfer Station
Location (e.g. street address, lot, concession)	Lot 1, Concession 2, in the former Township of South Fredricksburgh County of Lennox and Addington. The site is located off Township Road #1 North, just north o
GPS Location (taken within the property boundary at front gate/ front entry)	Universal Transverse Mercator (UTM) coordinates: 344499 Easting and 4888795 Northing, Zone 18T
Municipality	Town of Greater Napanee
Client and/or Site Owner	Town of Greater Napanee
Monitoring Period (Year)	2025
This Monitoring Report is being submitted under the following:	
Certificate of Approval No.:	A371001
Director's Order No.:	N/A
Provincial Officer's Order No.:	N/A
Other:	N/A

Report Submission Frequency	◉ **Annual** ○ **Other**	Specify (Type Here):
The site is:	○ **Active** ○ **Inactive** ◉ **Closed**	
If closed, specify C of A, control or authorizing document closure date:		Select Date
Has the nature of the operations at the site changed during this monitoring period?	○ **Yes** ◉ **No**	
If yes, provide details:	N/A	
Have any measurements been taken since the last reporting period that indicate landfill gas volumes have exceeded the MOE limits for subsurface or adjacent buildings? (i. e. exceeded the LEL for methane)	○ Yes ◉ No	

Groundwater WDS Verification:

Based on all available information about the site and site knowledge, it is my opinion that:

Sampling and Monitoring Program Status:

1) The monitoring program continues to effectively characterize site conditions and any groundwater discharges from the site. All monitoring wells are confirmed to be in good condition and are secure:	(●) **Yes** ( ) **No**	N/A
2) All groundwater, leachate and WDS gas sampling and monitoring for the monitoring period being reported on was successfully completed as required by Certificate(s) of Approval or other relevant authorizing/control document(s):	( ) **Yes** (●) **No** ( ) **Not Applicable**	If no, list exceptions below or attach information.

Groundwater Sampling Location	**Description/Explanation for change (change in name or location, additions, deletions)**	**Date**
TMW2D MW4S MW4D	Insufficient groundwater volume for sampling	Spring 2025
MW1S&D MW2D MW4S&D MW8 MW11S&D	Insufficient groundwater volume for sampling, with exception of MW1 nest inaccessible due to heavy brush placed over location	Fall 2025
Type Here	Type Here	Select Date
Type Here	Type Here	Select Date

3) a) Some or all groundwater, leachate and WDS gas sampling and monitoring requirements have been established or defined outside of a ministry C of A, authorizing, or control document.	○ **Yes** ◉ **No** ○ **Not Applicable**	
b) If yes, the sampling and monitoring identified under 3(a) for the monitoring period being reported on was successfully completed in accordance with established protocols, frequencies, locations, and parameters developed as per the Technical Guidance Document:	○ **Yes** ○ **No** ◉ **Not Applicable**	If no, list exceptions below or attach additional information.

Groundwater Sampling Location	**Description/Explanation for change (change in name or location, additions, deletions)**	**Date**
Type Here	Type Here	Select Date
Type Here	Type Here	Select Date
Type Here	Type Here	Select Date
Type Here	Type Here	Select Date

4) All field work for groundwater investigations was done in accordance with standard operating procedures as established/outlined per the Technical Guidance Document (including internal/external QA/QC requirements) (Note: A SOP can be from a published source, developed internally by the site owner's consultant, or adopted by the consultant from another organization):	◉ **Yes** ○ **No**	If no, specify (Type Here):

Sampling and Monitoring Program Results/WDS Conditions and Assessment:			
5) The site has an adequate buffer, Contaminant Attenuation Zone (CAZ) and/or contingency plan in place. Design and operational measures, including the size and configuration of any CAZ, are adequate to prevent potential human health impacts and impairment of the environment.	◉ **Yes** ○ **No**	If no, the potential design and operational concerns/exceptions are as follows (Type Here):	
6) The site meets compliance and assessment criteria.	◉ **Yes** ○ **No**	If no, list and explain exceptions (Type Here):	
7) The site continues to perform as anticipated. There have been no unusual trends/ changes in measured leachate and groundwater levels or concentrations.	◉ **Yes** ○ **No**	No significant changes	
1) Is one or more of the following risk reduction practices in place at the site: ***(a)*** **There is minimal reliance on natural attenuation of leachate due to the presence of an effective waste liner and active leachate collection/treatment; or** ***(b)*** **There is a predictive monitoring program in-place (modeled indicator concentrations projected over time for key locations); or** ***(c)*** **The site meets the following two conditions (typically achieved after 15 years or longer of site operation):** ***i.*** **The site has developed stable leachate mound(s) and stable leachate plume geometry/concentrations; and** ***ii.*** **Seasonal and annual water levels and water quality fluctuations are well understood.**	◉ **Yes** ○ **No**	**Note which practice(s):**	☐ **(a)** ☒ **(b)** ☐ **(c)**
9) Have trigger values for contingency plans or site remedial actions been exceeded (where they exist):	◉ **Yes** ○ **No** ○ **Not Applicable**	Alkalinity (fall only), DOC (spring only), chloride, hardness, iron (spring only), manganese (spring only) and TDS (fall only) at MW9S; Chloride (spring only), iron, sodium, hardness, manganese (fall only) and TDS (spring only) at MW10S; and Chloride, DOC, iron (spring only), pH, arsenic (spring only), barium, chromium (spring only) and TDS at MW9D.	

Groundwater CEP Declaration:

I am a licensed professional Engineer or a registered professional geoscientist in Ontario with expertise in hydrogeology, as defined in Appendix D under Instructions. Where additional expertise was needed to evaluate the site monitoring data, I have relied on individuals who I believe to be experts in the relevant discipline, who have co-signed the compliance monitoring report or monitoring program status report, and who have provided evidence to me of their credentials.

I have examined the applicable Certificate of Approval and any other environmental authorizing or control documents that apply to the site. I have read and followed the Monitoring and Reporting for Waste Disposal Sites Groundwater and Surface Water Technical Guidance Document (MOE, 2010, or as amended), and associated monitoring and sampling guidance documents, as amended from time to time. I have reviewed all of the data collected for the above-referenced site for the monitoring period(s) identified in this checklist. Except as otherwise agreed with the ministry for certain parameters, all of the analytical work has been undertaken by a laboratory which is accredited for the parameters analysed to *ISO/IEC 17025:2005 (E)- General requirements for the competence of testing and calibration laboratories,* or as amended from time to time by the ministry.

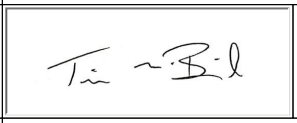
If any exceptions or potential concerns have been noted in the questions in the checklist attached to this declaration, it is my opinion that these exceptions and concerns are minor in nature and will be rectified for the next monitoring/reporting period. Where this is not the case, the circumstances concerning the exception or potential concern and my client's proposed action have been documented in writing to the Ministry of the Environment District Manager in a letter from me dated:

15-Apr-2026

Recommendations:

Based on my technical review of the monitoring results for the waste disposal site:

◉ **No changes to the monitoring program are recommended**	Type Here
○ **The following change(s) to the monitoring program is/are recommended:**	
◉ **No Changes to site design and operation are recommended**	Type Here
○ **The following change(s) to the site design and operation is/ are recommended:**	

Name:	Tim McBride, P.Geo.		
Seal:	Add Image		
Signature:		**Date:**	15-Apr-2026
CEP Contact Information:	Tim McBride		
Company:	Pinchin Ltd.		
Address:	662 Falconbridge Road, Unit 3 Sudbury, Ontario P3A 4S4		
Telephone No.:	705.521.0560	Fax No. :	Type Here
E-mail Address:	tmcbride@pinchin.com		
Co-signers for additional expertise provided:			
Signature:		**Date:**	Select Date
Signature:		**Date:**	Select Date

Surface Water WDS Verification:

Provide the name of surface water body/bodies potentially receiving the WDS effluent and the approximate distance to the waterbody (including the nearest surface water body/bodies to the site):

Name (s)	Unnamed flooded Quarry
Distance(s)	Approx. 500m north of fill area

Based on all available information and site knowledge, it is my opinion that:

Sampling and Monitoring Program Status:

1) The current surface water monitoring program continues to effectively characterize the surface water conditions, and includes data that relates upstream/background and downstream receiving water conditions:	(●) Yes ( ) No	If no, identify issues (Type Here):
2) All surface water sampling for the monitoring period being reported was successfully completed in accordance with the Certificate(s) of Approval or relevant authorizing/control document(s) (if applicable):	(●) Yes ( ) No ( ) **Not applicable (No C of A, authorizing / control document applies)**	If no, specify below or provide details in an attachment.

Surface Water Sampling Location	Description/Explanation for change (change in name or location, additions, deletions)	Date
Type Here	Type Here	Select Date
Type Here	Type Here	Select Date
Type Here	Type Here	Select Date
Type Here	Type Here	Select Date

3) a) Some or all surface water sampling and monitoring program requirements for the monitoring period have been established outside of a ministry C of A or authorizing/control document.	○ **Yes** ○ **No** ◉ **Not Applicable**	
b) If yes, all surface water sampling and monitoring identified under 3 (a) was successfully completed in accordance with the established program from the site, including sampling protocols, frequencies, locations and parameters) as developed per the Technical Guidance Document:	○ **Yes** ○ **No** ◉ **Not Applicable**	If no, specify below or provide details in an attachment.

