

Ward 10 Community Meeting

October 1st, 2024

St. Simon Stock Catholic Elementary School

- 1. Overall Drainage Systems**
- 2. July 16th Event**
- 3. Stormwater Investments**
- 4. Managing Stormwater on Your Property**
- 5. Feedback on Development**

1. Overall Drainage Systems



Mississauga remains a two-tier municipality, with some services provided by the City and others by the Region of Peel



- The City of Mississauga is responsible for storm drainage systems
 - Storm Sewers, culverts, catchbasins
 - Foundation Drain Collector (FDC) sewer
 - Stormwater management facilities
 - Creeks



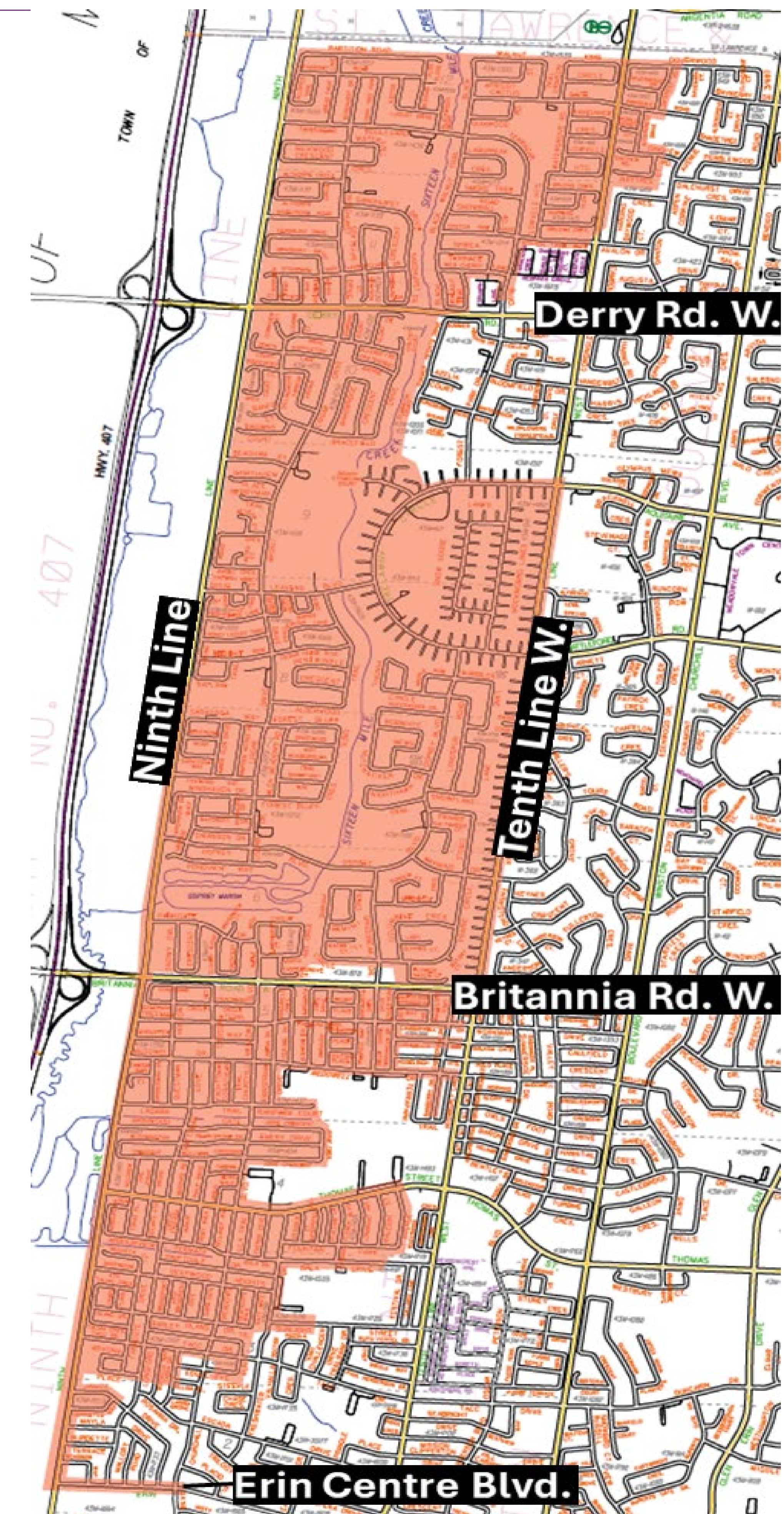
- The Region of Peel is responsible for water and wastewater systems
 - Drinking water system
 - Sanitary sewer system

