

2023

2023 Edwardsburgh-Cardinal Storm Water System Annual Report.docx



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For: CAO and Council
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Introduction

Under Environmental Compliance Approval Linear (ECA) # 155-S701 issued by the Ministry of Environment, Conservation and Parks (MECP), Edwardsburgh/Cardinal is required to prepare and submit an annual performance report for the Stormwater Management System by April 30th of the following year. The performance report covers the period of January 1st to December 31st, 2023 and is submitted to council and MECP. The report is also made available for public viewing on the Township site by June 1st.

The Cardinal Stormwater Management System consists of storm mains, culverts, ditches and outlets that discharge into the St. Lawrence River. Storm mains consist of concrete, clay, PVC and steel. There are no treatment facilities or pumping stations in Cardinal.

The Spencerville Stormwater Management System consists of PVC and steel mains, catch basins and culverts. A stormwater improvement project was commissioned in 2022 that serves Cedar, David, Charles, Cook and Cherry Streets. An enhanced grass swale system located south of Cherry Street treats stormwater before discharging into the South Nation River.

The Johnstown Stormwater Management System currently consists of ditches, culverts, swales and PVC main that drain surface water from the Hamlet of Johnstown to 4 outlets. Three outlets discharge to the St. Lawrence River and one to a marsh north of the hamlet. A stormwater improvement project was completed on Mary and Sophia Streets from Second Street to County Road 2, which was completed in 2023.

[Executive Summary](#)

The annual performance report summarizes sampling data, inspection and maintenance activities for storm outfalls, mains and catch basins within the Edwardsburgh/Cardinal Stormwater Management System. Unplanned maintenance activities, operating problems and corrective actions are summarized for the 2023 review period.

[Table Of Contents](#)

<u>Title</u>	<u>Page</u>
Introduction	2
Executive Summary	3
Table of Contents	3
System Approvals	3
Monitoring Data Summary	3-4
Monitoring Data- Environmental Tending over 5 years	4
Summary of Operating Problems	4
Summary of Inspection, Maintenance & Repair	4-6
Summary of Calibration and Maintenance	6
Summary of Calibration and Maintenance on Monitoring Equipment	6
Summary of Complaints	6
Summary of Alterations to Authorized System including a list of Alterations that pose a Significant Drinking Water threat	6
Summary of Spills or abnormal discharge events	6
Summary of Actions taken including timelines, to improve or Correct Performance	6
Status of actions from previous Reporting year.	7

[System Approvals](#)

<u>System</u>	<u>Linear ECA</u>	<u>Renewal Date</u>
Edwardsburgh/Cardinal Stormwater Management System	155-S701	June 15, 2026

[Monitoring Data](#)

During the reporting year two sets of grab samples were collected to compare stormwater discharge effluent with the 2012 Schedule B Stormwater discharge bylaw limit.

Parameter	Type of Sample	Spencerville Swale System	Sophia Storm Outfall	2012 Schedule B Storm Sewer Discharge Bylaw limit (mg/L)
		October 10, 2023	May 3, 2023	
Total Suspended Solids	Grab	4	3	15
Chromium	Grab	<0.001	<0.001	0.08
Arsenic	Grab	0.0002	0.0003	0.02
Copper	Grab	0.0021	0.0017	0.04
Lead	Grab	0.00058	0.00016	0.12
Mercury	Grab	0.00002	<0.00002	0.0004
Nitrate & Nitrite	Grab	<0.05	1.95	N/A
Oil & Grease	Grab	1.6	<1.0	N/A
Total Phosphorus	Grab	0.14	0.04	N/A
PHC F1 (C6-10)	Grab	<25	<25 ug/L	N/A
PHC F2(>C10-C16)	Grab	<50	<50 ug/L	N/A
PHC F3 (>C16-C34)	Grab	<400	<400 ug/L	N/A
PHC F4 (>C34-C50)	Grab	<400	<400 ug/L	N/A

Grab sample results are lower than parameters outlined in the 2012 Schedule B Storm Sewer discharge bylaw.

Monitoring Data Trending Review 5-year review

There is insufficient data to develop trending and analyses of monitoring data over 5 years. Initial grab samples show results are below the 2012 Schedule B Stormwater discharge bylaw. The MECPS monitoring plan, once released, will provide guidance and direction on sampling requirements, data collection and review.

Operational Problems

No operational problems occurred in 2023.

Inspection, Maintenance & Repair

The following is a summary of inspection and maintenance activities within the Edwardsburgh/Cardinal Stormwater Management System.

Outfall Inspection Program

CARDINAL			
Inspection Date	Outfall	Asset ID	Inspection Findings
April 12, 2023	John Street	2624	No obstructions, flowing normal.
November 23, 2023	John Street	2624	No obstructions, flowing normal.
April 12, 2023	Reid Street	2625	Outfall flowing normal. Bell disconnected in pipework.
November 23, 2023	Reid Street	2625	Outfall flowing normal. Bell disconnected at pipework. Evaluate feasibility of repair.
April 12, 2023	Flett Street	2627	No obstructions, good condition.

