



April 18, 2022

Township of Zorra – Urban Storm Water System Operations and Financing Options

Assignment

rw2 Engineering was retained by the Township of Zorra (Zorra) to assess the system operations and financing for the storm drainage systems in the communities of Thamesford and Embro.

This report is intended for the use of Township Staff in determining options for future operations and a path to report to Township Council and undertake public consultation.

Background

Traditionally, Zorra has used the *Drainage Act, RSO 1990 (Drainage Act)* to construct and maintain both rural drainage works and urban storm sewers. The *Drainage Act* is a well-known process for constructing drains and the advantages and disadvantages of its use in urban areas follows:

Advantages

- User-pay for construction and future maintenance, the tax base is not the only funding for construction and maintenance
- Process to construct on private properties where obtaining an easement could be difficult
- No need for easements on private property
- Division of costs of construction and future maintenance are set out in the Drain By-Law

Disadvantages

- Maintaining the future maintenance schedule is cumbersome and costly in communities experiencing growth as properties subdivide regularly. Eventually the subdivision of

property makes Section 65 of the Drainage Act unusable as the assessments are distorted from the original intent of the By-Law

- Drainage Act is not well understood by urban residents, leading to appeals of new drain reports
- Urban drains have continuous maintenance costs and the Drainage Act is not well suited to continuously billing out small costs

Attachments 1 and 2 are sketches of Thamesford and Embro showing the locations of the Municipal Drains and the Drain watersheds. It should be noted that the sketches do not show the locations of all the storm drains not constructed pursuant to the *Drainage Act*. They exist on almost all the urban streets.

The communities of Thamesford and Embro had municipal wastewater projects installed for all properties in recent times.

The Thamesford project was completed over the years 2000 to 2008. All streets west of the Thames River were serviced by sanitary sewers and urbanized with curbs and storm sewers. The Middleton Street Drain was constructed as a Municipal Drain but all of the other streets were constructed without using the *Drainage Act*. Some of the existing Municipal Drains would have been altered from the By-Law specifications during this construction.

The Embro project was constructed over the years 2009 to 2011. All streets were reconstructed, and all streets had curb and gutter and storm sewers except the westerly portion of Commissioners Street and the 35th Line. No new Municipal Drain reports were needed during this construction. Mostly the reconstruction of the streets and any drainage improvements would have replaced the infrastructure from the original Municipal Drain By-Laws.

In both communities there is ongoing development. If the Municipal Drain By-Laws are to remain in place for maintenance purposes, they need to be updated to recognize property subdivision, changes to the drain and possibly changes to the watershed. Sections 65, 76 and 78 of the *Drainage Act* can be used for these purposes. The use of Section 78 could be used to incorporate the storm sewers not constructed under a Drainage Act By-Law into the By-Law.

In other municipalities, storm sewers are maintained under funds collected by taxation or under a By-law passed with the intention of collecting fees to cover the maintenance costs of the system.

One interesting note is that the Township now has storm water management (SWM) ponds constructed by developers as new development occurs. These SWM ponds will have substantial

maintenance costs in the future. At present these costs are not accounted for in the Zorra budgets. The costs for catchbasin cleaning in the two communities is in the area of \$7000 per year, currently funded by taxation. The history of maintenance on Municipal Drains was not undertaken for this assignment.

The Asset Management Plan (AMP) for Zorra includes the storm drainage system as part of the roads. Accordingly, the AMP does not set out a replacement schedule and costing for the storm water system. SWM Ponds are separately accounted for in the AMP. Also, the Operational Review completed by Watson Associates for the County-wide Services Review noted that there is no written agreement on maintenance of storm drains on County Roads between Zorra and Oxford. The Watson study also recommends that Zorra participate in a joint RFP for storm water management pond maintenance.

Issues to Address in this Assignment

- Funding Options; *Drainage Act*, Taxation, Storm Sewer Fee
- Development of Maintenance Program for Urban Drainage Systems in Zorra
- Next steps

Funding Options; Drainage Act, General Taxation, Storm Sewer Fee

There are three options to collect the costs of maintenance; *Drainage Act*, Taxation, Storm Sewer Fee. This section of the report will explain each option and discuss the pros and cons. Annual maintenance costs for each option are the same and are not discussed in each section. Over the next 10 years, it is estimated that the annual maintenance costs will increase from the current \$7000 per year (catchbasin cleaning) to \$30,000 and then to \$100,000 in 10 years as SWM pond maintenance starts.