3 - Pipe System

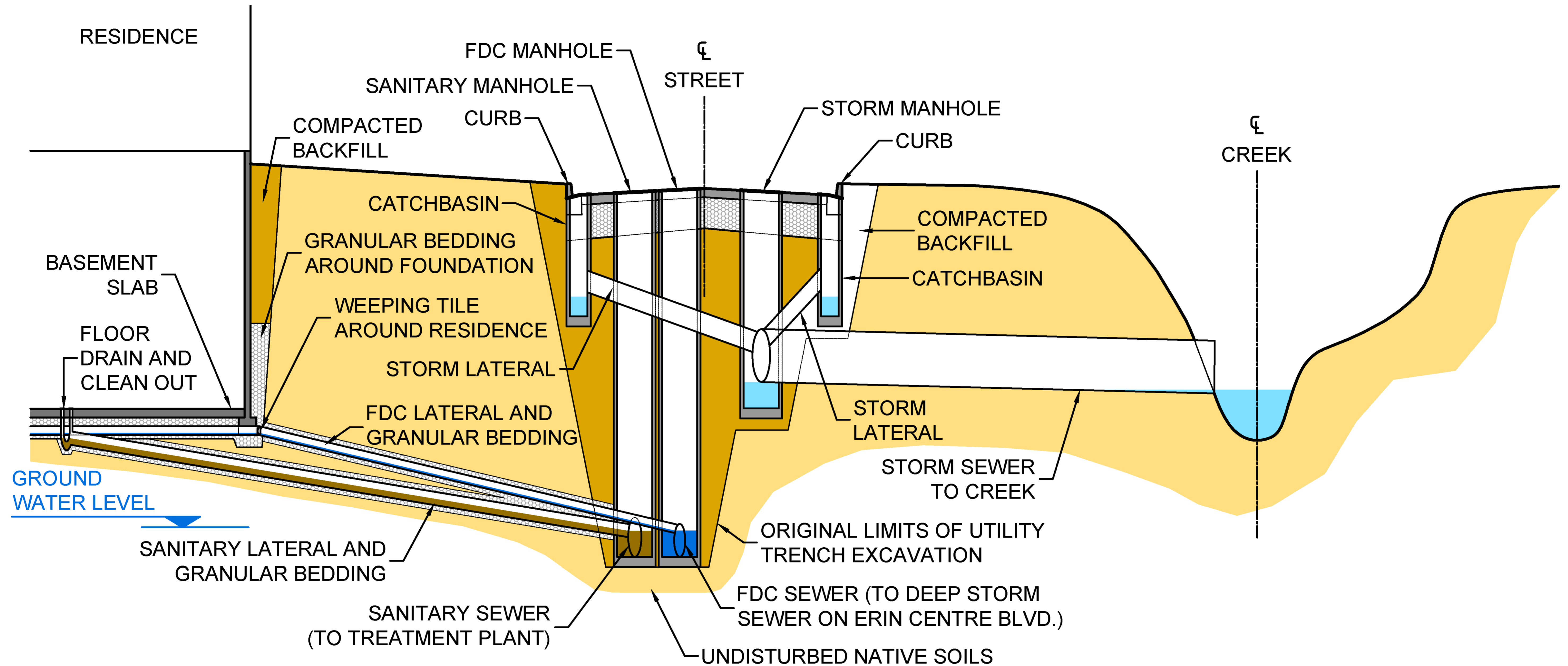
The three drainage pipes in the roadway are:

- Storm sewer (drains surface flows and runoff during rainfall events)
- Sanitary sewer (drains wastewater from residences)
- Foundation Drain Collector (FDC) sewer (drains the weeping tile around the foundation of the home – the “third pipe”)

