



Macomb County Public Works 2024 Winter Report

CANDICE S. MILLER

MACOMB COUNTY PUBLIC WORKS COMMISSIONER



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Message from the Commissioner, Reducing Combined Sewage Overflows, Electrical Upgrades, Logs removed from the Clinton River, NO MORE SINKHOLES

Pictured: Chapaton Canal Rehabilitation project



Our Mission

Improve
Water
Quality

Improve
Quality
of Life

Critical
Component
of Economic
Prosperity

The Macomb County Public Works Office has three goals:

Improve water quality, improve the quality of life for our residents, and serve as a critical component of economic prosperity in our community.

The MCPWO administers 475 county drains that prevent flooding in our communities. Some of these drains are open streams or creeks, while others are massive underground structures that carry stormwater away from neighborhoods and businesses. Given our responsibility for these waterways, we are actively engaged in numerous initiatives to enhance the overall water quality in our lakes and rivers, most notably the Clinton River and Lake St. Clair. In addition, we operate 68 miles of sanitary sewer lines which transport waste from more than 800,000 residents and businesses to the Great Lakes Water Authority (GLWA) Water Resource Recovery Facility (WRRF) for proper treatment.

COMMISSIONER'S MESSAGE

Dear Neighbors,

At the Macomb County Public Works Office, 2024 is shaping up to be another exciting and productive year in which we continue to build upon our successes. Our goal remains the same: Improving water quality to improve the quality of life and being a key component of economic prosperity. A major element of that mission is to continue to reduce combined sewer overflows (CSOs) into our beautiful Lake St. Clair.

Our office has jurisdiction of 475 drains, including 330 miles of enclosed drains and 401 miles of open channels. Last year, we worked in drains in every community in Macomb County. Drain maintenance is extremely important to achieve proper stormwater drainage to reduce the risk of flooding and erosion, and to have sufficient flow that protects water quality. Thanks in large part to our cost-sharing program with participating communities, our drain maintenance team removed logjams, sediment and overgrown vegetation from open drains such as small creeks and streams. That sort of work is endless.

In this report, we have updates on our ongoing projects that will significantly reduce CSOs plus a progress report on some of our major underground sewer infrastructure projects, that are so critical to maintaining our interceptors in excellent working condition.

I remain committed to transparency about the services and tasks performed by our dedicated team at the Public Works Office week in and week out, and the important projects that we plan, implement and oversee.

For additional information, visit us at macombgov.org, follow us on social media and subscribe to our e-newsletter.

Sincerely,

Cardio S. Miller



In-System Storage Project

Reducing CSOs into Lake St. Clair



An underground infrastructure project on Beaconsfield Road near Nine Mile Road in Eastpointe to reduce combined sewer discharges into Lake St. Clair is nearing the final phase of construction.

Known as the “In-System Storage” project, it has involved excavation of the shaft to reach a section of the interceptor sewer in the 8 ½ Mile Relief Drain district that handles combined stormwater and raw sewage flows.

A large, inflatable dam is being installed inside the 11-foot-diameter pipe. During heavy rain, Macomb County Public Works engineers and pump station operators will be able to inflate the rubber device to temporarily hold back the flow to store flows in the pipe itself. When the rain event subsides, the rubber bladder can be slowly deflated and allow the combined flow to continue downstream to the Great Lakes Water Authority wastewater treatment center in Detroit for full treatment.

“This ongoing project started with analysis by our engineers to determine whether we could use existing infrastructure to reduce the chances of basement flooding and have less combined flow be discharged into Lake St. Clair during heavy rainstorms,” Public Works Commissioner Candice S. Miller said.

With no increase in sewer rates, the project will provide 12 million gallons of additional storage within the sewer system and will reduce CSOs between 11% and 15%.





Chapaton Electrical Upgrades & Canal Expansion

Construction is proceeding on the expansion of the Chapaton Canal at the foot of Nine Mile Road in St. Clair Shores, a major project that, when completed, will reduce combined sewer overflows by approximately 38% and will help protect against basement flooding.

The project involves excavation of a portion of the existing canal and installation of metal sheeting to raise the sides of the canal to provide an additional 13 million gallons of storage of combined stormwater and sanitary flow when needed during large rain events. The new sheeting will raise the top of the treatment canal above the 500-year flood elevation, further protecting adjacent properties from flooding. Additionally, the outdated outfall gates will be replaced with new ones to allow pump station operators to better control water levels in the open-storage canal and the underground retention basin.