Surface Water Sampling Location	**Description/Explanation for change (change in name or location, additions, deletions)**	**Date**
Type Here	Type Here	Select Date
Type Here	Type Here	Select Date
Type Here	Type Here	Select Date
Type Here	Type Here	Select Date

4) All field work for surface water investigations was done in accordance with standard operating procedures, including internal/external QA/QC requirements, as established/ outlined as per the Technical Guidance Document, MOE 2010, or as amended. (Note: A SOP can be from a published source, developed internally by the site owner's consultant, or adopted by the consultant from another organization):	◉ **Yes** ○ **No**	If no, specify (Type Here):

Sampling and Monitoring Program Results/WDS Conditions and Assessment:

5) The receiving water body meets surface water-related compliance criteria and assessment criteria: i.e., there are no exceedances of criteria, based on MOE legislation, regulations, Water Management Policies, Guidelines and Provincial Water Quality Objectives and other assessment criteria (e.g., CWQGs, APVs), as noted in Table A or Table B in the Technical Guidance Document (Section 4.6):	○ **Yes** ◉ **No**

If no, list parameters that exceed criteria outlined above and the amount/percentage of the exceedance as per the table below or provide details in an attachment:

Parameter	Compliance or Assessment Criteria or Background	Amount by which Compliance or Assessment Criteria or Background Exceeded
e.g. Nickel	e.g. C of A limit, PWQO, background	e.g. X% above PWQO
Iron	PWQO: Iron=0.3 mg/L	SW3 - 0.89 mg/L (spring), 0.98 mg/L (fall);
Total Phosphorus	PWQO: Total Phosphorus=0.03 mg/L	SW3 - 0.04 mg/L (spring) SW1 - 0.05 mg/L (spring)
Boron	PWQO: Boron: 0.2 mg/L	SW1 - 0.56 mg/L (spring)
Type Here	Type Here	Type Here
6) In my opinion, any exceedances listed in Question 5 are the result of non-WDS related influences (such as background, road salting, sampling site conditions)?	◉ **Yes** ○ **No**	If yes, specify (Type Here)

7) All monitoring program surface water parameter concentrations fall within a stable or decreasing trend. The site is not characterized by historical ranges of concentrations above assessment and compliance criteria.	(•) **Yes** ( ) **No**	If no, list parameters and stations that is outside the expected range. Identify whether parameter concentrations show an increasing trend or are within a high historical range (Type Here)
8) For the monitoring program parameters, does the water quality in the groundwater zones adjacent to surface water receivers exceed assessment or compliance criteria (e.g. , PWQOs, CWQGs, or toxicity values for aquatic biota (APVs)):	( ) Yes (•) No ( ) Not Known ( ) Not Applicable	If yes, provide details and whether remedial measures are necessary (Type Here)
9) Have trigger values for contingency plans or site remedial actions been exceeded (where they exist):	(•) **Yes** ( ) **No** ( ) **Not Applicable**	No action

Surface Water CEP Declaration:

I, the undersigned hereby declare that I am a Competent Environmental Practitioner as defined in Appendix D under Instructions, holding the necessary level of experience and education to design surface water monitoring and sampling programs, conduct appropriate surface water investigations and interpret the related data as it pertains to the site for this monitoring period.

I have examined the applicable Certificate of Approval and any other environmental authorizing or control documents that apply to the site. I have read and followed the Monitoring and Reporting for Waste Disposal Sites Groundwater and Surface Water Technical Guidance Document (MOE, 2010, or as amended) and associated monitoring and sampling guidance documents, as amended from time to time. I have reviewed all of the data collected for the above-referenced site for the monitoring period(s) identified in this checklist. Except as otherwise agreed with the ministry for certain parameters, all of the analytical work has been undertaken by a laboratory which is accredited for the parameters analysed to *ISO/IEC 17025:2005 (E)- General requirements for the competence of testing and calibration laboratories,* or as amended from time to time by the ministry.

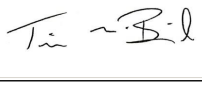
If any exceptions or potential concerns have been noted in the questions in the checklist attached to this declaration, it is my opinion that these exceptions and concerns are minor in nature or will be rectified for future monitoring events. Where this is not the case, the circumstances concerning the exception or potential concern and my client's proposed action have been documented in writing to the Ministry of the Environment District Manager in a letter from me dated:

15-Apr-2026

Recommendations:

Based on my technical review of the monitoring results for the waste disposal site:

◉ **No Changes to the monitoring program are recommended**	Type Here
○ **The following change(s) to the monitoring program is/are recommended:**	
◉ **No changes to the site design and operation are recommended**	Type Here
○ **The following change(s) to the site design and operation is/are recommended:**	

CEP Signature	
Relevant Discipline	Hydrogeologist (P.Geo)
Date:	15-Apr-2026
CEP Contact Information:	Tim McBride
Company:	Pinchin Ltd.
Address:	662 Falconbridge Road, Unit 3 Sudbury, Ontario P3A 4S4
Telephone No.:	705.521.0560
Fax No. :	Type Here
E-mail Address:	tmcbride@pinchin.com

Save As | Print Form

Staff Report

To:	Mayor Richardson and Members of Council
Meeting Date:	June 9, 2026
Date Council Decision Required:	
Prepared By:	Michael Nobes, General Manager - Growth & Infrastructure, Growth & Infrastructure Services
Presented By:	Michael Nobes, General Manager - Growth & Infrastructure, Growth & Infrastructure Services
Subject:	Growth & Infrastructure - Provincial Development Charges Reduction Program
Report Number:	SR-1355-2026

Staff Recommendation:

That Council receive for information the Growth & Infrastructure - Provincial Development Charges Reduction Program report;
And further, that Council direct staff to report back to Council at the June 17th Special Session with draft application materials.

Background Information and Discussion:

The Province of Ontario, in partnership with the Government of Canada, launched the Development Charge Reduction Program (DCRP) on June 1st as part of the Canada–Ontario Partnership to Build, with up to $8.8 billion in capital funding available to support housing-enabling infrastructure. The program is explicitly designed to reduce development charges (DCs) to improve housing affordability and accelerate residential construction, while offsetting a portion of the associated infrastructure funding gap.

Municipal participation in the program is contingent on a commitment to reduce residential DC rates across the board by at least 30% to 50% or greater retroactive to March 30, 2026 levels and to maintain those reductions for a minimum of three years. The program operates on a single intake basis, with all **applications due by June 19, 2026 at 10:00 a.m**., and funding allocations expected to be made for a ten-year horizon.

Based on the detailed program guidelines, municipalities are not required to have implemented a DC by-law amendment at the time of application submission to reduce rates. However, applicants must provide an agreement-in-principle commitment to reduce DC rates and must attest that the municipality will take all necessary legislative and administrative steps, including by-law amendments, to implement the reduction immediately upon execution of a Transfer Payment Agreement. DC reductions must be fully implemented and maintained in order to receive and retain funding.

The application itself is complex and requires the submission of detailed supporting documentation, including the DC by-law, DC background study, capital plan, land use planning information, and project mapping in KML format. Applicants must also provide detailed project information, financial estimates, housing impact projections, and confirm compliance with duty to consult requirements. At present, while program guidelines and a sample application (not for official use) have been released (received by staff from the Province on June 4th), it remains unclear whether the full application form is accessible through the Transfer Payment Ontario system, creating challenges given the fixed submission deadline.

It will be challenging to meet the application deadline given the breadth of work required however staff would commit to submitting an application if Council wishes.

Alternative Options and Implications:

Council may proceed with an application supported by an agreement-in-principle commitment to reduce DC rates, or choose not to apply. Proceeding allows access to potential funding but requires an early commitment without full financial analysis and creates an obligation to implement reductions if approved.

Declining to proceed avoids immediate potential risk but removes the municipality from a competitive, single intake funding opportunity that supports long-term infrastructure.

Financial Implications:

The program provides up to 90% cost-sharing for eligible capital projects, with a minimum 10% municipal contribution. However, the primary financial impact arises from the required reduction in DC revenue. The municipality must estimate the amount of DC relief provided to builders and the housing units enabled. Funding is not guaranteed to fully offset revenue losses. Additional risks include responsibility for cost overruns, upfront financing requirements, and potential retroactive DC adjustments for developments after March 30, 2026.

A detailed account of such implications has not been completed given the recency of the funding intake announcement.

Community Implications:

Participation may support housing affordability and increased residential development by reducing upfront development costs. However, DCs are intended to fund growth-related infrastructure, and reductions may shift costs to existing taxpayers if not fully offset.

Legislative Implications:

Implementation of DC reductions will require amendments to the Development Charges By-law in accordance with the *Development Charges Act*. While amendments are not required prior to application submission, municipalities must be prepared to adopt and implement changes immediately upon execution of a funding agreement. Additional compliance requirements include duty to consult obligations, planning conformity, and ongoing reporting.

Next Steps/Timelines:

Applications must be submitted through Transfer Payment Ontario by June 19, 2026 at 10:00 a.m. Staff would need to assemble documentation, identify eligible projects, estimate impacts, and complete application requirements on an expedited basis. Given current uncertainty regarding full availability of application materials within TPON, timelines present a challenge.

Staff would report back to Council at the June 17th special session with a draft application for Council's consideration.