 Approximate extents of FDC system



3 - Pipe System

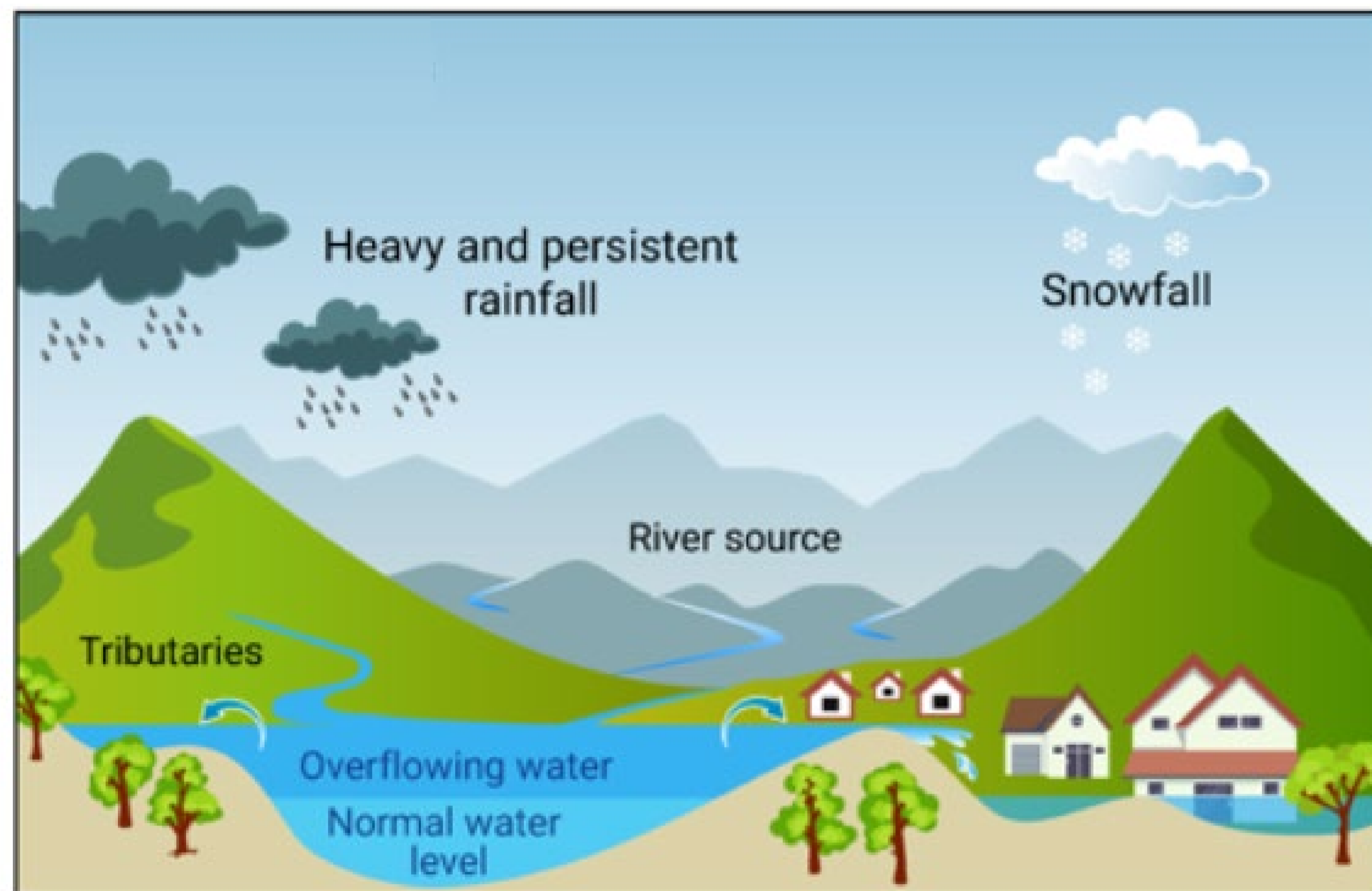


Sewer systems drain by gravity

- FDC sewer is lower than the basement floor slab
- Storm sewer is higher than the creek

- Storm drainage systems are designed based on the amount of hard surface in an area (not by population)
- Both a minor and a major system are utilized for storm drainage
- The minor system refers to **storm sewers**
 - Pipes within the roadway which receive flows from roadway catchbasins convey smaller storm events to the creek
- The major system refers to overland flow on the **roadway surface**
 - During larger storm events, the capacity of the storm sewer will be exceeded and flow is conveyed overland towards the creeks via low points (i.e. at parkettes adjacent to the creek)