1) Drainage Act

This is a viable option for the future maintenance of the drains in Thamesford and Embro. For it to be viable, there would need to be an Engineers Report for each community pursuant to Section 78 of the *Drainage Act*. This report would recognize the entire drainage system (new drawings of all pipes and the watershed) and provide maintenance schedules. The cost of this option would be approximately \$100,000 for the report and more if any construction works were proposed.

Pros - recognized procedure, some drains already in place.

Cons – First off, urban residents unfamiliar with the *Drainage Act* there could be appeals, leading to higher costs. Secondly, every time there is a new development, there is a requirement for the use of Section 65 of the Drainage Act for a re-apportionment or an updated Report under Section 78, again adding costs and complexity. Thirdly, the *Drainage Act*

is not well set up for collecting the costs of yearly maintenance and the assessment schedules would have quite a range in costs per property. Each time a re-apportionment of an assessment is required, the cost is \$400-500.

2) General Taxation

This is also a viable option for Embro and Thamesford. In this option, the Drains would be abandoned where feasible and the yearly Township budget would have to accommodate any routine work as well as large capital projects. As above the increase to the Township budget would ramp up from \$30,000 initially to \$100,000 in 10 years. This does not include any capital improvements required.

Pros- Residents would be happy as they would not see a fee for this as it would be part of the tax bill.

Cons- the first issue is fairness to rural landowners that pay for Municipal Drains under the *Drainage Act* and also help fund this storm sewer maintenance through the general tax levy. The second issue is that this option would require an increase to the tax levy now.

3) Storm Sewer Fee

Many large urban municipalities have implemented a storm sewer fee. Generally, they have used the utility model of Water and Wastewater by setting out the fee schedule in a By-Law and collecting the fees into an account dedicated to funding storm sewer capital, operations and maintenance. Examples of this model are:

- City of London (single-tier, user fee added to utility billing)
- City of Mississauga (lower-tier, user fee added to utility billing, contract with Region)
- Town of Niagara-on-the-Lake (lower-tier, annual levy associated with tax levy)
- Municipality of Middlesex Centre (lower-tier, user fee added to utility billing)

Applicable Considerations

Each of these examples vary in the scale, scope, and method that fees are charged for stormwater management. Most of the examples noted above have implemented a stormwater charge to specifically account for previous funding deficits in their stormwater infrastructure, especially as it relates to renewal projects where combined storm and sanitary sewers are separated. In particular, sewer separation projects in the City of London see the installation of a new storm sewer and outlet where one previously did not exist, which is a costly venture and each residential property under 0.4 hectares (1 acre) is charged \$18.03 per month, for a total annual cost to each homeowner of \$216.36.

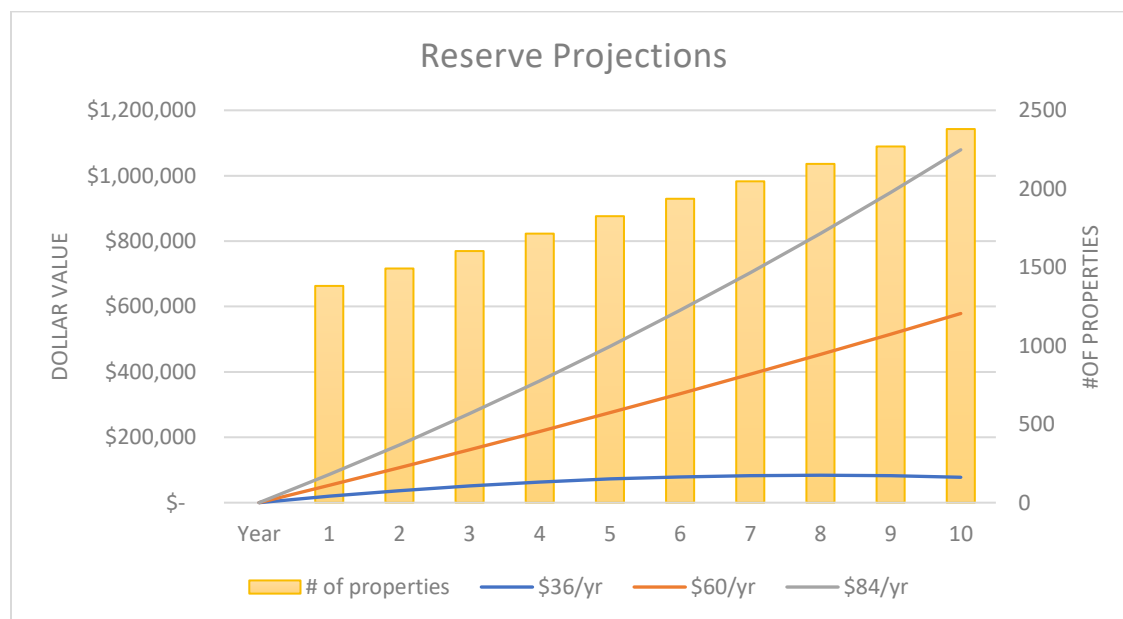
The majority of municipal stormwater charges in Ontario are handled similar to water and wastewater charges through an additional to the municipality's Fees and Charges By-law. This is handled through the typical utility billing model used by most municipalities where electricity, water, and wastewater are collected via a single bill. This model is used by Middlesex Centre which operates its own water and wastewater servicing as a lower-tier in a County system, the City of London as a single-tier, and the City of Mississauga contracts the Region of Peel to collect its stormwater charge as the Region handles water and wastewater servicing.