“Improving Lake St. Clair water quality is the ultimate goal, and aging infrastructure must be upgraded and designed to be prepared for very large rain events which are happening more often and with greater intensity,” Public Works Commissioner Candice S. Miller said.

The other project at the Chapaton Pump Station & Retention Basin includes the addition of three, 2-megawatt generators to provide power redundancy to the giant pumps, and replacement of the electrical components which date back to when the facility became operational in 1968.





NO MORE SINKHOLES! Macomb Interceptor Drain Rehabilitation

To prevent another infrastructure disaster like the sinkhole that occurred in December 2016 from happening again, Macomb County Public Works engineers and contractors continue the rehabilitation of the Macomb Interceptor Drain deep beneath 15 Mile Road between Garfield Road and the ITC Corridor, just west of Schoenherr Road.

“We sincerely appreciate the patience of motorists and nearby residents, businesses and schools during this construction. If we weren’t proactive and didn’t do this rehab work, another major sewer collapse would eventually occur and be much more disruptive and costly,” Public Works Commissioner Candice S. Miller said. These projects are nearing completion.

The removal of sediment – some of it from infiltration of sand from the pipe collapse seven years ago – has been a painstaking process. Sections of the interceptor have been spray-lined, and wider areas will be “slip-lined” with many large, impervious segments of pipe that are lowered into the concrete pipe to protect it from further degradation caused by highly corrosive sewer gas.



Pictured: Commissioner Miller and County Commissioner Don VanSyckel discuss interceptor project



70 tons of logs removed from the Clinton River



Pictured: Commissioner Miller and County Commissioner Antoinette Wallace at the Clinton River

The Macomb County Public Works Office teamed with a contractor and volunteers to clear logjams and remove logs from the Clinton River to make it safer for recreation, prevent erosion and reduce the risk of flooding.

Fallen trees and logs slowly meander down the river and often get snagged on the banks or by other logs, creating jams that can trap other debris. That leads to erosion of the banks as the flow may go around the jam, with the resulting destabilization of the banks eventually causing more trees to fall into the river. Severe logjams can also lead to localized flooding, and logs that aren't removed could end up in Lake St. Clair, creating a hazard for boaters and personal watercraft operators.

"Even though the county doesn't have jurisdiction over the Clinton River, we all have a huge interest in it," Public Works Commissioner Candice S. Miller said.



The project, funded by a \$100,000 allocation from the Macomb County Board of Commissioners, resulted in the removal of an estimated 70 tons of logs.

Drain Maintenance: Reduces risk of flooding



Pictured: Commissioner Miller and Sterling Heights City Councilwoman Liz Sierawski discuss a recent drain project in Sterling Heights

Our drain maintenance team is doing excellent work tackling logjams and debris in our open channels to ensure proper flow of stormwater to prevent erosion and reduce flooding.

After fallen trees and debris are pulled out, sediment is removed and placed on the banks which are then graded and topped with a bed of topsoil, grass seed and a mulch blanket. Not only does this help protect residential, commercial and industrial properties, but also agricultural areas where the wipeout of crops by flooding would be financially devastating to farmers.

With the increased frequency of multi-inch, intense rainstorms, drain maintenance is extremely important. The Public Works Office's cost-sharing program started by Commissioner Candice S. Miller with funding from the Macomb County Board of Commissioners enables our staff to identify, prioritize and fund needed maintenance in problem areas in conjunction with participating cities, townships and villages.