Riverine



- Enhanced River Flow

Urban



- Overland flooding
- Storm and FDC sewer backup
- Sanitary backup

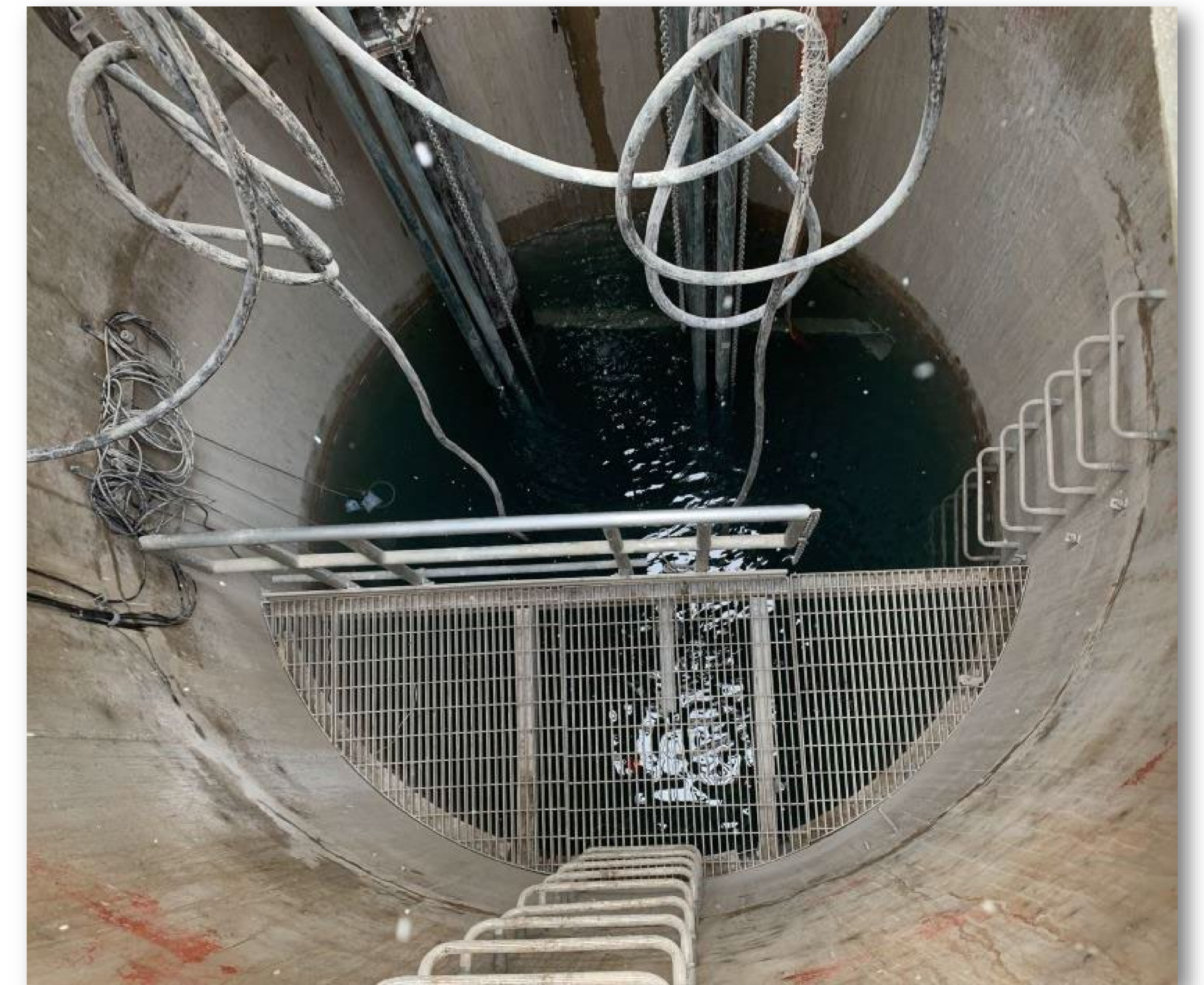
2. July 16th Event



- The City operates a network of rainfall gauges
- Rainfall gauges are located at:
 - Garry Morden Fire Training Centre – Ninth Line near 407 (RG11)
 - Streetsville – Britannia and Erin Mills Parkway (RG7)
- Results vary by location and duration of rainfall considered
- 24 hours prior to the event, there was approximately 14 mm of rainfall which created wet conditions
- RG11 indicates
 - Total rainfall of 60.4 mm over an approximate 4-hour period
 - Approximately a 1 in 25-year storm event based on peak duration
- RG7 indicates
 - Total rainfall of 104.2 mm over an approximate 4-hour period
 - Greater than a 1 in 100-year storm event based on peak durations

- A network of water level monitoring gauges are installed throughout the FDC sewer system to observe the response to storm events
- The gauges indicate that the July 16, 2024 storm event resulted in the highest recorded water levels in the FDC sewer system since monitoring began in 2012
- Previous storm events have typically impacted only the upper portion of the system (Black Walnut Trail) or the lower portion (Osprey Boulevard)
- The July 16, 2024 event resulted in uniformly high water levels throughout the entire FDC sewer system

- Cactus Gate Pumping Station was active for the July 16, 2024 event and helped reduce the surcharging within the FDC sewer system
- City received confirmation from its pumping station operator that the pumping station was operational for the duration of the storm
- The pumping station includes a flow meter and data logger which records a daily total of water pumped
- The recorded volume pumped on July 16th was 2,045 m³
- July 16th recorded the largest amount Cactus Gate has pumped in a day; the next largest volume pumped was Aug. 28, 2021 at 1,097 m³



3. Stormwater Investments



The Stormwater Charge has funded over \$3.5M in Lisgar since 2021

Operating investments include:

- Sump pump subsidy program
- High Water Protocol
- Operation and maintenance of the Cactus Gate pumping station

Other City-wide operating programs:

CCTV Sewer Inspection & Flushing	<ul style="list-style-type: none"> • FDC inspected every 3 years • Storm sewers inspected every 10 years
Catchbasin Cleaning & Repair	<ul style="list-style-type: none"> • Cleaned every 3 years / as needed • Repaired as needed
Pond Inspection & Maintenance	<ul style="list-style-type: none"> • Inspected annually (minimum), • Maintenance as needed
Creek Inspection & Maintenance	<ul style="list-style-type: none"> • Inspection varies by reach • Maintenance as needed
Inlet & Outlet Inspection & Cleaning	<ul style="list-style-type: none"> • Inspected twice/year • Cleaning as needed
Storm Sewer Repair	<ul style="list-style-type: none"> • As needed

Infrastructure listed above may be inspected more frequently (service requests)

What is the High Water Protocol (HWP)?

- The HWP is one measure used to reduce the potential for water infiltration in this area
- When specific weather-related criteria is met, the City will deploy temporary pumps at multiple locations within the Foundation Drain Collector System (FDC) as an emergency measure to provide relief from elevated water levels in the FDC.



The HWP is initiated when any of the following criteria is met:

- Credit Valley Conservation Authority or Conservation Halton have issued a flood advisory or high water bulletin.
- Rain is forecasted with a probability of 40% or more and an intensity of one millimetre per hour or more.
- A risk of thunderstorms is forecasted.
- Rain is forecasted and the ground has snow cover.

Maintenance of Pump Equipment

- Pumps are inspected quarterly
- Each pump undergoes preventative maintenance to ensure optimum performance (i.e. oil changes, fluid checks, component inspection, field testing)