That said, the Town of Niagara-on-the-Lake handles the operations of its municipal water system but collects the stormwater charge through a levy-based model through its property tax billing system rather than adding the charge to a utility bill. For example, the Town's stormwater levy is applied to all urban areas within the municipal boundary (split rural and urban) with the levy applied to \$3,762,022,201 of assessment in 2021, and an overall levy of \$456,998. This levy is approved at the same time as the overall property tax levy and the charge appears on all urban property owners tax statements.

This method is the simplest method to collect a stormwater charge without the use of utility billing as it applies the levy only to a defined area of the municipality (urban only) and without distinctions between parcel sizes or impervious areas used in other stormwater charge systems.

In Zorra, there is growth proposed in both Thamesford and Embro. Currently there are approximately 1400 properties in the two communities. This number will rise to 3050 over the next few years. Most of the by-Laws reviewed were quite simple in their approach to charging properties to a certain size (usually 0.4 Hectares or one acre) a flat fee per month of \$6 to 10 or \$72 to 120 per year. Approximately 97% of the properties in these communities are less than 0.4 hectares. The cost estimates below do not take into account higher revenue from larger properties.

The following table shows how three different yearly fees would build a reserve over a ten-year period. For the calculations, it was assumed that the operational costs start at \$30,000 per year and rise to \$100,000 as more infrastructure is added and operational costs like storm pond cleaning and inspections of pipes and maintenance chambers are incurred. Interest was estimated at 1% and the growth was assumed to be a steady rate over 10 years to 60 % of the projections for 1000 new properties (2480 total).



The storm sewer infrastructure in Thamesford and Embro is relatively new, ranging from 11 to 22 years, so the need to build a reserve for replacement is a long-ways away. In order to properly evaluate the system reserve required, a system evaluation (condition and cost) would be required. From the above table, it would appear that \$60 per year per property would start to build a reserve. If the operational costs get higher than estimated, the \$36 per year is not enough to cover costs.

Development of Maintenance Program for Urban Drainage Systems in Zorra

Regardless of the option chosen to fund the storm water operations, Zorra needs to develop a maintenance program. There is a program for catchbasin cleaning and that is good. The following items need to be developed:

- An inventory of the storm water pond approvals and the Ministry of the Environment, Parks and Conservation requirements. This would first be a paper exercise which will lead to an annual inspection program and eventually pond maintenance and cleaning, and then;
- Development of overall system plans. The best repository for this information would be in the County of Oxford GIS system.
- Develop a system for pipe inspection by CCTV cameras and manual inspection of maintenance holes. This is not a yearly event but a rotation adequate for the system needs to be developed.
- The next Asset Management Plan should separate the Storm Water Assets from the Roads Assets.

Next Steps

1. Meet with Zorra staff to discuss draft report and then prepare a report for Council/
Public consultation (completed)
2. Council Report
3. Public consultation – Public Notice and hold a virtual public meeting
4. Develop system maps and operational program

Recommendations

- The use of a storm water fee, initially at between \$60 and 84 per year per property 0.4 hectares or less;
- Go through the process of abandoning the drains on all Zorra roads or properties;
- Evaluate the existing Drain By-laws; is Section 78 required anywhere (i.e. Wallace Crescent, Sutherland, Humphrey Drain and Holmes Drain). These drains have urban and rural components and the By-Laws may be required long term;
- Agreement with Oxford for storm sewers on County Roads;
- Development of storm water management system mapping and overall maintenance plan.

Respectfully submitted,



Robert Walton, P.Eng.