Michael Nobes, General Manager - Growth & Infrastructure	Approved - 04 Jun 2026
Ellen Hamel, Treasurer	Approved - 04 Jun 2026
Matthew Grant, CAO	Approved - 04 Jun 2026
Christina Reeve, Deputy Clerk	Approved - 05 Jun 2026

Staff Report

To:	Mayor Richardson and Members of Council
Meeting Date:	June 9, 2026
Date Council Decision Required:	
Prepared By:	Jessica Walters, Clerk, Executive Services
Presented By:	Jessica Walters, Clerk, Executive Services
Subject:	Executive Services - Recommendation to Pause Parking By-law Review
Report Number:	SR-1357-2026

Staff Recommendation:

That Council receive for information the Executive Services - Recommendation to Pause Parking By-law Review report;
And further that Council direct staff to pause work on the Parking By-law update until it can done with the support of a comprehensive parking needs assessment.

Background Information and Discussion:

The need for a comprehensive Parking By-law review and update has been discussed a number of times during this Council term. Staff still believe this is an important project to undertake, but have come up against a challenge with internal capacity. One of the observations of the internal parking review has been that there are competing needs between narrower roads and lack of off-street parking options, particularly in the urban core. Without a comprehensive planning needs approach, staff are concerned that any recommendations to improve the parking by-law in one area will have unintended consequences in other areas of the community and could create more disruption than it solves.

Staff are recommending that the review work that has been done to date be referred to the next term of Council and that a major review of the Parking By-law be done if and when an urban parking study is conducted as part of the Zoning By-law update that will follow the adoption of the updated Official Plan.

Alternative Options and Implications:

The Resolution Tracker report included on this agenda includes a recommendation to remove this item from the staff workplan for now. However, Council may provide alternate direction by way of resolution.

Jessica Walters, Clerk

Approved - 04 Jun 2026

Shawn Armstrong, Fire Chief	Approved - 04 Jun 2026
Matthew Grant, CAO	Approved - 04 Jun 2026
Christina Reeve, Deputy Clerk	Approved - 04 Jun 2026

Staff Report

To:	Mayor Richardson and Members of Council
Meeting Date:	June 9, 2026
Date Council Decision Required:	June 9, 2026
Prepared By:	Sonia McLuckie, Cemetery Administrator, Executive Services
Presented By:	Sonia McLuckie, Cemetery Administrator, Executive Services
Subject:	Executive Services - Resale of Interment Rights
Report Number:	SR-1346-2026

Staff Recommendation:

That Council receive for information the Executive Services - Resale of Interment Rights report;

And further that Council endorse Option #2C as described in this report, permitting the resale of interment rights on the open market, as currently provided in the Town's Cemetery By-law, and establishing that as a general practice, the Town will not buy back interment rights;

And further that Council delegate authority to the Cemetery Administrator to review, approve, or deny requests for the Town to buy back interment rights, in circumstances where the applicant wishes to exchange one type of interment right for another in the Town's cemeteries, and that such transactions be made in accordance with the Cemetery By-law and the Bereavement Authority of Ontario requirements;

And further that Council direct staff to prepare the necessary amendments to the Cemetery By-law to clarify resale procedures, Care and Maintenance verification requirements, administrative processes, and the Town's discretionary authority to buy back interment rights to be included in an overall review of the Cemetery By-law;

And further that Council direct staff to initiate the required 30-day public notice, following necessary amendments, under the Funeral, Burial, Cremation Services Act, 2002, and report back with a final By-law for Council approval following completion of the Bereavement Authority of Ontario's review and public notice period.

Background Information and Discussion:

As of July 1, 2012, the Bereavement Authority of Ontario (BAO) provided that consumers whom have unused or unwanted interment rights would be able to resell them on the open market or return them to the Cemetery Operator. The Act states that a Cemetery Operator must establish and communicate its position with respect to the return or resale of interment rights, but the position is at the operator's

discretion. It is important to note that if interment rights have been used, in full or in part, then they cannot be sold.

As we are the operator of 41 Cemeteries (5 of which are active), Council can choose whether the Town will allow or prohibit the resale of interment rights on the open market or if the Town will solely repurchase the interment rights.

When the Cemetery By-law was updated in 2025 (By-law No. 2025-0018), it was amended to state that the Town's general stance is that it is not required to buy back plots, and that it does permit third party sales on the open market. However, the by-law language leaves room for ambiguity as it states "The Town of Greater Napanee does permit the resale of an interment right(s) to a third-party and is not required nor obligated to re-purchase interment rights…Before reselling the rights, the rights holder may first inquire whether the Town of Greater Napanee is willing to repurchase the rights at a negotiated price."

Town staff have received two inquiries about the possibility of reselling unused interment rights at the Riverside Cemetery back to the Town. One is for a request to exchange a plot for a columbarium niche, and one is for a request to sell back four unused plots purchased several years before the cemetery was transferred to the Town. Given the ambiguity in the by-law, we are seeking Council direction on the Town's preferred stance on this topic.

Option #1: By-laws Prohibiting the Resale of Interment Rights on the Open Market:

Prohibiting the resale of Interment Rights on the open market would indicate to plot owners that the Town would be obligated to repurchase the rights and cancel the contract. The cost to the Town would be the set price as listed in the current Price List as shown in the Fees for Services By-law. The cost per in-ground plot is currently $1,680.00. This amount can be reduced but only by the amount that was transferred into the Care & Maintenance (C&M) Fund at the original time of sale. The C&M deposited is 40% of the selling price, which currently amounts to $672.00, therefore, the amount that can be refunded to the interment right holder would be $1,008.00. (Note: The C&M fee of $672.00 cannot be withdrawn from the fund to cover this cost).

The refund amount must be reduced by the amount actually paid into the C&M fund at the time of original purchase, if it can be reasonably proven, and when the plot is re-sold in the future the C&M contribution for that specific plot must be reduced by the amount being retained, to ensure there is no duplication in collection.

In the case where an individual cannot provide a receipt showing the C&M contributions, and the Town does not have sufficient records to show what the C&M amount would have been at the time of the original sale, the Town is required to treat it as a brand new sale, collect the entire current C&M amount from the new purchaser (currently $672.00), and transfer the C&M contribution at the time of the re-sale.

In reviewing our 11 comparator municipalities, of the 5 that have active cemeteries, all prohibit third party sales and state that the municipality will purchase back interment rights. However, they also all have a far lower number of cemeteries on their licenses.

Core takeaway: This option creates a mandatory buy-back system where the Town must repurchase unused interment rights at the current price minus the C&M portion, which cannot be refunded or

withdrawn. This is the simplest option for a rights holder to exercise, but is more complicated for the Town to manage. This also places a predictable but real financial obligation on the Town each time a plot owner wants to sell their rights.

Option #2: By-laws Permitting the Resale of Interment Rights on the Open Market
Permitting the sale of Interment Rights to third party does not incur any monetary exchange between the Town and the seller. Interment Right holders are free to sell unused rights directly to a third party.

The third party sale is still completed through the Town as the Cemetery Operator. The Town will verify that the seller is in fact the Interment Right holder, verify the C&M contributions and issue a new Certificate of Interment Rights. (An Administrative fee can be charged for this service, the Town's current rate is $200).

Interment Rights can only be resold at fair market value, meaning the seller has to refer to the Town's current price list as set out in the Fees for Services By-law, when planning to sell their rights.

Private sellers are not required to make any price reductions or payments into the C&M Fund, however, if the plot was sold prior to 1955, no funds were collected to maintain it, therefore the Town can charge the interment right holder a deposit for C&M, which would be the most current amount.

Core takeaway: This option creates a true open-market system where private sellers control the financial transaction, but the Town still acts as the regulatory gatekeeper. The Town does not handle money from the sale, but it must verify ownership, confirm C&M compliance, and issue a new Certificate of Interment Rights. Sellers must use the Town's current price list as the fair-market ceiling, and in rare cases (plots sold before 1955), the Town may require a C&M deposit because none was originally collected. While there is still an administrative burden for the Town, it can be offset through service fees and the Town is not required to carry an uncertain financial obligation.

There may be circumstances where the Town is open to buying back internment rights. Staff would request that if Council is open to considering buying back plots, specific parameters for consideration be set out, and if Council is not open to buying back plots or niches in any circumstances, that the by-law be amended to remove language about inquiring about repurchase options.

Alternative Options and Implications:

Option #1 – Amend the Cemetery By-law to Prohibit Third Party Sales: Creates a closed system where the Town becomes the only buyer and seller of Interment Rights, ensuring full municipal control but creating a financial obligation to repurchase unused plots.

Option #2 – Maintain the Current By-law Permission of Third Party Sales: Allows Interment Right Holders to sell directly to third parties, shifting financial responsibility away from the Town while maintaining the Town's regulatory role in verifying ownership and C&M Compliance.

Option 2 A) In addition to permitting third party sales, Council clarifies that the Town will not purchase back internment rights in any circumstances, and directs that the by-law be amended to this effect.

Option 2 B) In addition to permitting third party sales, Council maintains the current by-law language which means that any interment rights holder can make an application to Council requesting the Town to buy back their rights at current rates.