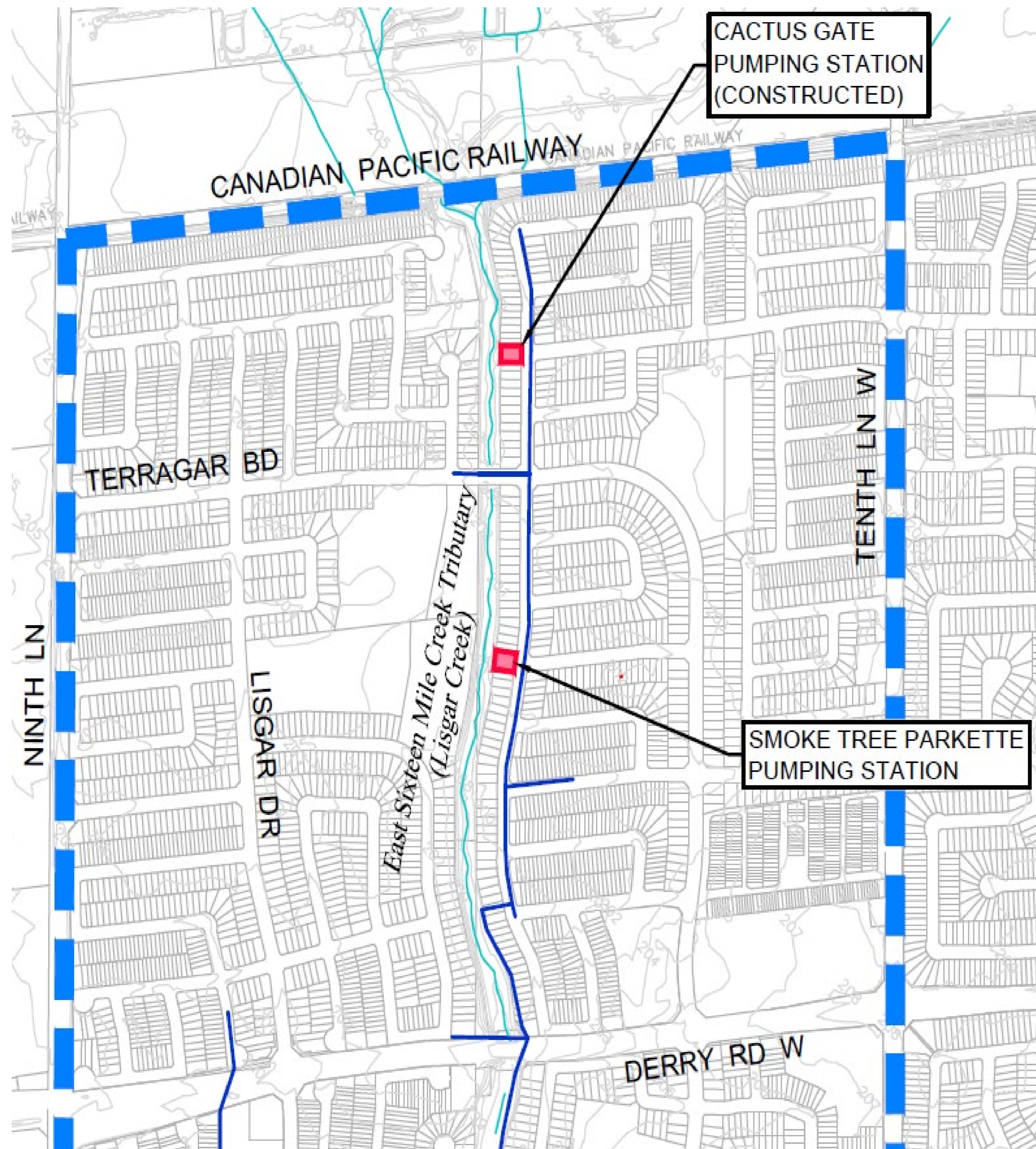
Capital investments include:

- Cactus Gate Pumping Station (Design and construction)
- Environmental Assessment for Pumping Stations
- Smoke Tree Rd. Pumping Station (Design and construction)
- Doug Leavens Blvd. Pumping Station (Design and construction)
- Osprey Blvd. Pumping Station (Design and construction)
- Monitoring Activities

Ward 10 Investment (Funded by the Stormwater Charge)	
Spent to Date (2016-2023)	\$7.3 M
Works In-Progress (2016-2023)	\$13.2 M
Budgeted (2024)	\$ 5.4 M
Total	\$25.9M

Stormwater charge investments are identified through technical assessments and inspections and then prioritized in the Budget and Capital Plan.

