

Welcome to the Public Information Centre for:

Lisgar District Basement Water Infiltration Class Environmental Assessment Study for Pumping Stations

The purpose of this Public Information Centre is to:

Provide an overview of the study

Obtain public input on the preliminary proposed solution

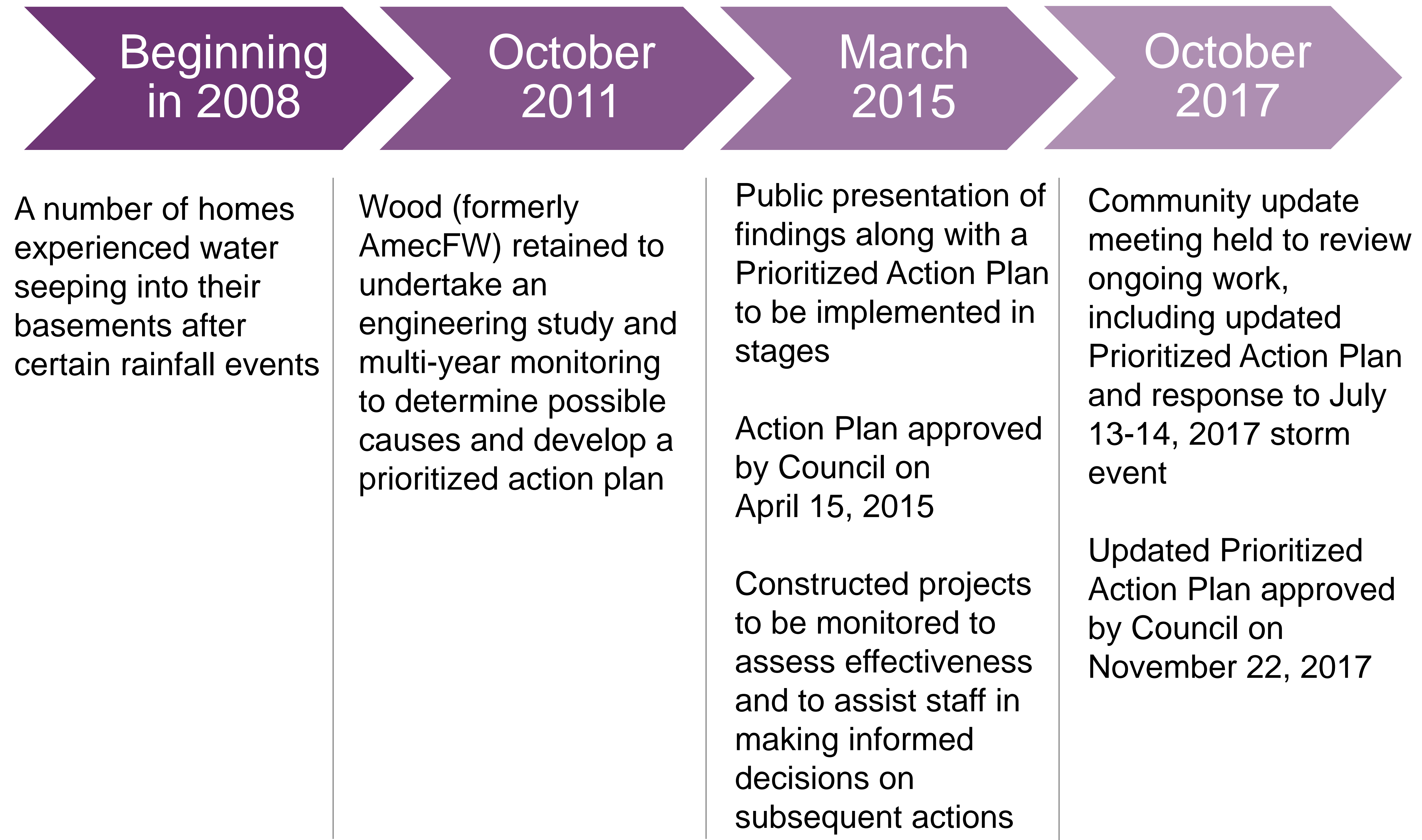
Please sign in if you would like to be included on the project mailing list