Option 2 C) In addition to permitting third party sales, Council establishes specific criteria where the Town will consider buying back internment rights, such as when an applicant wishes to

exchange a plot for a niche, or a niche for a plot, and delegates authority to staff to make those repurchasing decisions. (**Staff Recommended Option)**

Financial Implications:

Option #1: The Town assumes a direct financial liability every time an Interment Rights Holder requests a buy-back. Staff are not able to estimate the potential financial obligation to the Town. Records received at the time of cemetery transfers were not always complete and are not yet in a digital format, and so we cannot say with confidence how many unexercised interment rights may exist for any of the Town's cemeteries. As one example, plots that were sold to the previous Cemetery Boards for approximately $300 in the early 1990's would need to be purchased back at the current rate of $1,008, less the C&M deposit from that time (approx. $135), for a total refund of $873. The Town would attempt to resell these plots but may not be able to offset the purchase costs in the same year and would not make any net revenue on the sale.

Option #2: The Town avoids all buy-back costs and is not involved in the financial transaction between private parties.

Operational Implications:

Option #1: Significantly increases staff workload because the Town becomes the sole buyer and seller of interment rights. It would create new administrative, record-keeping, and customer-service demands. Given that this is an easier option for disposing of internment rights, staff would also expect to see an increase in the number of requests received each year.

Option #2: Maintains current operational burden because the Town does not handle financial transactions, only documentation and compliance checks. Processing transfers generates a small, predictable revenue stream that offsets staff time.

Legislative Implications:

Repurchasing and re-sale of interment rights is governed under Section 47 of the *Funeral, Burial, and Cremation Services Act* (FBCSA), which states that,

"if the by-laws of a cemetery prohibit an interment rights holder or a scattering rights holder to sell the interment rights or scattering rights to a third party, then, in addition to any rights of cancellation that may exist under section 41 or 42, the rights holder may, at any time, cancel the contract under which the rights were purchased by giving the cemetery operator written notice of the cancellation and require the operator to repurchase the interment rights or the scattering rights, as the case may be."

The FBSCA also imposes strict rules on refunds, C&M trust fund management, and resale restrictions, and requires the Town's involvement in transactions to some degree, whether the sale is to a third party or back to the Town.

Public Engagement/Communication Implications:

Option #1: Requires strong, proactive communication because residents may not understand why they cannot sell their rights privately or why refunds may be lower than expected.

Option #2: Requires clear messaging about the Town's limited role, to prevent residents from assuming the Town sets resale prices or guarantees private transactions.

Next Steps/Timelines:

With the transfer of Cemetery Administration to the Legislative Services Department, staff are undertaking a review of the entire Cemetery By-law to identify any other operating changes that may be required. The direction given by Council at this meeting will be incorporated into that review and update work. Given that the BAO has a specific notice process that must be followed for amendments, staff are only intending to bring forward an amending by-law once this year.

Jessica Walters, Clerk	Approved - 04 Jun 2026
Chris Brown, Director of Parks, Recreation & Culture	Approved - 04 Jun 2026
Matthew Grant, CAO	Approved - 04 Jun 2026
Christina Reeve, Deputy Clerk	Approved - 04 Jun 2026

Staff Report

To:	Mayor Richardson and Members of Council
Meeting Date:	June 9, 2026
Date Council Decision Required:	June 23, 2026
Prepared By:	Matthew Grant, CAO, Executive Services
Presented By:	Matthew Grant, CAO, Executive Services
Subject:	Executive Services - Resolution and Mandate Tracker Update
Report Number:	SR-1359-2026

Staff Recommendation:

That Council receive the bi-monthly Council Resolution Tracker report;
And further, that Council direct that the recommended list of resolution and mandate revisions be forwarded to the June 23, 2026, Council agenda for decision.

Background Information and Discussion:

As per Council direction, staff report every two months on the progress being made on direction from Council made by resolution as well as mandates approved by Council in the fall of 2024.

Following the last update to Council in March of 2026, staff have completed 18 Council resolutions and are actively working on 24.

There are also 205/25, 247/25, 520/25, 41/26, 46/26, 72/26, 128, 26, 151/26, 214/26, and several Council Inquiries. Resolutions in completed relate to:

- Energy generation
- Traffic signage
- Alto
- Costs associated with the Town's response to homelessness
- Municipal Accommodation Tax
- Public transit
- Financing application for the wastewater plant
- Land sales
- An inquiry related to the South Fred Landfill

Resolutions in progress include 263/23, 258/24, 294/24, 367/24, 416/24, 188/25, 135/26, 137/26, 202/26, 235/26 and a Council Inquiry. Resolutions relate to:

- Access E-11

- CIP RFP
- Community showcase procedures at the Best and Bash Arena
- Impost By-law related to existing development private water connections (awaiting final costing for road resurfacing)
- Market Square renovations and policies
- Road reclassifications

In addition to Council resolutions, members of Senior Leadership have continued to make progress on the actions highlighted in their 2024 mandate letters. Since March of 2026, staff have completed and have begun implementing a Corporate Communications Policy and associated guidelines.

Several mandate items remain in progress and are expected to be completed by the end of Council's mandate, including:

- A comprehensive employee awareness program.
- Improvements to regular reporting on key items, including regulatory reporting to Council.
- Improvements to Planning Services Digital Delivery.
- Negotiations with the Town's Full-Time Firefighters, which went to arbitration.
- Ongoing to work to improve transparency related to in-camera meetings.
- Service Standards for Finance and IT, Legislative and By-law Services, and Growth and Infrastructure Services.
- The development of a corporate Grants Acquisition Policy and related processes (strategy to be set in the new Council term)
- The completion of a Fire Master Plan.

The ongoing items are in addition to the completion of more than 25 strategic mandate initiatives since the fall of 2025, including initiatives related to:

- Asset Management Plan
- Business attraction
- By-law enforcement
- Collective agreements
- Community fire risks
- Corporate communications
- Corporate training
- Departmental service standards
- Delegated authority
- External audits
- Financial reporting
- Fleet management
- Land sales
- Performance management
- Policy development
- Procurement
- Tiered response support for the County's paramedic service

Given that Council is nearing the end of their term, staff are looking to confirm Council's expectations on priority work as it is likely that while the majority of resolutions and mandate work will be completed, not all will be.

It is staff's recommendation that the Town aim to reduce resolutions to and mandate commitments to zero by the end of the term to ensure that the current Council is not, in essence, providing work to the new Council. This can be achieved by prioritizing the remaining bodies of work and eliminating some

items on the resolution and mandate work plan to ensure there is sufficient capacity to completed selected items.

Items staff will be recommending come off Council's Resolution Tracker without being completed, include resolutions related to:

- Updates to the Parking By-law (staff report included on this agenda)
- Plans to explore the repurposing of the use of the Via Rail Station waiting room
- Review of a Municipal Tree Planting Policy
- A broader review of RVs permitted on private property

With respect to senior leaders' mandate letters, the following are recommended to come off without being completed by the end of the mandate to ensure that those items that remain can receive due attention. Those mandate items would include:

- A review of fees and charges (significant work has occurred but is not completed, and a recommendation is coming forward to include an annual review as a part of the budget process)
- Space allocation standardization at Town facilities (work is ongoing but will not be completed)
- Public engagement framework and guidelines

Further, it should be recognized that Market Square construction projects and associated policies will be completed but may not be completed before the end of Council's term.

Staff note that the 65% of all items listed in the mandate letters have been completed to date, and anticipate being able to report substantial completion of most items in the next update to Council at the August 25 meeting.

Attachments:

Appendix A - Resolutions Completed to June 3
Appendix B - Resolutions in Progress - June 9
Appendix C - Mandate Items as at June 9, 2026

Michael Nobes, General Manager - Growth & Infrastructure	Approved - 04 Jun 2026
Matthew Grant, CAO	Approved - 04 Jun 2026
Christina Reeve, Deputy Clerk	Approved - 04 Jun 2026