Pumping Station Locations

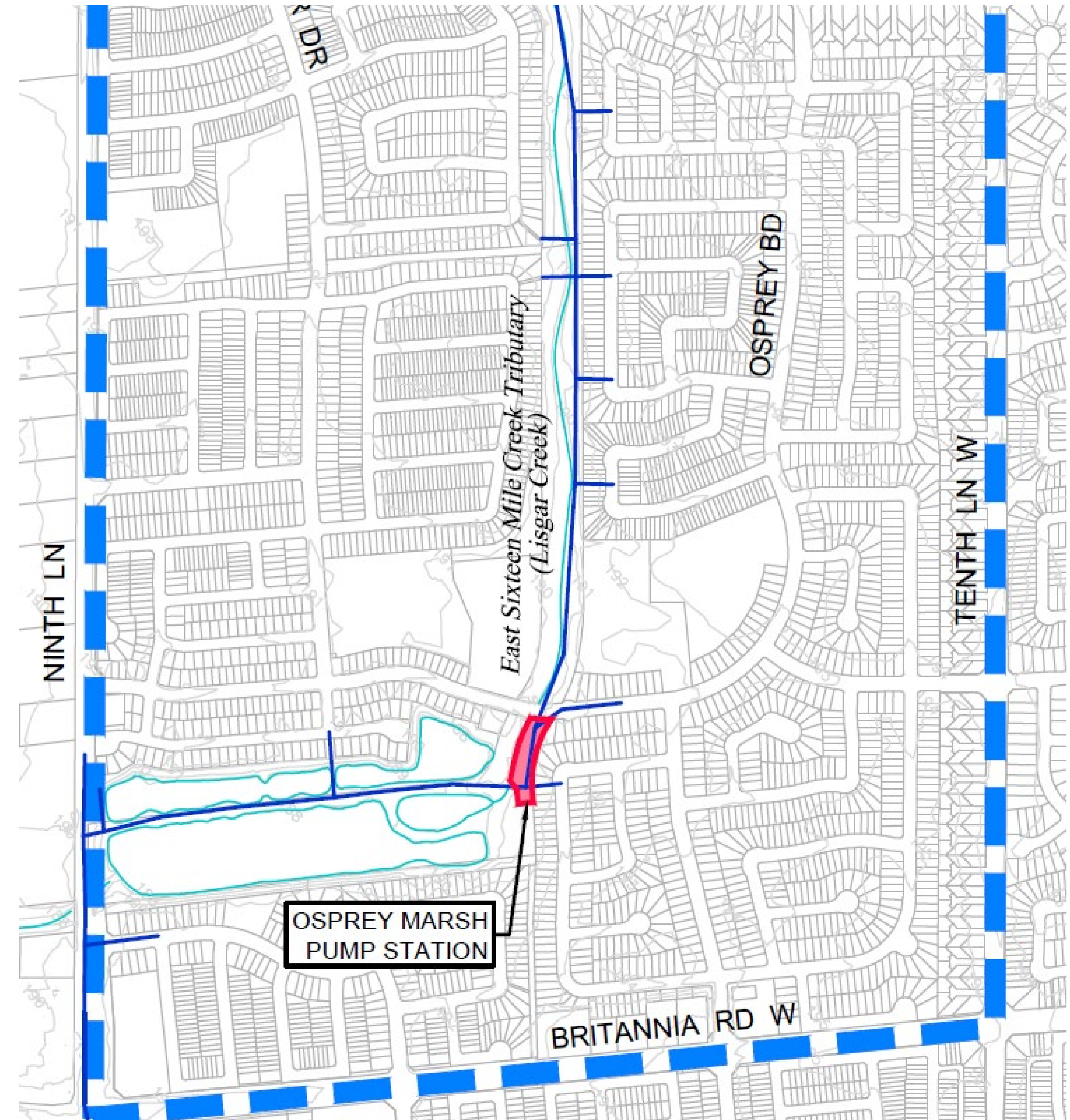
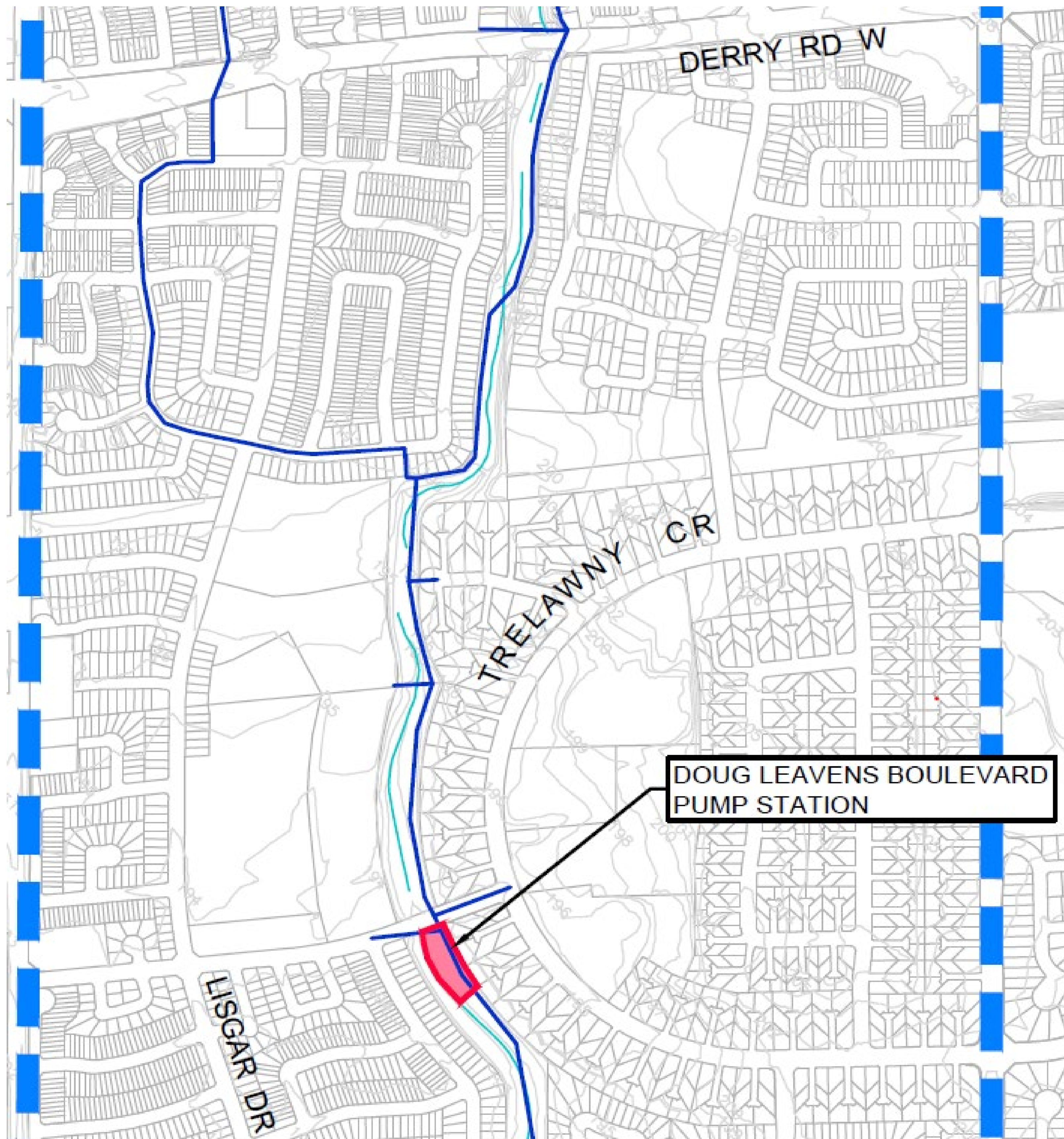