Information presented this evening will be available on the City of Mississauga's Lisgar Basement Water Infiltration Investigation website:

<http://www.mississauga.ca/portal/residents/lisgarinvestigation>

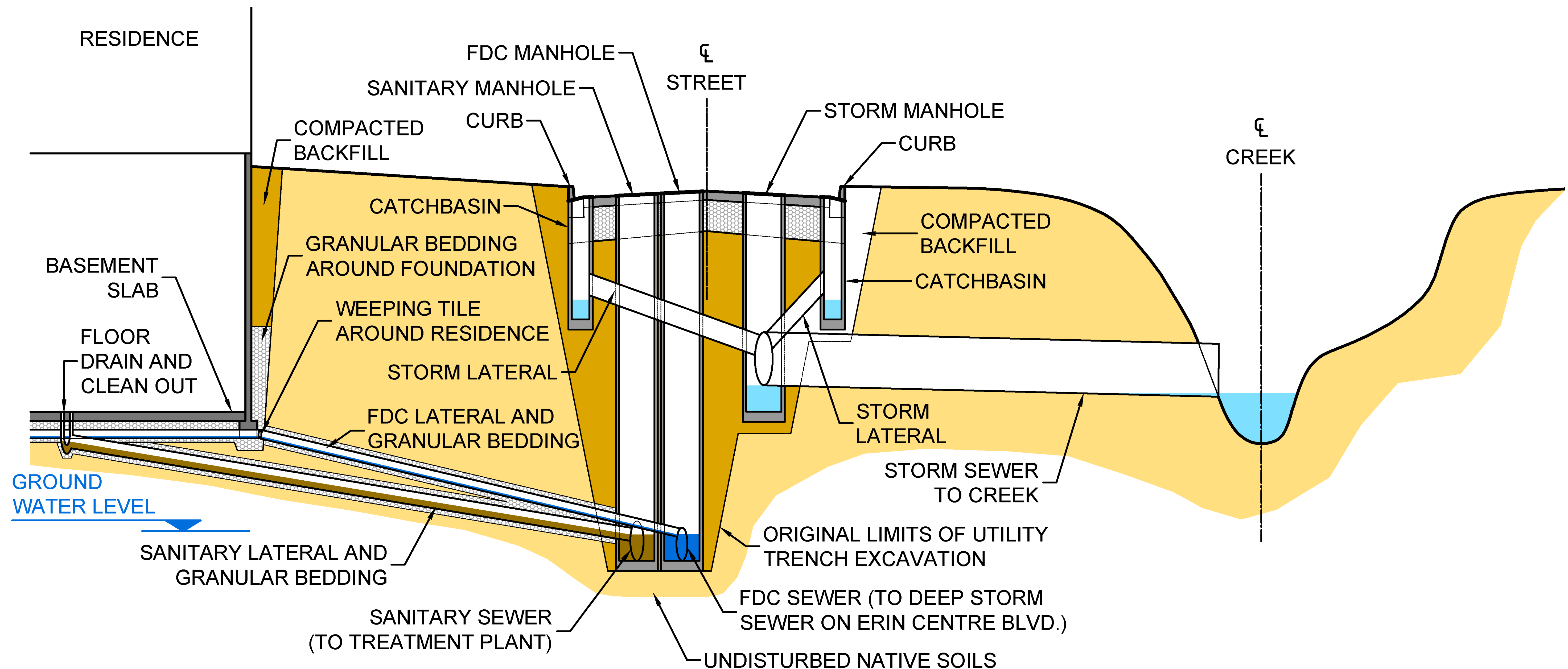
1. Recap and History of Problem

Timeline:



2. Overview of Foundation Drainage System

3-Pipe System - Foundation Drain Collector (FDC)



3. Past Study/ Investigations

Initial Broad Study to Identify Causes of Basement Water Infiltration including:

Monitoring Work:

- Groundwater
- FDC and Storm Sewer System
- Creek Tributary and Stormwater Management Pond