Appendix A - Resolutions Completed from March 24 to June 3, 2026

Task Name	Description	Department	Status	Completed Date	Outcome
2026 - RESOLUTION # 41/26 (Regulatory Signs)	That Council note and receive the deputation from Ed Alexander regarding warning signs ; And further, that Council direct staff to report back to the next meeting regarding the requested change to the Regulatory Signs By-law. Requesting a change to the Regulatory Sign By-Law to allow installation of an "Child with Autism" sign with a flashing light on Gerow Road.	Growth & Infrastructure Services	Completed	2026-03-17	Staff report brought to March 24 meeting, and letter sent after the meeting advising of Council's decision
2026 - RESOLUTION #72/26 (Alto Report)	Report back to Council after attendance at the Alto Stakeholder Consultation meeting about what is known about the project and what the opportunities for Council input are.	Executive Services	Completed	2026-03-25	Report brought to the March 24 meeting, new direction given under Resolution #156/26
2026 - Council Inquiries (Ice Time Allocation)	Councillor Norrie noted media reporting on unequal access to ice time by young girls and asked if we have looked at our booking policies.	Parks, Recreation & Culture	Completed	2026-03-25	Report brought to March 24 meeting
2026 - Council Inquiries (PELASS Costs)	Councillor Schenk asked for a report on total costs associated with responding to homelessness and associated impacts of hosting the warming shelter and transitional homes, and whether a grant request could be sent to the County on the grounds that the Town is bearing the impacts from the other lower tier municipalities. Matthew Grant advised that staff will bring forward a pre-season report that speaks to dollars and staff time allocated at which point Council can determine whether to take additional actions.	Executive Services	Completed	2026-04-02	Report brought to March 24 meeting.
2026 - RESOLUTION #46/26 (MAT RFP)	That Council receive for information the Executive Services - Municipal Accommodation Tax Draft By-law Framework report; And further that Council request staff to bring forward a report with more detailed comparator information on MAT rates prior to final consideration of the by-law;And further that Council direct staff to issue an RFP for the eligible tourism entity partner for a five year term.	Finance & IT Services	Completed	2026-04-09	Rates reported to Council Feb 3, By-law adopted Feb 10; RFP issued and closed April 9
2025 - RESOLUTION #247/25 (Transit Partnership Exploration)	That Council receive the Executive Services -Transit Options for Greater Napanee report; That Council confirm that financially the Town is not currently in a position to fund its own transit system; That Council confirm that if and when the Town decides to pursue a transit service in Greater Napanee that it will pursue an on-demand service to provide maximum flexibility and the best ability to manage cost; That Council direct staff to reach out to smaller municipalities between Kingston and Belleville to gauge interest in pursuing and jointly funding a regional on-demand transit service where costs can be shared...	Executive Services	Completed	2026-04-14	Report brought to Council April 14, deemed Completed under Resolution #175/26
2025 - RESOLUTION #205/25 (WPCP Debenture and PUC Reserve)	...And further that Council supports the financing strategy framework as presented, including use of 50% of the PUC reserve and direct staff to bring forward any bylaw amendments that could be required to implement the financing framework... And further that Council authorize staff to initiate an application to apply for a debenture not to exceed $25,000,000 and report back to Council prior to final submission.	Finance & IT Services	Completed	2026-04-16	Loan application report brought to April 14 meeting and approved by Council. Final execution of agreement is still waiting on OILC
RESOLUTION #520/25 (Class II Land Sale)	And further, that Council agrees to sell a portion of the road allowance to Glenn Jerome of 263 Newburgh Road as a Class II land sale as described within the staff report; And further, that Council directs staff to bring forward a by-law to ratify the sale once all necessary survey and administrative work has been completed.	Growth & Infrastructure Services	Completed	2026-04-29	Staff report and by-law brought to April 28 meeting after survey received. Transfer concluded

Appendix A - Resolutions Completed from March 24 to June 3, 2026

Task Name	Description	Department	Status	Completed Date	Outcome
2025 - RESOLUTION #82/26 (Advisory Committee Mandates)	That Council receive for information the Executive Services - Advisory Committee Mandates During Election Campaign Period report; And further that Council direct staff to bring forward an amendment to the Advisory Committees By-law to address the perceived use of committee meetings as an election campaigning platform as follows: in the year of a general election, all proposed advisory committee work for the year must be approved by Council by no later than April 30; and no new committee initiatives or recommendations to Council outside of the scope of pre-approved work will be presented to Council after May 1 in an election yearAnd further, that Council direct staff to request a detailed 2026 work plan from all advisory committees by April 15.	Executive Services	Completed	2026-04-29	Amending by-law passed March 10; staff report brought to April 28 meeting, discussion by Council concluded at May 12 meeting
2026 - RESOLUTION #146/26 (CFFLA Withdrawal)	That Council receive for information the Executive Services - Withdrawal from Lennox and Addington Community Foundation Funding Program; And further, that Council endorse a plan for the Town to exit the Lennox and Addington Community Foundation funding program; And further, that Council direct that the CAO send a letter to the Lennox and Addington Community Foundation that it is exercising the exit clause in its agreement and providing six months' notice to do so in line with the agreement; And further, that Council direct that the Town request the return of the $29,800 that is currently sitting with the Lennox and Addington Community Foundation as an emerging charitable fund and place those funds in the Community Initiatives Fund reserve; And further, that Council direct that 2026 represent the final year of contributions to the Lennox and Addington Community Foundation funding program and that future annual contributions be directed toward the Town's Community Initiatives Fund; And further, that Council direct that the Town's Community Grants Policy and Reserves Fund Policy be updated to reflect this direction and the amended documents brought back for Council approval.	Executive Services	Completed	2026-04-29	Community Grant Policy By-law updated at April 28 meeting; updated direction provided by Council April 28 under Resolution #206/26
2026 - RESOLUTION #151/26 (CN Spur Line - Open Report)	That Council receive for information Confidential SR-1259-2026 - CN Rail Line Update; And further, that Council authorize and direct staff to proceed with the staff recommendation as outlined in the report; And further, that Council direct staff to bring forward an open session report regarding this file to the next regular session meeting.	Growth & Infrastructure Services	Completed	2026-04-29	Report provided to April 28 meeting
2026 - RESOLUTION #156/26 (Alto Resolution - Updated)	Supercedes Resolution #72/26 That Council receive for information the Alto High-Speed Rail Report; And further, that Council direct staff to attend the March 26th Stakeholder Meeting with Alto in Harrowsmith and report back to Council with further information on the proposal as obtained from the Stakeholder Meeting.	Executive Services	Completed	2026-04-29	Report brought to April 14 meeting, and deferred to April 28 meeting. Correspondence sent based on Council resolutions following April 28 meeting.
2026 - RESOLUTION #128/26 (Hydrostor MSR Report)	That Council note and receive the deputation from Hydrostor; And further, that Council direct staff to report back regarding the municipal support resolution request; And further, that Council direct staff to conduct an additional survey with area residents about the project as part of the report.	Growth & Infrastructure Services	Completed	2026-05-06	Report provided to May 12 meeting

Appendix A - Resolutions Completed from March 24 to June 3, 2026

Task Name	Description	Department	Status	Completed Date	Outcome
2026 - RESOLUTION #195/26 (PELASS Funding)	That Council receive for information the correspondence from Ted Parker, Youthab regarding the Housing and Landlord Liaison Program; And further, that Council send a letter to PELASS and the County of Lennox & Addington Council requesting clarity on how funding allocation decisions are being made and how homelessness prevention programs are being evaluated so that the community has a clear understanding; And further, that Council direct that the letter also request information on what alternate supports are being put in place to account for the loss of funding to this organization.	Executive Services	Completed	2026-05-06	Correspondence sent as per Council direction. No response received to date.
2026 - RESOLUTION #214/26 (Land Sale Reports)	That Council direct staff to bring back a report and draft amendment to the land sale by-law to extend the requirement for public reporting on closed session discussions to include unsuccessful offers to purchase Town lands in addition to successful offers which result in a sale.	Growth & Infrastructure Services	Completed	2026-05-11	Staff report brought to May 12 meeting, by-law to be brought forward June 9 following public notice
2025 - RESOLUTION #206/25 (Municipal Alcohol Policy Update)	That Council receive the report Risk Analysis Related to Alcohol Use on Town Property; And further, that Council direct that the Town's liquor license for Town facilities be maintained; And further, that Council direct staff to bring forward a revised Municipal Alcohol Policy that reflects best practices to manage risk, and that staff create an operational plan and associated financial projections for how the Town should update its event booking practices for licensed events to manage risk and liability; And further, that Council direct on-duty staff as a matter of policy that if they become aware of the unauthorized use of alcohol or drugs in Town facilities to contact the OPP, and to instruct the public to contact the OPP during hours when Town staff are not on duty.	Parks, Recreation & Culture	Completed	2026-05-13	Superceded by resolution #255/26 following staff report discussed May 12
2025 - RESOLUTION # 428/25 (MAT)	That Council receive for information Financial & IT Services report - Municipal Accommodation Tax; And further that Council support the implementation of Municipal Accommodation Tax; And further that Council direct staff to bring back a by-law to implement Municipal Accommodation Tax;And further that Council direct staff to bring back a staff report and draft agreement with the options for the eligible tourism entity.	Finance & IT Services	Completed	2026-05-13	MAT award recommendation brought to April 28 meeting and approved at May 12 meeting
2026 - RESOLUTION #164/26 (BYOB Law)	That Council request a staff report by the end of April regarding the proposed provincial legislation to permit consumption of alcohol at outdoor public events.	Parks, Recreation & Culture	Completed	2026-05-13	Report brought to April 28 meeting, discussed May 12. New direction given under Resolution #226/26
2026 - Council Inquiries (Landfill)	Councillor Schenk noted concerns that the South Fredericksburgh landfill may be used by non-residents, shortening its lifespan, and asked whether the Town has implemented a screening tool such as checking drivers licenses. Staff advised that they will review and report back.	Growth & Infrastructure Services	Completed	2026-05-21	Information report brought to May 26 meeting
2025 - RESOLUTION #530/25 (Rec Committee Soccer Field)	That Council receive for information the Recreation Advisory Committee Recommendation – Soccer Field report; And further that Council direct the Recreation Advisory Committee to provide additional information to Town staff on which types of different sports they are referring to;And further that Council direct staff to bring back a report on the feasibility of the committee recommendation.	Parks, Recreation & Culture	Completed	2026-05-27	After review of Committee recommendations, staff have confirmed there is no conflict between the soccer field work plan and Committee feedback.