- Cactus Gate Pumping Station construction was completed in March 2021



- Smoke Tree Pumping Station is currently under construction
- Cactus Gate and Smoke Tree are utility trench dewatering and FDC pumping stations
- Pumping stations outlet to Sixteen Mile Creek

Pumping Station Locations



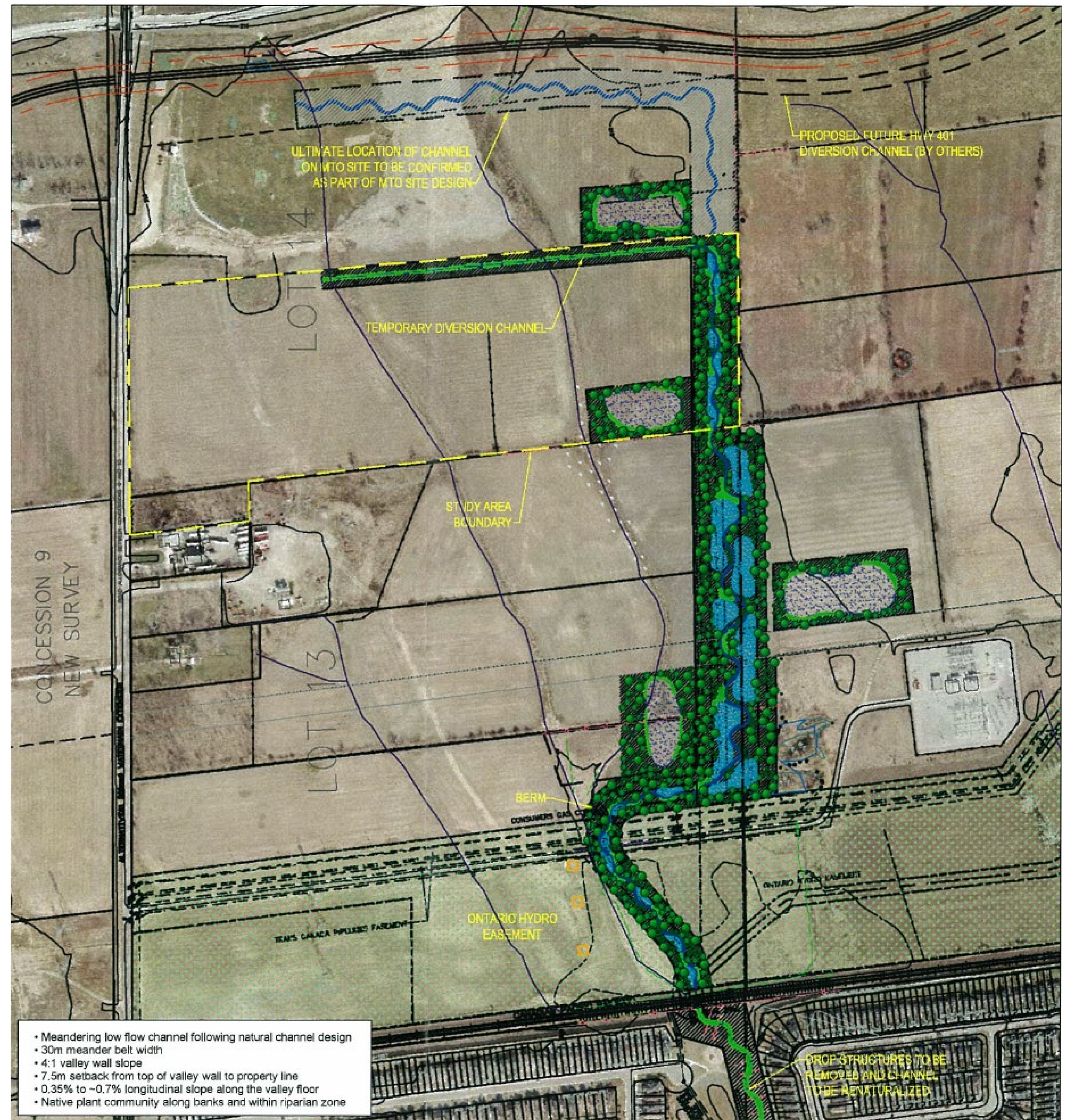
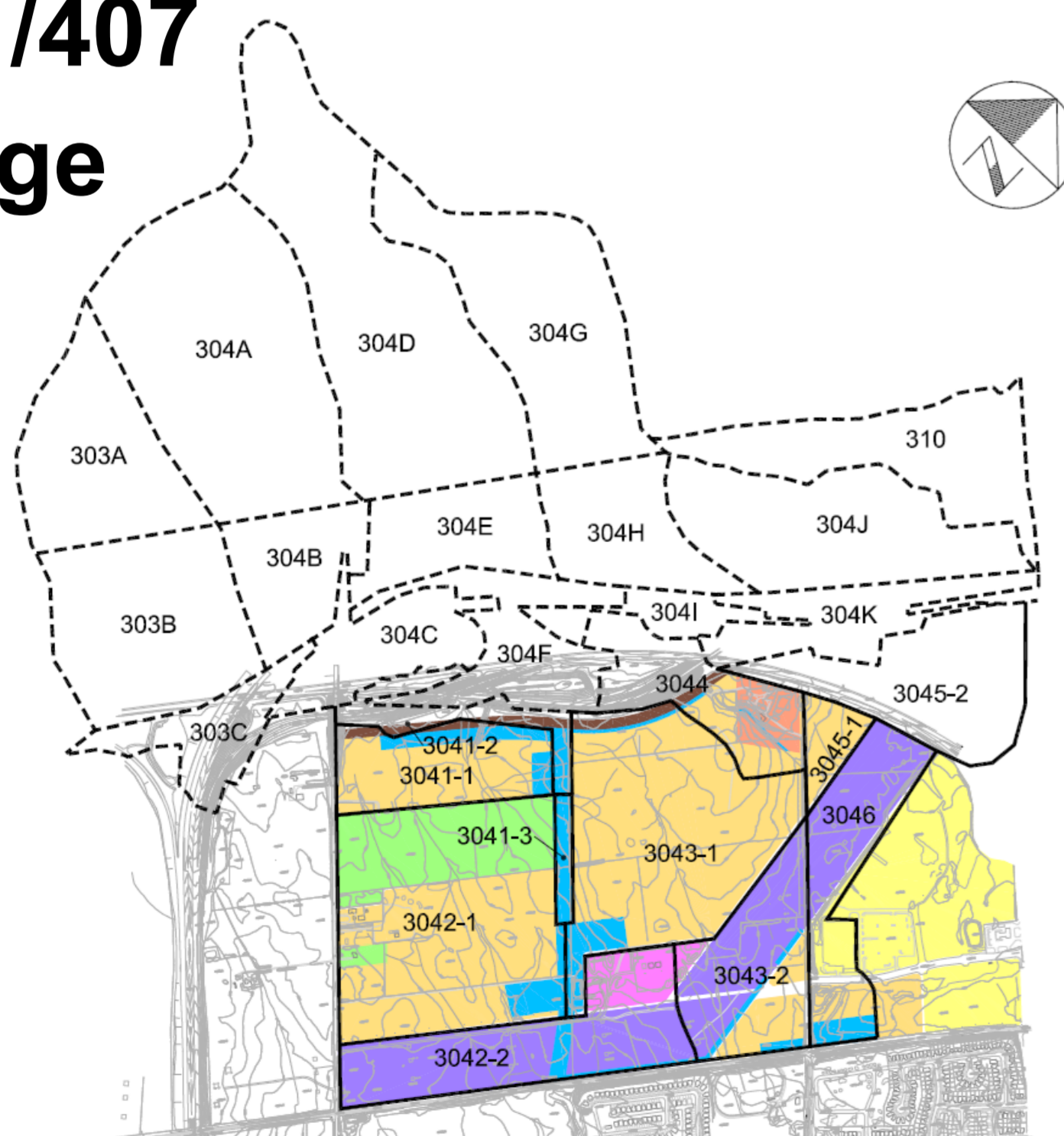
Doug Leavens and Osprey Marsh Pumping Stations - to be constructed