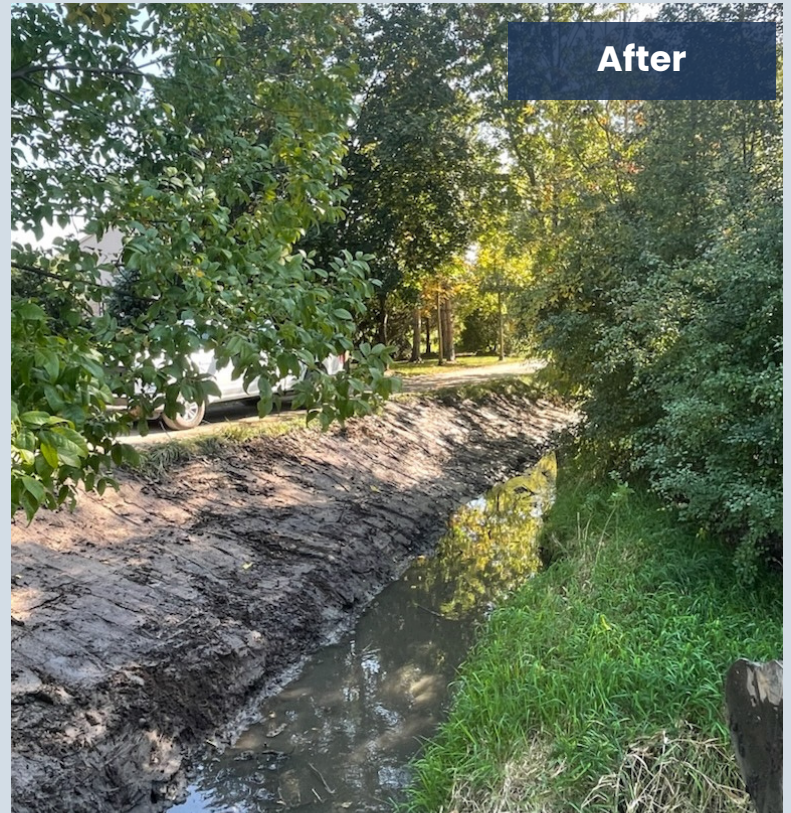
With 401 miles of open channel under the jurisdiction of the office, drain maintenance work is endless.