Testing:

- Water Quality
- Storm Sewer Leakage Testing
- Storm Sewer Outfall Collar Testing
- Smoke Testing

City-led Mitigation:

- Inspection
- Cleaning
- Sealing
- Monitor Capital Works
- High Water Protocol
- Sump Pump Subsidy

Investigations led to the implementation of priority mitigation measures over a period of time

Excess Stormwater into the Utility Trench

- Leakage from the storm sewer system (which is a normal and expected occurrence), combined with the presence of slow draining native soils (around the utility trench) results in water build-up
- If the build-up of water is significant, it travels up the bedding material around the Foundation Drain Collector (FDC) laterals servicing the homes and into the foundation weeping tiles
- Water then drains directly into the FDC pipes through the weeping tiles which can surcharge (overload) the system
- This condition, in combination with certain storm conditions (preceding rainfall followed by a sufficiently large storm event) and local lot drainage may lead to water around the home's weeping tiles being unable to drain and potentially seeping into the basements of homes.

5. Status of Mitigation Plan

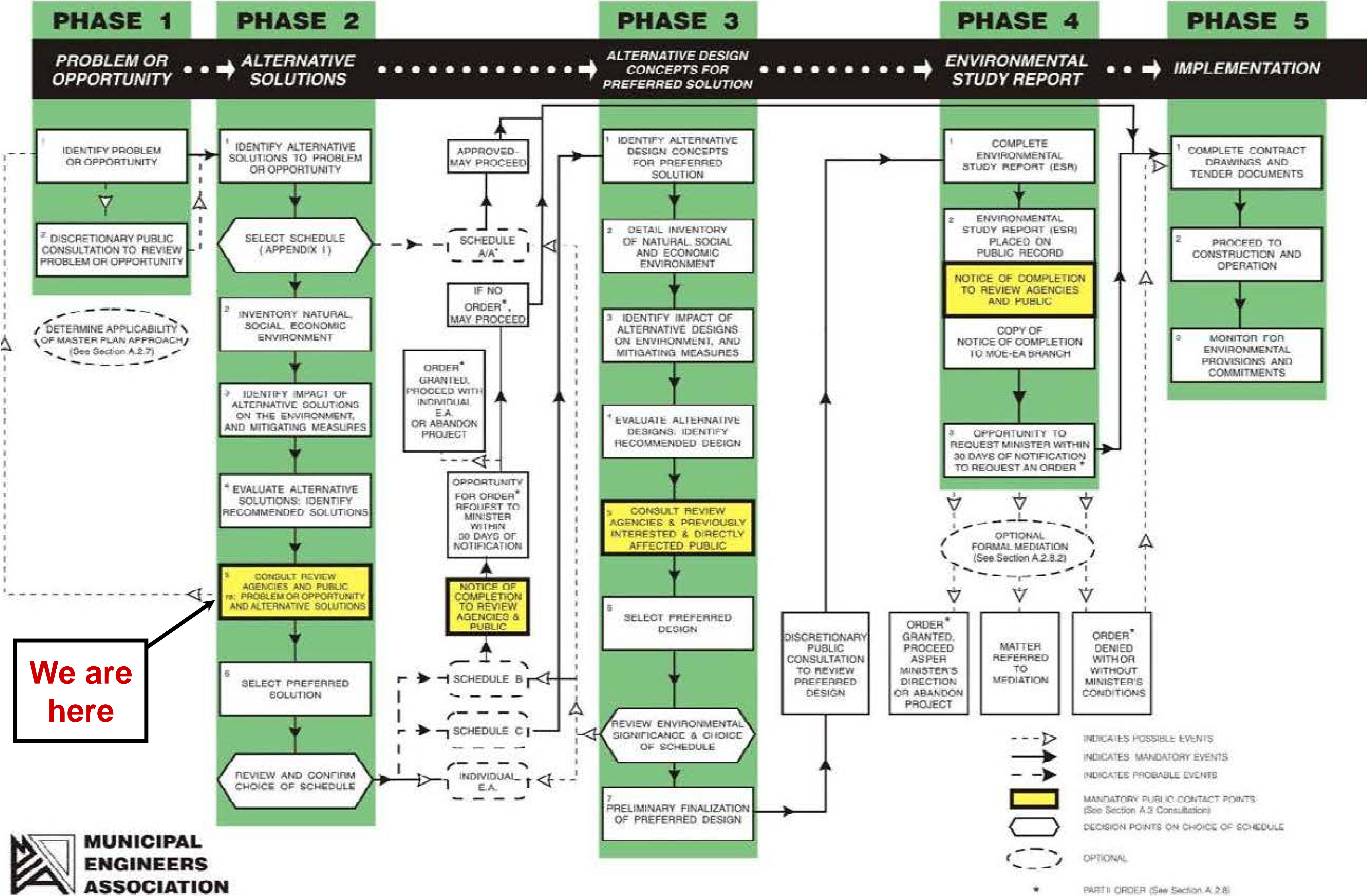
Updated Action Plan:

City Actions	Schedule
ADDRESS ROADWAY SUB-DRAIN LEAKAGE	
• Pursue prototype of roadway sub-drain plugs	Complete
• Installation of plugs along Black Walnut Trail and other areas	Complete
• Expansion to other areas within Lisgar District	Pending Monitoring Results
CONSTRUCTION OF AN UTILITY TRENCH DEWATERING SYSTEM	
• Carry Out Municipal Class EA Study	Underway
• Complete detailed design work	Ongoing
• Construction	Planned for 2018
CONSTRUCTION OF A FDC PUMPING STATION	
• Carry Out Municipal Class EA Study	Underway
• Conduct Hydraulic Modelling Analysis	Complete
• Complete detailed design work	Ongoing
• Construction	Planned for 2018

Updated Action Plan:

City Actions	Schedule
AMEND SUMP PUMP SUBSIDY PROGRAM	
• <i>Increased Program Subsidy</i>	<i>Complete</i>
CONTINUE WITH HIGH WATER PROTOCOL	
• <i>Continue to monitor and initiate updated pumping protocol as required</i>	<i>Ongoing</i>
MONITORING	
• <i>Implement additional monitoring gauges in key study areas</i>	<i>Complete</i>
• <i>Monitoring to verify effectiveness of implemented measures</i>	<i>Ongoing</i>