- Osprey Marsh is a stormwater management facility providing flood control and water quality treatment for the upstream drainage area
- During storm events, water levels are intended to rise to detain stormwater. Water levels are controlled by the downstream weir at Ninth Line
- The design and construction of the Osprey Marsh dredging planned for 2025/2026
 - \$8.5M in the proposed 2025 Capital Plan, subject to Council approval
 - State of good repair project - removing sediment restores water quality function



- **Objective:** Control runoff from the developing areas north of the rail tracks to ensure no additional peak flows in Sixteen Mile Creek
- 4 stormwater management facilities, including an online storage system to control runoff from ~485 ha
- Facilities were constructed circa 2011 onward

Drainage Area north of the 401/407 interchange



4. Managing Stormwater on Your Property



Measures that can be taken to reduce the risk of water impacting your home:

- Disconnect your roof downspouts and divert the water at least 2 meters away from your home to a vegetated, safe discharge point away from adjacent property lines, sidewalks or building foundations.
- Clean leaves and other debris from eavestroughs, downspouts, basement windows, rear yard catchbasins and drains.
- Clear up items/debris around your home that block water from flowing away from your house.
- Ensure sump pumps and backwater valves are regularly checked and maintained.
- Improve lot grading. Check that the ground all the way around your home slopes away from your exterior walls
- Maintain all original property swales to divert water away from your home and adjacent properties

5. Feedback on Development

Independent technical review was commissioned involving:

- Site survey
- Field review
- Review of photographic evidence
- Model analysis
- Overlaying information from resident on model findings



Conclusion: Diversion channel hydraulics were inconsequential to pond function during the July 16th storm

Thank you