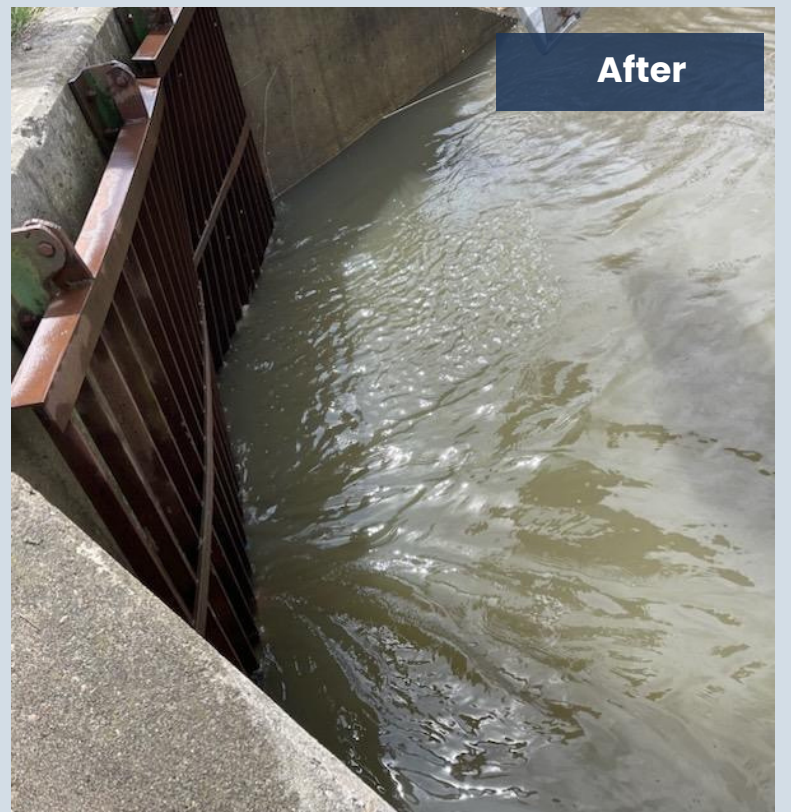
**WE FIND 'EM
WE FIX 'EM**

**DRAIN MAINTENANCE
BEFORE & AFTER**

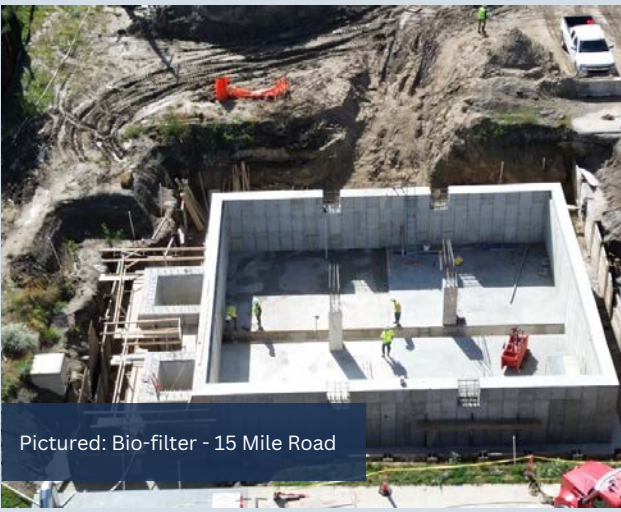
PLUMBROOK DRAIN BLOCKAGE REMOVAL - STERLING HEIGHTS



ROHRBECK EXTENSION DRAIN BLOCKAGE CLEARED - ROSEVILLE



Controlling Odor & Preventing Corrosion



Pictured: Bio-filter - 15 Mile Road

Turbulence of raw sewage flowing through sewers creates highly corrosive hydrogen sulfide gas that degrades the interior of concrete pipes and even the steel rods that reinforce that cement.

Work continues on projects by the Macomb County Public Works Office -- known as "Odor and Corrosion Control Facilities" -- to draw in that gas to filter it, thereby reducing nuisance odor in the neighborhoods and extending the useful life of the large interceptors that convey the sanitary flow. That effort saves money on infrastructure rehabilitation or replacement.



"We have made excellent progress on the new Fraser biofilter along 15 Mile Road, just west of Garfield Road; the Macomb Township biofilter at 21 Mile and Garfield roads, the North Gratiot Interceptor in Chesterfield Township, and the Clintondale Pump Station," Public Works Commissioner Candice S. Miller said

Ushering Economic Prosperity

The Macomb County Public Works Office is a key component of economic prosperity.

The engineering plans for any new developments that impact any of the 475 drains under our office's jurisdiction are reviewed to ensure proper stormwater management to reduce the risk of flooding. This includes examination of the design of new sewer pipes, basins, culverts, and taps or relocation of existing drains to meet our stormwater detention and runoff standards. We monitor soil erosion and inspect construction.

One recent example is the improvement of the Zander Drain near Heydenreich Road and 23 Mile Road in Macomb Township for the first phase of the Corners of Cherry Glen single-family residential construction.



MACOMB COUNTY PUBLIC WORKS



2023 BY THE NUMBERS

1,341 MILLION GALLONS OF CSO'S PREVENTED FROM ENTERING LAKE ST. CLAIR



Thanks to operational changes from our team, we were able to reduce combined sewer overflows in 2023 to the lowest level in 20 years!



4 SEWER REHABILITATION & CSO REDUCTION PROJECTS UNDER CONSTRUCTION

No more sinkholes!
MIDD Segment 5 & Segment 6; Chapaton Canal Rehabilitation; 8.5 Mile In-System Storage Project.

ONLY 119 MILLION GALLONS OF TREATED CSO'S DISCHARGED AT CHAPATON RTB



In comparison, George W. Kuhn facility in Oakland County discharged 1,107 million gallons - nearly 1,000% more.



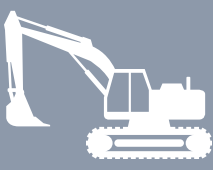
250 ENGINEERING PLANS REVIEWED

Fostering economic developments by reviewing plans for subdivisions, condominiums, industrial and commercial projects or redevelopments that discharge stormwater into a county drain by our team every day.

917 SOIL EROSION PERMITS ISSUED



Sediment is one of the largest pollutants in our rivers, lakes and streams. MCPWO ensures the protection of our waterways from sediment generated from construction sites.



104 DRAIN CLEANOUTS

MCPWO inspected, maintained and improved 104 county drains in 24 communities utilizing grant funds, the county's 50/50 Drain Match Program and prior assessments.