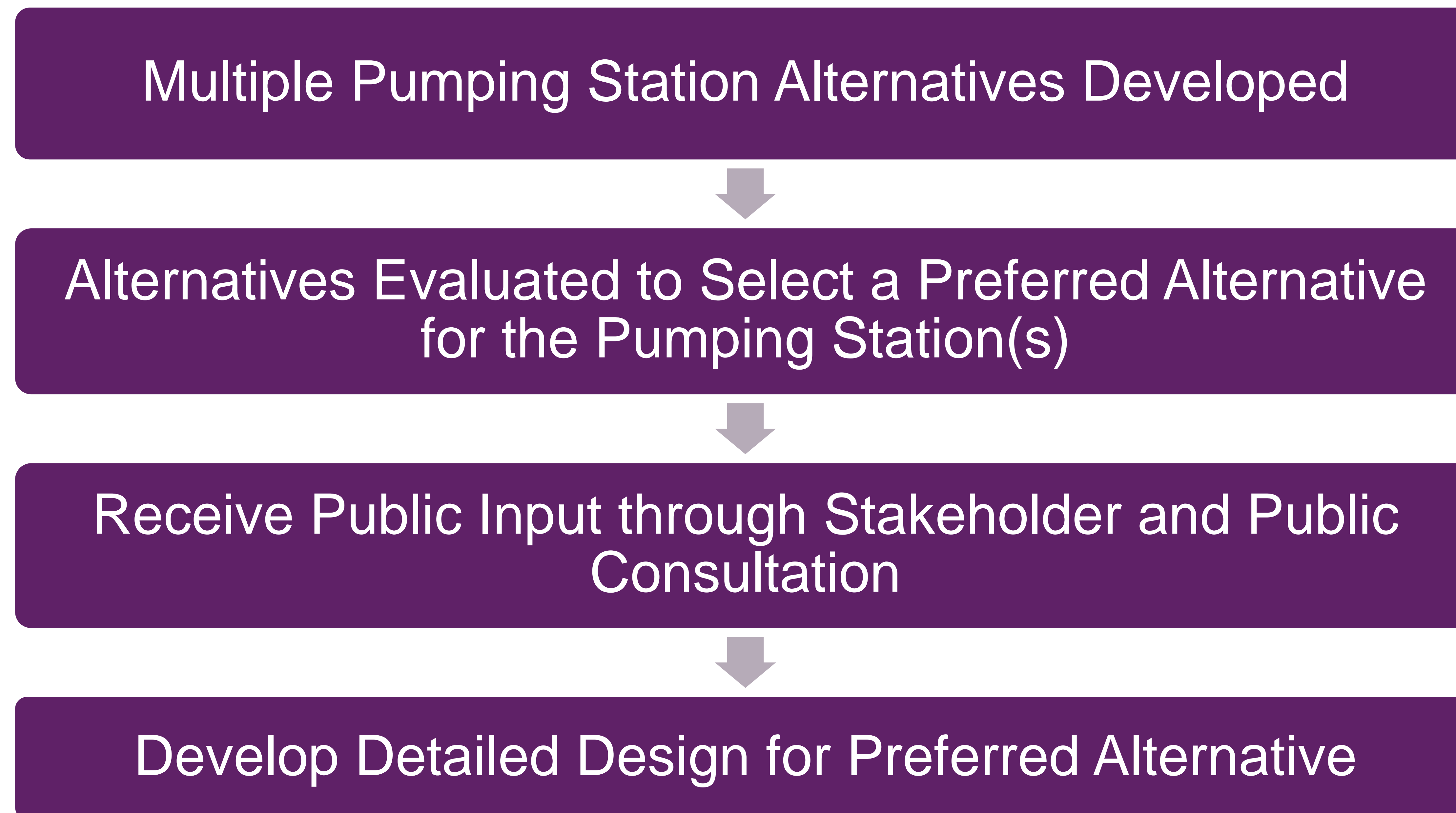
6. Municipal Class EA Study Process



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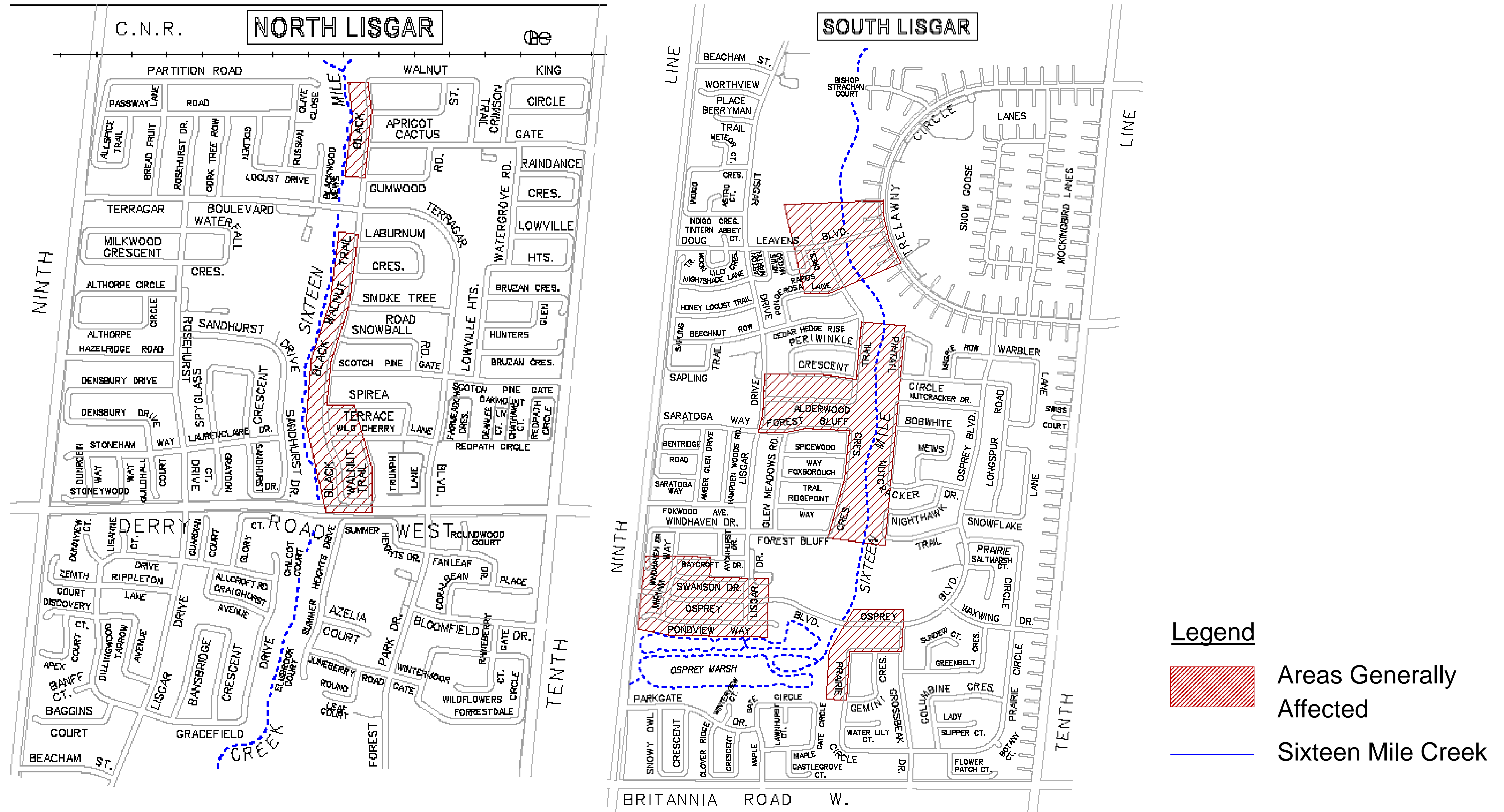
Study: This Municipal Class EA Study is being undertaken for the permanent Utility Trench and Foundation Drain Collector (FDC) Pumping Stations.

Schedule: The Design and Construction of the Pumping Stations is a Schedule B undertaking