Encl – Attachment #1 - Sketch of Thamesford Municipal Drains
Attachment # 2 – Sketch of Embro Municipal Drains

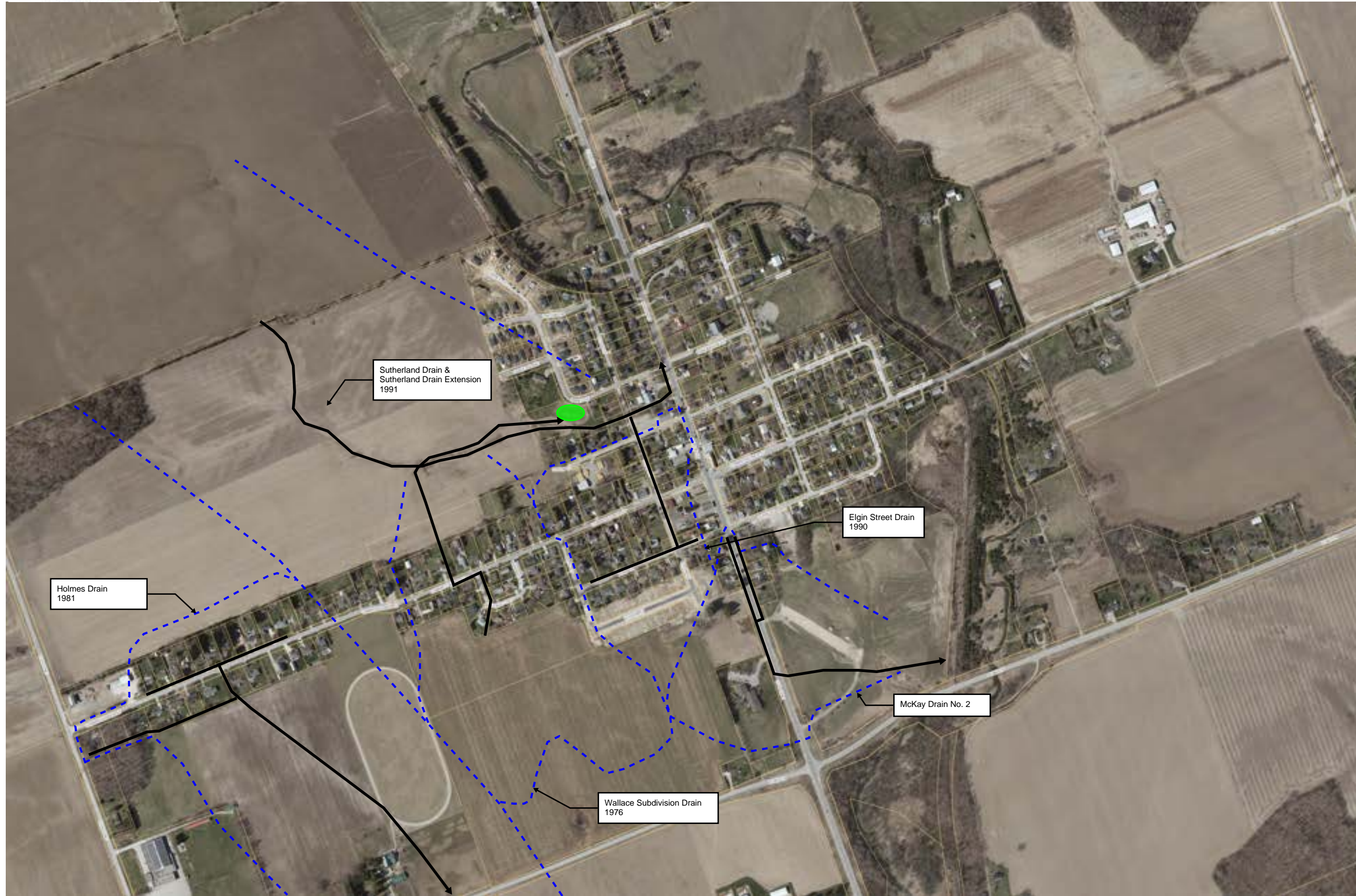


Legend

- - - Municipal Drain Watershed Boundary
- Drain Location
- Stormwater Management Pond

Notes

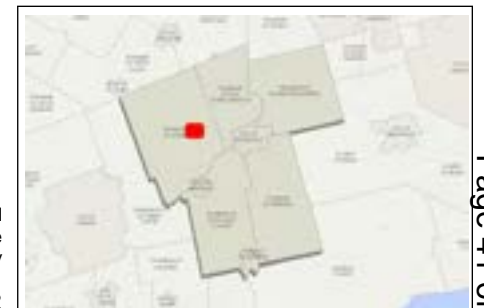




Legend

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- Drain Location
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Notes



0 203 406 Meters

NAD_1983_UTM_Zone_17N



This map is a user generated static output from an Internet mapping site and is for reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable. This is not a plan of survey

January 24, 2022