16,308 INSPECTIONS

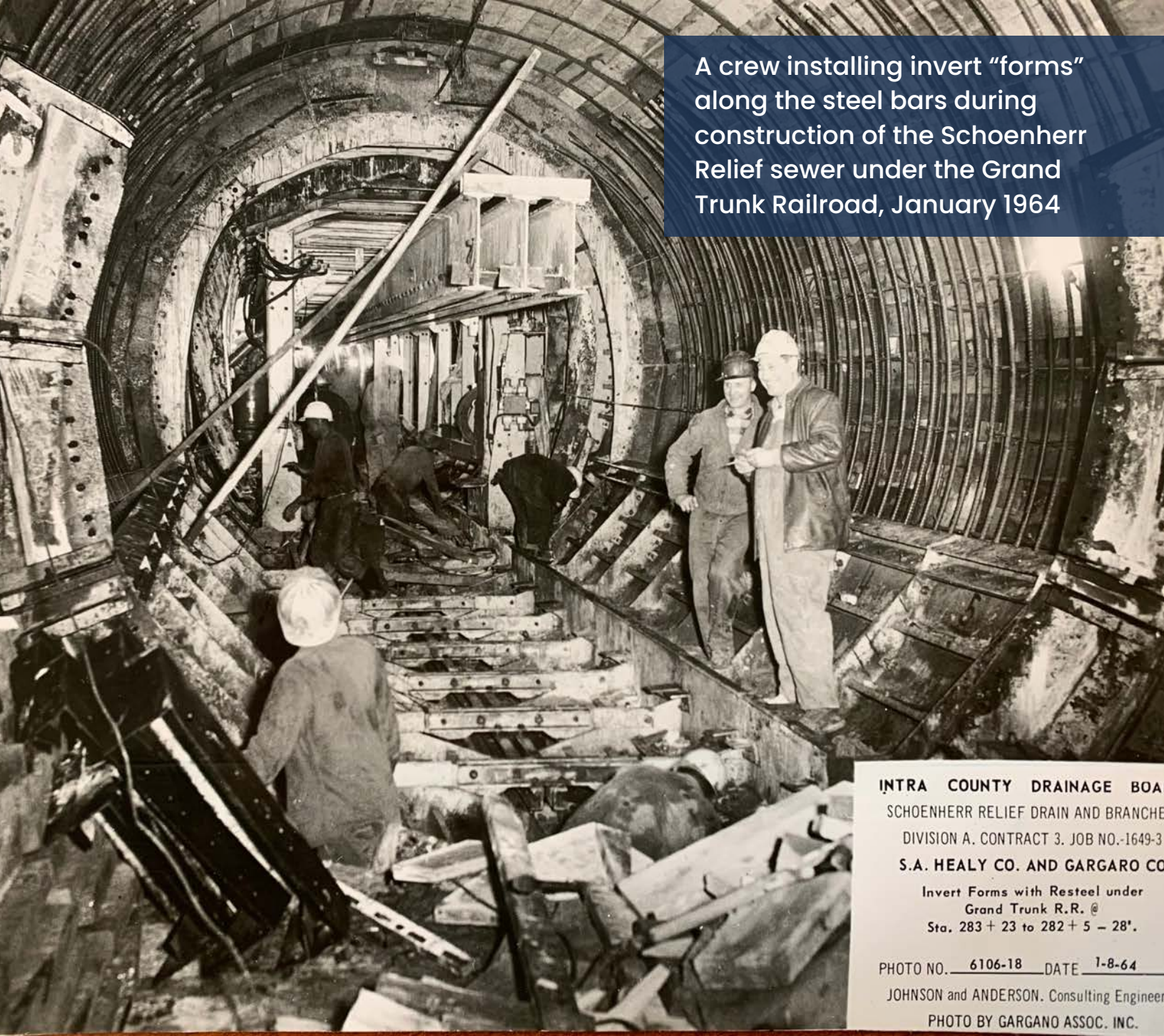


To facilitate the proper operations of our drains, the department provides soil erosion inspections, inspects construction of storm drains, sanitary sewers, drain taps, crossings and illicit discharges.



22 RAIN GAUGES AVAILABLE ONLINE





The public can now easily view the same rain information used by the MCPWO for stormwater management. Real time rainfall data is now available on our website.






A crew installing invert "forms" along the steel bars during construction of the Schoenherr Relief sewer under the Grand Trunk Railroad, January 1964

INTRA COUNTY DRAINAGE BOARD
SCHOENHERR RELIEF DRAIN AND BRANCHES
DIVISION A. CONTRACT 3. JOB NO.-1649-3
S.A. HEALY CO. AND GARGARO CO.
Invert Forms with Resteel under
Grand Trunk R.R. @
Sta. 283 + 23 to 282 + 5 - 28'.
PHOTO NO. 6106-18 DATE 1-8-64
JOHNSON and ANDERSON. Consulting Engineers
PHOTO BY GARGANO ASSOC. INC.

Macomb County Public Works Office Commissioner Candice S. Miller

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-  Report a Polluter: 24-Hour Toll Free
Emergency Hotline
1-877-679-4337

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