Inspection Date	Outfall	Asset ID	Inspection Findings
November 23, 2023	Flett Street	2627	No obstructions, good condition.
April 12, 2023	Dundas Street	2631	Cleared debris and vegetation.
November 23, 2023	Dundas Street	2631	Plugged, cleared vegetation and dirt.
April 12, 2023	2257 Dundas Street	2632	Cleared debris and vegetation.
November 23, 2023	2257 Dundas Street	2632	Partially plugged. Cleared weeds.
April 12, 2023	Walter Street	2629	No obstructions, flowing normal.
November 23, 2023	Walter Street	2629	No obstructions, clear.
April 13, 2023	Henry Street	2628	Outfall flowing normal.
November 23, 2023	Henry Street	2628	No obstructions. Fair condition.
April 12, 2023	Gill Street	2626	No obstructions. Good condition.
November 23, 2023	Gill Street	2626	No obstructions. Good Condition.

SPENCERVILLE			
Date	Outfall	Asset ID #	Inspection Findings
May 24, 2023	South Street	2633	Pipework in good condition.
May 24, 2023	Swale System	2634	Swale and ditching in good condition. No obstructions in pipework, free flowing.
JOHNSTOWN			
Date	Outfall	Asset ID #	Inspection Findings
April 12, 2023	Sophia Street	2636	No structural defects, flowing normal.
July 19, 2023	Oil-Grit Separator	2636	Minor accumulation of grass clippings, frogs habituating surface of water.

CAPITAL PROJECTS & MAINTENANCE		
Location	Date	Maintenance/Repair
Mary Street	May 2023	Completion of remaining work from 2022 (Culvert, pipework installation, clean up and paving). (Capital Project)
County Road 2, Cardinal	June-November 2023	Storm main infrastructure replaced. * Owned and maintained by Leeds, Grenville & Lanark Counties.
Helen Street, Cardinal	October 8, 2023	Repaired section of storm pipe struck during sewer lateral replacement.
Mary Street Outfall	December 2023	Outfall works extended, removal of vegetation. (Capital Project)

STORM MAIN & CATCH BASIN FLUSHING PROGRAM		
Date	Location	Maintenance Activity
May 29, 2023	Cardinal	Vacuumed storm catch basins on James and Dishaw Streets.
August 1, 2023	Cardinal	Vacuumed storm catch basins in Meadowlands Drive.
October 5, 2023	Cardinal	High pressure cleaned storm mains on New, Middle and Waddell Streets. CCTV inspected mains on New and Waddel Street.

Summary of Calibration and Equipment Maintenance

Not Applicable

Summary of Complaints

The following complaints were received during the reporting year.

Date	System	Complaint	Corrective Action(s)
September 20, 2023	Cardinal	Weed growth	Removed weed and dirt on catch basin ledge. Pipework and catch basin clear.

Alterations to Authorized System

The County Road 2 water, sanitary and stormwater rehabilitation project was completed in 2023. Stormwater infrastructure on County Road 2 is owned and maintained by Leeds, Grenville & Lanark County and not part of the Municipalities Linear ECA. Stormwater replacement was not identified as a significant drinking water threat to the Village of Cardinal.

The Mary and Sophia Street Stormwater and outfall extension project was completed in 2023 in Johnstown.

No alterations to the stormwater system in Spencerville was completed in 2023.

Spills and Abnormal Discharge Events

May 7, 2023: Dave Grant, CAO, received notification from Spills Action Centre that Ingredion discharged approximately 500-700 liters of water (made up of process water, corn starch and potable water) into a storm sewer due to a power failure. No adverse impacts reported.

September 1-4, 2023: Sanitary force main break in Cardinal. Monitoring operations continued until location of force main was identified on September 4 and repaired. Notifications to Leeds, Grenville & Lanark Health Unit, Spills Action Centre and MECP Kingston District completed on September 1. 978 m³ of untreated sewage was reported to the Spills Action Centre. No adverse environmental or health impacts reported.

Summary of Actions taken including timelines, to improve or Correct Performance

Flushing and CCTV inspection program implemented on annual basis. Storm mains are being assessed prior to commencing roadwork resurfacing and rehabilitation to determine if replacement is required.

Status of Actions from Previous Reporting Year

No status or action items from previous reporting year.

Significant Drinking Water Assessment Report

A Significant Drinking Water Assessment Report was developed for the Storm water and Sanitary Collection systems for Edwardsburgh/Cardinal. The report uses data from the South Nation Conservation Authorities Source Water Protection report and Directors Technical Rules on Potential Drinking Water threats to identify potential activities that may pose a drinking water threat. The report did not identify any current stormwater projects that could jeopardize water quality within Intake or Well Protection zones 1 and 2 for Cardinal or Spencerville. The Significant Drinking Water Assessment Report is reviewed and updated annually.

Operational Plan

The Linear ECA requires the development and implementation of an operational plan by May 2023. The operational plan must include procedures and maintenance schedules for storm water infrastructure including outfalls, treatment systems (if applicable) and mains. The plan must also include procedures on complaint handling and spills/bypass reporting. An operational plan was developed and implemented on January 1, 2023.

Storm Sewershed Inventory

The Linear ECA requires the development of a Storm Sewershed inventory that classifies treatment level for each out fall, the estimated catchment area, the receiving stream, the water shed and whether treatment is provided by another municipality. The inventory and mapping must be submitted to the MECP by 2025.