7. Pumping Station Assessment

Areas Generally Affected by Basement Water Infiltration



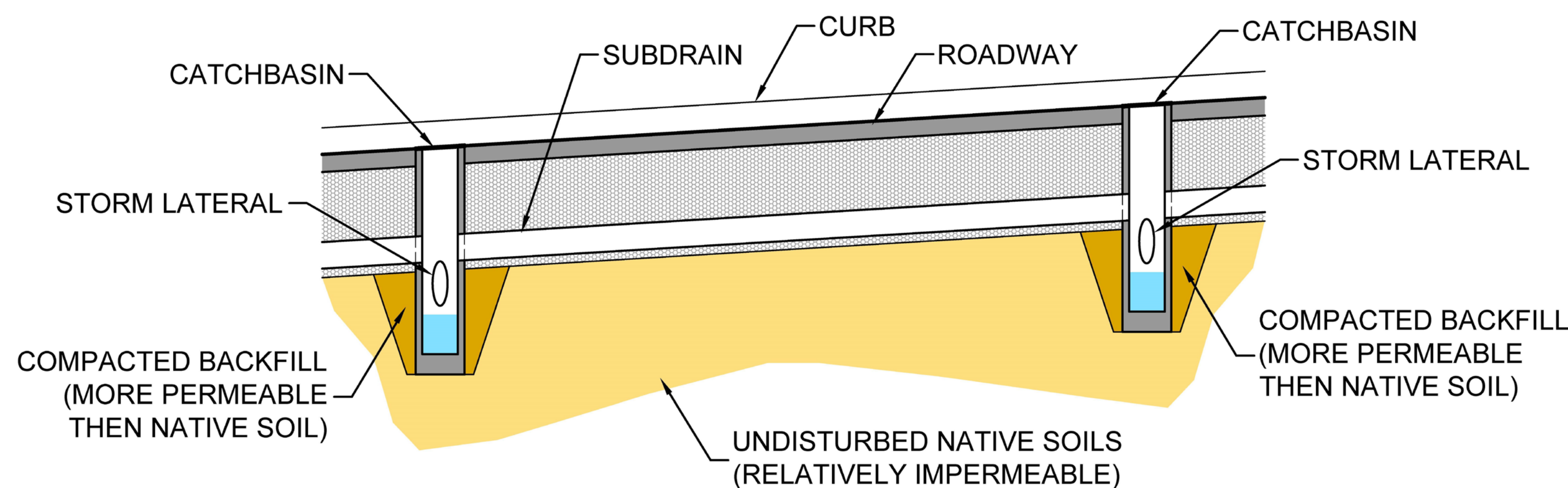
7. Pumping Station Assessment

Types of Systems:

Utility Trench Dewatering

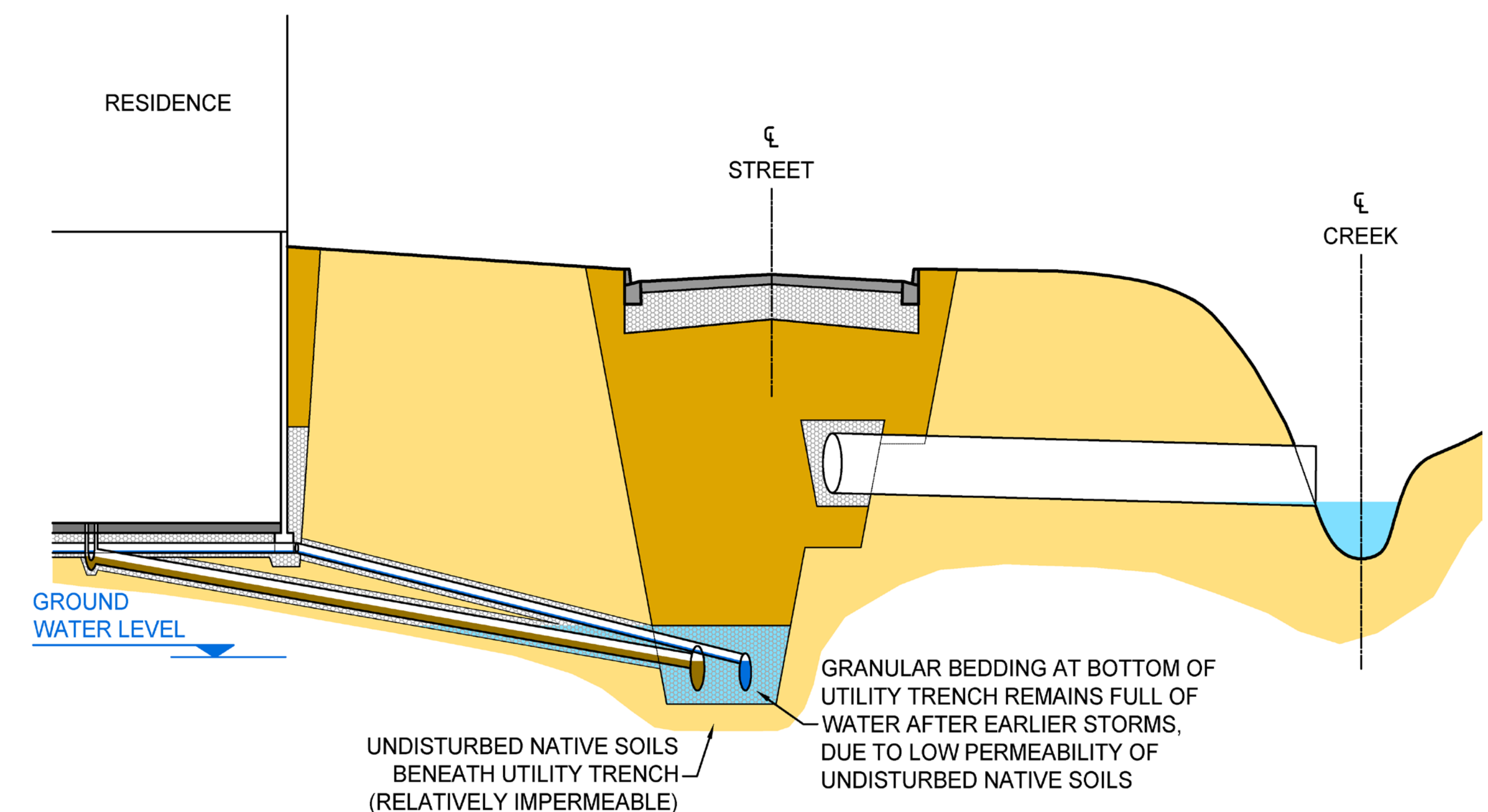
Pumping Station (Low Flow):