Appendix B - Resolutions Still in Progress as at June 3, 2026

Task Name	Description	Department	Progress	Status
2023 - RESOLUTION #263/23 (Municipal Tree Planting / Sponsorship policy)	That Council note and receive the deputation from Hubert Hogle, and refer the comments to staff.	Parks, Recreation & Culture	In progress	Recommend this item be removed from the tracker
2024 - RESOLUTION #258/24 (Parking By-law)	That Council receive for information Legislative Services - Parking By-law Review report; And further that a draft Parking By-law with changes that incorporates public feedback and the recommendations described in this report, be brought forward to a future Council meeting for consideration. Supersedes Resolution #136/23 That Council receive for information the Legislative Services - Parking By-law Review report; And further that Council direct that an update to the Parking By-law, which incorporates public feedback, be brought forward to a future Council meeting for consideration.	Executive Services	In progress	Per staff report on June 9 agenda, recommending this item be removed from the tracker
2024 - RESOLUTION #294/24 (Community Showcase Display at Arena)	That Council receive for information the Community & Corporate Services - Celebration of the Career Achievements of Greater Napanee Olympian, Brittany Benn report; And further that Council direct staff to coordinate and create a community showcase display in the SPC lobby, celebrating and honouring the career achievements of Brittany Benn; And further that Council direct staff to develop a process for accepting similar requests.	Parks, Recreation & Culture	In progress	

Appendix B - Resolutions Still in Progress as at June 3, 2026

Task Name	Description	Department	Progress	Status
2024 - RESOLUTION #376/24 (Market Square work)	That Council receive the Market Square Advisory Committee recommendation report; And further, that Council adopt the vision for Town Hall put forward by the Market Square Advisory Committee; And further, that Council direct staff to develop an affordable costing structure and booking model that would allow community and arts groups to use the space and the Town to achieve cost recovery; And further, that Council directs staff to pursue partnerships for capital improvements to the facility, particularly related to the creation of a space that would accommodate market activities in Market Square as well as entities that could set up and run market activities in the Market Square precinct; And further, that Council direct staff to bring forward a report to a Regular Council Meeting providing the high level costing and timelines for the proposed work, as well as the reserve funds available to support the proposed work.	Parks, Recreation & Culture	In progress	Work on this item has been ongoing through this Council term with input from the Market Square Advisory Committee and joitn sub-committee working group. This item is also included as a mandate letter task.
2024 - RESOLUTION #416/24 (draft policy on road reclassification decisions)	That Council receive for information Growth & Infrastructure Services - Preliminary Cost Estimate to Up-Class Buttermilk Falls Road Report; And further, that Council direct staff to bring forward a draft policy in 2025 regarding road reclassification decisions for Council consideration.	Growth & Infrastructure Services	In progress	

Appendix B - Resolutions Still in Progress as at June 3, 2026

Task Name	Description	Department	Progress	Status
2025 - RESOLUTION #188/25 (Impost By-law)	That Council receive for information the Growth & Infrastructure - Springside Meadows Subdivision Servicing for Existing Developed Properties Report; And further, that Council approve the scope of work identified within the staff report for servicing a total of 14 properties on Old Hamburg Road, County Road 2 and Champlain Street; And further, that Council authorize the Mayor and Clerk to execute an amendment to the Pre-Servicing Agreement to incorporate the additional scope of work for the identified pricing within the staff report; And further, that the total project costs be funded from the Town's Impost Reserve Fund for a total of $190,750; And further, that Council direct staff to prepare a draft area-rated Impost By-Law to collect costs incurred for the scope of work identified within the staff report;And further, that prior to Council contemplating an area-rated Impost By-Law, that a draft of the by-law be presented to Council for consideration and direction prior to the public notification period for such by-law.	Growth & Infrastructure Services	In progress	Waiting for road resurfacing costing
2025 - RESOLUTION #207/25 (Access E11)	That Council receive the report Access E11. And further, that Council directs staff to adopt Option One in the report, which will involve the production of a monthly report on E11 that provides aggregate information on all complaints, including complaint types and the geographic location where the complaint was made or was about.	Finance & IT Services	In progress	Update is scheduled for June 23 meeting
2026 - RESOLUTION #137/26 (CIP RFP)	That Council receive for information Growth and Infrastructure - Community Improvement Plan Process Review report; And further, that Council direct staff to issue a request for proposals process (RFP) in accordance with Town procurement policies and procedures to support the preparation of a Community Improvement Plan; And further, that Council direct that the project be funded through unused 2025 Atura Host Agreement funds subject to staff confirming the use of the funds with Atura.	Growth & Infrastructure Services	In progress	Amended by Resolution #194/26 regarding funding source

Appendix B - Resolutions Still in Progress as at June 3, 2026

Task Name	Description	Department	Progress	Status
2025 - RESOLUTION #377/25 (Train Station Waiting Room)	That Council receive for information Parks, Recreation, & Culture - Train Station Waiting Room report; And further that Council direct staff to engage in conversation with Via Rail Canada Inc. to discuss alternative solutions to the existing operations of the waiting room for train passengers.	Parks, Recreation & Culture	Not started	Recommend this item be removed from the tracker
2025 - RESOLUTION #442/25 (Napanee Raiders)	That Council note and receive the deputation from the Napanee Raiders regarding revenue sharing from board ads; And further, that Council direct staff to bring back a report regarding the request for Council's consideration.	Executive Services	Not started	
2025 - RESOLUTION #498/25 (Agreements)	That Council receive for information the Executive Services - Contract Renewal Update report; And further that as the Town works on a policy to standardize our agreements and contracts that staff ensure that any agreements coming forward, in particular service-level agreements with other governments and third parties, include at a minimum: Clear language on legislation relevant to the agreement and how any compliance requirements are being met and by whom; Clear definitions of the goods and services being exchanged; Specifics on the obligations of each party involved in the agreement; Clear dispute resolution mechanisms that are overseen and agreed to in advance by all parties; and Specific terms and conditions for remuneration and payment, including agreement in advance on data requirements and what constitutes the completion of work.	Executive Services	Not started	
2026 - RESOLUTION #67/26 (Rotary Contribution Agreement)	That Council receive for information the Parks, Recreation, & Culture - MOU with Rotary Club of Napanee report; That Council authorize the Mayor to sign the Memorandum of Understanding (MOU);And further that Council authorize that a contribution agreement be drafted within the terms of the MOU, that the Mayor be authorized to sign the agreement, and that the signed agreement be included on a Council agenda at the earliest opportunity.	Parks, Recreation & Culture	Not started	
2026 Council Inquiries - RVs on Private Lots	Request for a report on the implications of changing the by-law to permit temporary occupation of RVs in driveways, lawns, etc.	Growth & Infrastructure Services	Not started	Recommend this item be removed from the tracker

Appendix B - Resolutions Still in Progress as at June 3, 2026

Task Name	Description	Department	Progress	Status
2026 - RESOLUTION #99/26 (Fieldhouse Deputation)	That Council note and receive the deputation from Tammy Giles regarding a new fieldhouse recreation facility; And further, that Council direct staff to bring back a report regarding the proposal for further consideration.	Parks, Recreation & Culture	Not started	Initial staff report tentatively scheduled for June 23
2026 - RESOLUTION #135/26 (Jim Kimmett Traffic Study)	That Council receive for information the Growth & Infrastructure - Council Inquiry Follow Up (Traffic on Jim Kimmett Boulevard) Report; And further, that Council direct staff to undertake a traffic light warrant review to inform any decision-making regarding installation of traffic lights or other acceptable traffic control measure on Jim Kimmett Boulevard.	Growth & Infrastructure Services	Not started	
2026 - RESOLUTION #175/26 (Transit)	That Council receive the Regional Transit Discussion Update report; That Council delay any future consideration of regional transit until at least 2027, outside any decision to engage in a feasibility study with potential regional partners; That Council direct staff to bring back a report for consideration if and when a feasibility study for regional transit arises prior to the end of this Council term; And further that Council direct staff to investigate any provincial funding that may be available to support rural transit as announced in the provincial budget.	Finance & IT Services	Not started	
2026 - RESOLUTION #202/26 (Trailhead north of 401)	That Council receive the Trails Recommendation Implementation report; That Council identify the route north of the 401 along Goodyear Road, identified by the Ad Hoc Committee on Trails, as the selected route to connect Greater Napanee to the Cataraqui Trail; That Council authorize staff to identify an interim trailhead on the Goodyear Road route, so the Town has the ability to establish a route connecting Greater Napanee to the Cataraqui Trail without having to wait for the completion of the 401 expansion project; That Council authorize staff to enter into negotiations with the Ministry of Transportation to identify an underpass configuration on County Road 41 that will allow trail users to move past the 401.	Growth & Infrastructure Services	Not started	

Appendix B - Resolutions Still in Progress as at June 3, 2026

Task Name	Description	Department	Progress	Status
2026 - RESOLUTION #204/26 (Borrowing By-law)	That Council receive for information Growth and Infrastructure Services - Purchase of Rubber Tire Excavator report; And further, that Council approves the purchase of one Case WX160E from J.R. Brisson Equipment for the sum of $391,295.82 including the Town's payable portion of HST.; And further, that Council approves the use of approximately $15,000 including taxes of remaining funds to finish outfitting the excavator, identified within the financial section of the report. And further that Council direct that the proceeds of sale from the current excavator be applied against the purchase price of the Case WX160E, to reduce the amount of financing required; And further that Council direct staff to bring back a borrowing bylaw to support the required financing of this unit.	Finance & IT Services	Not started	Waiting for new unit to be delivered before we sell the old unit and know the amount of financing required
2026 - RESOLUTION #220/26 (Heritage Race Donation)	That Council note and receive the deputation from Heather Giffin regarding the Heritage 5K Race; And further, that Council direct staff to bring back a report regarding the proposed donation.	Parks, Recreation & Culture	In progress	Report to be included on the June 9 agenda
2026 - RESOLUTION #223/26 (HR Reserves Policy & By-law)	That Council receive for information Financial & IT Services - Creation of Labour Relations Reserve and Waste Disposal Reserve Report; And further that Council direct staff to bring back an amendment to By-law 2025-0033 by updating Appendix A with the addition of a Labour and Relations Reserves and a Solid Waste Reserve; And further the Labour Relations Reserve, in accordance with the overarching Reserves Policy, require formal Council approval prior to use until such time as Council approves a recommended framework around the permitted uses, and any recommended delegated authority for use of the Labour Relations Funds;	Executive Services	In progress	Reserve Fund By-law update presented to June 9 meeting. Labour Relations reserve framework planned to be presented June 23.

Appendix B - Resolutions Still in Progress as at June 3, 2026

Task Name	Description	Department	Progress	Status
2026 - RESOLUTION #224/26 (MAT Follow Up)	That Council receive for information Financial & IT Services Report - Municipal Accommodation Tax Draft By-Law and Tourism Entity report; And further that Council award RFP 26-01 - Tourism Entity - Municipal Accommodation Tax to Bay of Quinte Regional Marketing Board; And further that Council direct staff to bring back a Service Agreement between the Bay of Quinte Regional Marketing Board and the Corporation of the Town of Greater Napanee for approval; And further that Council receive the draft Use of Municipal Accommodation Tax Reserve Funds Policy; And further that Council direct staff to bring back the Use of Municipal Accommodation Tax Reserve Funds Policy at the next available meeting for approval.	Finance & IT Services	In progress	MAT Policy and Reserves Fund By-law presented to June 9 meeting. Service Agreement is planned to be presented June 23.
2026 - RESOLUTION #235/26 (Land Sale Amendment)	That Council receive for information the Growth & Infrastructure Land Sale By-Law Amendment (Enhanced Transparency) Report; And further, that Council direct staff to bring back an amendment to the Land Sale By-law to enable public reporting of limited details related to rejected land purchase offers, consistent with the approach outlined in this report; And further, that Council direct that this new reporting requirement be on a go forward and not retroactive basis.	Growth & Infrastructure Services	In progress	Amending By-law included on the June 9 agenda
2026 - RESOLUTION #225/26 (MAP)	That Council receive for information Parks, Recreation, & Culture - Draft Municipal Alcohol Policy report; And further that Council direct staff to conduct a review of legal, insurance, and legislative implications; And further that Council direct staff to bring back a final draft for consideration and approval.	Parks, Recreation & Culture	Not started	Supersedes #206/25
2026 - RESOLUTION #226/26 (BYOB Framework)	That Council receive for information Executive Services - Regulation Changes to Tailgate Event Permits report; And further that Council direct staff to investigate and draft a by-law and Municipal Alcohol Policy amendment to create an enabling framework for third-party "bring-your-own event" permits to be reported to the next term of Council for consideration in Q1 of 2027.	Executive Services	Not started	Supersedes #164/26

Appendix B - Resolutions Still in Progress as at June 3, 2026

Task Name	Description	Department	Progress	Status
2026 - RESOLUTION #239/26 (Bylaw Standards Policy)	That Council receive for information the Executive Services - By-law Enforcement Standards Policy Review report; And further, that Council direct that the draft revisions to the By-law Enforcement Standards Policy be brought back to a future meeting for adoption after consideration of the Legislative Service Levels; And further, that Council endorse the proposed communication strategy for the policy.	Executive Services	In progress	Communication strategy has been implemented. Draft service levels to be presented at June 17 special meeting and Policy Update brought back after adoption of service levels.
2026 - Council Inquiries (CRCA Correspondence)	Mayor Richardson requested staff to follow up on the correspondence received from the Conservation Authority this evening. Mr. Grant will follow up to determine how the correspondence falls within the CRCA regular process.	Executive Services	Not started	

Appendix C - Mandate Items Status as at June 3, 2026

Task Name	Bucket	Status	Completed Date
Prepare for Municipal Election	Predictable Workforce	Completed	2026-06-02
Corporate Communications Policy	Transparent Communication	Completed	2026-04-29
Communications Guidelines (intake process)	Transparent Communication	Completed	2026-04-29
Staff Engagement Survey	Supportive/Accountable Culture	Completed	2026-03-17
Delegated Authority Bylaw	Predictable Workforce	Completed	2026-03-16
Asset Management Plan Update (Legislated)	Sustain. Finance/Asset Management	Completed	2026-03-06
Procurement Training Process (HR LEAD)	Predictable Workforce	Completed	2026-02-12
Business Development Strategy (new employers)	Sustain. Finance/Asset Management	Completed	2026-02-11
Human Resource Service Standards	Supportive/Accountable Culture	Completed	2026-02-04
Revised Performance Management System	Supportive/Accountable Culture	Completed	2026-01-14
Service Level Review Focusing on Capital Assets - Infrastructure	Sustain. Finance/Asset Management	Completed	2026-01-14
Enterprise-wide infrastructure data system (vehicles)	Sustain. Finance/Asset Management	Completed	2026-01-14
Procurement ByLaw	Sustain. Finance/Asset Management	Completed	2026-01-07
Staff Training Program - Digital	Predictable Workforce	Completed	2025-11-19
Corporate Communications Standards	Transparent Communication	Completed	2025-10-29
Reconciling Corporate Accounts	Sustain. Finance/Asset Management	Completed	2025-10-21
Completion of Audits	Sustain. Finance/Asset Management	Completed	2025-10-15
POC Fire Union Negotiations	Sustain. Finance/Asset Management	Completed	2025-10-15
Public Spaces By-laws - Sidewalks and Encroachments	Predictable Workforce	Completed	2025-09-24
Public Spaces By-laws - Encampment Protocol Update	Predictable Workforce	Completed	2025-09-16
Parks/Rec/Culture Service Standards	Predictable Workforce	Completed	2025-08-27
Corporate Land Registry	Sustain. Finance/Asset Management	Completed	2025-08-27
Corporate Communications Strategy	Transparent Communication	Completed	2025-07-24
Hire Residential Real Estate Firm	Sustain. Finance/Asset Management	Completed	2025-07-23
Standardization of Capital Asset Planning (TCA)	Sustain. Finance/Asset Management	Completed	2025-07-21
Update to Community Risk Assessment	Predictable Workforce	Completed	2025-07-07
Land Asset Bylaw	Sustain. Finance/Asset Management	Completed	2025-06-13

Appendix C - Mandate Items Status as at June 3, 2026

Task Name	Bucket	Status	Completed Date
Staff Conflict of Interest Policy	Supportive/Accountable Culture	Completed	2025-06-12
Fire Dept. Bylaw	Predictable Workforce	Completed	2025-05-08
Pay Equity Policy	Supportive/Accountable Culture	Completed	2025-04-09
Community Communications Survey	Transparent Communication	Completed	2025-04-03
Fire Dept. Service Standards	Predictable Workforce	Completed	2025-03-01
Complement Control Policy	Supportive/Accountable Culture	Completed	2025-02-12
Tiered Fire Response Agreement	Sustain. Finance/Asset Management	Completed	2025-02-07
Grant Strategy and Processes	Sustain. Finance/Asset Management	In progress	
Fee and Charges Review (FINANCE LEAD)	Sustain. Finance/Asset Management	In progress	
Finance and IT Standards	Predictable Workforce	In progress	
Community Engagement Policy	Transparent Communication	Not started	
Public Engagement Guidelines	Transparent Communication	Not started	
In-Camera Process Improvement	Predictable Workforce	In progress	
Bylaw and Clerks Service Standards	Predictable Workforce	In progress	
Regular Priority Reporting Schedule	Predictable Workforce	In progress	
Legal Process Clarification	Predictable Workforce	In progress	
Employee Awareness Program	Transparent Communication	Not started	
Market Square Infrastructure Upgrades	Sustain. Finance/Asset Management	In progress	
Market Square Operating Policies	Predictable Workforce	Not started	
Parks/Rec/Culture Partnership Space Allocation Standardization	Predictable Workforce	Not started	
Needs Analysis for Government Grants	Sustain. Finance/Asset Management	In progress	
Fire Master Plan	Predictable Workforce	In progress	
Growth and Infrastructure Service Standards	Predictable Workforce	In progress	
Planning Service Delivery (Digital delivery)	Predictable Workforce	In progress	
FT Fire Union Negotiations	Sustain. Finance/Asset Management	In progress	

The Corporation of the Town of Greater Napanee
By-law No. 2026-0052

A By-law to amend By-Law 2023-0067, being the Reserve and Reserve Fund By-Law, as amended, to insert the Waste Disposal and Collection Reserve Funds, the Labour Relations Reserve Fund, and the Municipal Accommodation Tax Reserve.

WHEREAS Section 8,9 and 11 of the *Municipal Act, 2001* authorize a municipality to pass by-law necessary or desirable for municipal purposes, and in particular paragraph 3 of subsection11(2) authorizes by-laws respecting the financial management of the municipality;

AND WHEREAS By-Law 2023-0067 establishes and maintains the Corporation of the Town of Greater Napanee's reserve and reserve funds (the "By-Law") and Appendix "A" to the bylaw identifies Obligatory and Discretionary Reserve Funds;

AND WHEREAS the Council of The Corporation of the Town of Greater Napanee wishes to add the Waste Disposal and Collection Discretionary Reserve Fund, the Labour Relations Discretionary Reserve Fund, and the Municipal Accommodation Tax Obligatory Reserve;

NOW THEREFORE the Council of The Corporation of the Town of Greater Napanee hereby enacts as follows:

1. **THAT** Appendix "A" of By-Law 2023-0067 is hereby amended by adding the following Reserve and Reserve Funds;
2. **THAT** Appendix "A" of By-law 2023-0067 is hereby amended by removing all references to "Current Balance" in the reserve fund descriptions.

Waste Disposal and Collection Reserve Fund
(Discretionary)

POLICY:
To be used for expenditures related to solid waste, including the cost escalation of waste disposal contracts and future post closure costs of Municipally Owned waste sites.

Revenues:
Allocation of year end surplus within the waste disposal, collection and sites budgets and budgeted reserve transfers.

Expenditures:
The waste disposal and collection reserve fund is intended to support improvements to residential waste collection programs, including waste disposal site upgrades, future contract escalations, and post-closure costs at the South Fredericksburgh landfill

Labour Relations Reserve Fund
(Discretionary)

The framework for this reserve fund to be adopted by Council in 2026.

POLICY:
To be used for non-recurring or unanticipated labour relations costs.

Revenues: Refunds from credits created through WSIB, OMERS and Grants received. Wage gapping from positions that remain vacant for extended periods of time or additional contributions as approved by Council.

Expenditures:
1. Recruitment
2. Termination and Workforce Restructuring costs
3. Labour Related Contractual Obligations

Municipal Accommodation Tax Reserve
(Obligatory)

POLICY:

Municipal Accommodation Tax (MAT) Reserve Fund is established in accordance with Part XII.1 of the Municipal Act, 2001 and Ontario Regulation 435/17, which require that revenues collected under the Municipal Accommodation Tax be used exclusively for tourism promotion and development. The Reserve Fund segregates MAT revenues from general municipal revenues and ensures compliance with all legislative requirements and the Town's MAT By-law

Revenues:
Revenues to the MAT Reserve Fund consist of:
- Municipal Accommodation Tax collected from eligible transient accommodation providers
- Interest earned on the reserve fund balance

Expenditures:
Expenditures from the MAT Reserve Fund shall be used solely for purposes permitted under O. Reg. 435/17 and in accordance with the Use of Municipal Accommodation Tax Reserve Policy including:

- Investments into Tourism Related Infrastructure
- Capital Improvements and investments where such expenditures can be demonstrated to support tourism promotion or visitor attraction
- Programs that increase visitor spending and strengthen the local economy

- Projects that expand the community's capacity for tourism offerings such as sports, art, music, heritage, and cultural experiences
- Wages, benefits, and direct operating expenses for new Tourism-Related projects which are directly tied to the delivery of tourism related services that attract visitors.
- Funding of small business and other grants under an approved Community Improvement Plan

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3. That this by-law shall come into force and take effect on the date it is finally passed.

Read a first and second time and finally passed this 9th day of June 2026.

_____
Terry Richardson, Mayor

_____
Jessica Walters, Clerk

By signing this by-law on _____, I Mayor Richardson confirm that I will not exercise the power to veto this by-law and the by-law is deemed approved.

The Corporation of the Town of Greater Napanee
By-law No. 2026-0053

A By-law to Amend By-Law No. 2025-0048, Being a By-Law to Establish a Policy for the Disposition of Land

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WHEREAS Section 270(1) of the Municipal Act, 2001, S.O. 2001, c. 25, as amended, requires municipalities to adopt and maintain policies with respect to the sale and disposition of land;

AND WHEREAS Council of the Town of Greater Napanee enacted By-law No. 2025-0048 to establish a policy for the disposition of land;

AND WHEREAS Council deems it desirable to amend By-law No. 2025-0048 to add requirements regarding the public recording of rejected offers, and has given such direction by way of resolution on May 12, 2026;

NOW THEREFORE the Council of the Corporation of the Town of Greater Napanee enacts as follows:

1. New Section 23.1, “Public Reporting of Rejected Offers,” is added as follows:

   23.1 Following Council’s consideration of an offer to purchase municipal land, where an offer has been rejected, the Municipality will publicly report limited information related to such rejected offer, provided that disclosure does not adversely impact the Municipality’s negotiating position or any ongoing or contemplated land transaction.

   Any such public reporting shall be subject to the following:

   a) Disclosure shall occur only after Council has made a final decision to reject the offer and staff have determined that the matter is no longer subject to active or sensitive negotiations;
   b) Public reporting shall be limited to:
      i. Identification of the subject property, which may include the municipal address, general location, or legal description; and
      ii. The purchase price proposed in the rejected offer;
   c) Public reporting shall not include:
      i. The identity of the proponent or purchaser;
      ii. Any terms, conditions, or details of the offer beyond the proposed price;

iii. Information related to competing offers, evaluation criteria, or Council deliberations;

d) The timing and format of such reporting shall be provided at the next available Open Session of Council following Council decision;

e) Nothing in this section shall require the disclosure of information where, in the opinion of the General Manager of Growth & Infrastructure or the Clerk, such disclosure could:
   i. prejudice the Municipality's bargaining position;
   ii. interfere with ongoing or future negotiations; or
   iii. conflict with the confidentiality provisions of the *Municipal Act, 2001*.

2. That this by-law shall come into force and take effect on the date it is finally passed.

Read a first and second time and finally passed, this 9th day of June, 2026.

_____ _____

Terry Richardson, Mayor Jessica Walters, Clerk

By signing this by-law on _____, I Mayor Richardson confirm that I will not exercise the power to veto this by-law and the by-law is deemed approved.

Town of Greater Napanee
Council Forward Calendar

Note: This document is provided for information and planning purposes only, and is not guaranteed to reflect the actual agenda for any given date.

Date	Meeting Items (Tentative)
Q2 – 2026 (unscheduled) Napanee Raiders Financial Support Request	
June 17	Special Meeting Growth & Infrastructure Service Standards Legislative Service Levels Finance & IT Service Levels Encampment Response Service Levels
June 23	Presentations Senior of the Year Award Presentation Public Meeting DC Background Study/By-Law Update Staff Reports – Consent Activity Reports For information – Buy Ontario Act Land Sale Closed Session Direction (from June 9) Staff Reports - Discussion CIF Recommendations MAT Agreement with BOQ Fieldhouse Feasibility Study Labour Relations Reserve Framework WPCP Biosolids Management Plan By-laws
Q3 2026 – Unscheduled Reserve Balances Update TAC Performance Measures Funds – Reserve Transfer	
July 14	Presentations Staff Reports – Consent Committees Report

	Blue Communities Follow Up <u>Staff Reports - Discussion</u> Tax Sale Property <u>By-laws</u>
July 28	<u>Presentations</u> <u>Staff Reports – Consent</u> Activity Reports <u>Staff Reports - Discussion</u> Master Fire Plan <u>By-laws</u>
August 25	<u>Presentations</u> <u>Staff Reports – Consent</u> Activity Reports <u>Staff Reports - Discussion</u> Grants Strategy Mandate and Resolution Tracker Update <u>By-laws</u>
September 8	***Meeting moved to Roblin Hall*** <u>Presentations</u> <u>Staff Reports – Consent</u> Committees Report <u>Staff Reports - Discussion</u> <u>By-laws</u>

THE CORPORATION OF THE TOWN OF GREATER NAPANEE
BY-LAW NO. 2026-0054

Being a By-Law to Confirm the Proceedings of the Council of The Corporation of the Town of Greater Napanee at its Regular Session held on June 9, 2026

WHEREAS Section 5 of the *Municipal Act, 2001*, S.O. 2001, c.25, as amended (the "*Municipal Act, 2001*"), gives Council the authority to exercise the powers of the municipal corporation and requires that the powers of every Council are to be exercised by by-law;

AND WHEREAS Council has passed By-law No. 2023-0060, being a By-law to Govern the Calling, Place and Proceedings of Council and Committees of Council and the Conduct of its Members;

NOW THEREFORE the Council of the Corporation of the Town of Greater Napanee enacts as follows:

1. That the actions of the Council of the Corporation of the Town of Greater Napanee, at its Regular Session held on June 9, 2026 in respect of each motion and resolution passed and other actions taken by the Council of the Town of Greater Napanee at this meeting, are hereby adopted and confirmed, as if all such proceedings were expressly embodied in this by-law.

2. That the proper officials of the Town of Greater Napanee are hereby authorized and directed to do all things necessary to give effect to the actions of the Council of the Town of Greater Napanee, referred to in the preceding section.

3. That the Mayor, or in the absence of the Mayor, the Deputy Mayor and the Clerk, or in the absence of the Clerk, the Deputy Clerk are authorized and directed to execute all documents necessary in that behalf and to affix thereto the seal of the Town of Greater Napanee.

4. That for the purposes of the exercise of authority of the head of Council to veto a by-law in accordance with section 284.11 of the *Municipal Act, 2001* as amended, this Confirming By-law shall be deemed to be separate Confirming By-laws for each item listed on the meeting agenda.

Read a first and second time and finally passed this 9th day of June, 2026.

_____ _____
Terry Richardson, Mayor Jessica Walters, Clerk

By signing this by-law on _____, I Mayor Richardson confirm that I will not exercise the power to veto this by-law and the by-law is deemed approved.