- System operates to dewater the utility trench (granular stone bedding) by removing small amounts of water on a continuous basis, much like a sump pump.



FDC Pumping Station (High Flow):

- System operates to remove water from the FDC pipe network during periods of high flow. This pump would be larger but operate less frequently and only during certain rain storms



7. Pumping Station Assessment

Potential Pumping Station Locations

(Long-list of Alternatives):

Using the following criteria, 6 potential pumping station locations were identified

Criteria for Siting:

- Public Land Ownership
- Drainage Area served
- Proximity to the number of houses with reported incidents of basement water infiltration
- North of Derry Rd. W - identified as a priority area given greater number of reported incidents of basement water infiltration



1. Black Walnut Trail at Cactus Gate Parkette
2. Russian Olive Close at Buttonbush Park
3. Terragar Boulevard at Lisgar Creek
4. Black Walnut Trail at Smoke Tree Road Parkette
5. Black Walnut Trail at Scotch Pine Gate Parkette
6. Black Walnut Trail at Wild Cherry Lane Easement

Evaluation Criteria








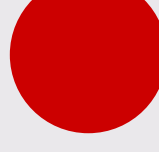








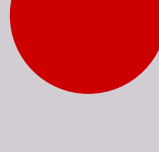
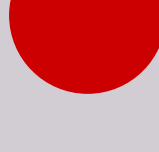
Drainage Area Served: The drainage area served means the amount of nearby land that will be serviced by the Pumping Station, therefore a larger drainage area is a positive factor.

Property Suitability: The suitability of the property is evaluated based on public land ownership and local property constraints, such as the amount of public space available (parkette versus City owned easement).

Number of Houses in Proximity that Reported Basement Water Infiltration: The Pumping Station should be located in proximity to the greatest number of houses that reported basement water infiltration in order to best address the issue.

7. Pumping Station Assessment

Evaluation of Alternatives

Long-list of Alternatives	Evaluation Criteria			Evaluation
Potential Pumping Station Locations	Drainage Area Served	Property Suitability	# of Reported Cases	Screened / Short-listed
1. Black Walnut Trail at Cactus Gate Parkette				Short-listed
2. Russian Olive Close at Buttonbush Park				Screened out
3. Terragar Boulevard at Lisgar Creek				Screened out
4. Black Walnut Trail at Smoke Tree Road Parkette				Short-listed
5. Black Walnut Trail at Scotch Pine Gate Parkette				Screened out
6. Black Walnut Trail at Wild Cherry Lane Easement				Screened out

 Positive  Neutral  Negative

Based on the evaluation of alternatives, two locations have been short-listed:

- 1. Black Walnut Trail at Cactus Gate Parkette:** Located on City- owned parkette and where monitoring has shown that the FDC in the area was often seen to be overloaded.

- 4. Black Walnut Trail at Smoke Tree Road Parkette:** Located on City-owned parkette and serves a large drainage area, however located further downstream of residences which reported basement water infiltration.

Technical Assessment of Short-Listed Alternatives

The two short-listed alternatives have been further evaluated by:

- Modelling the effectiveness of lowering water levels
- Interpreting the results of the modelling

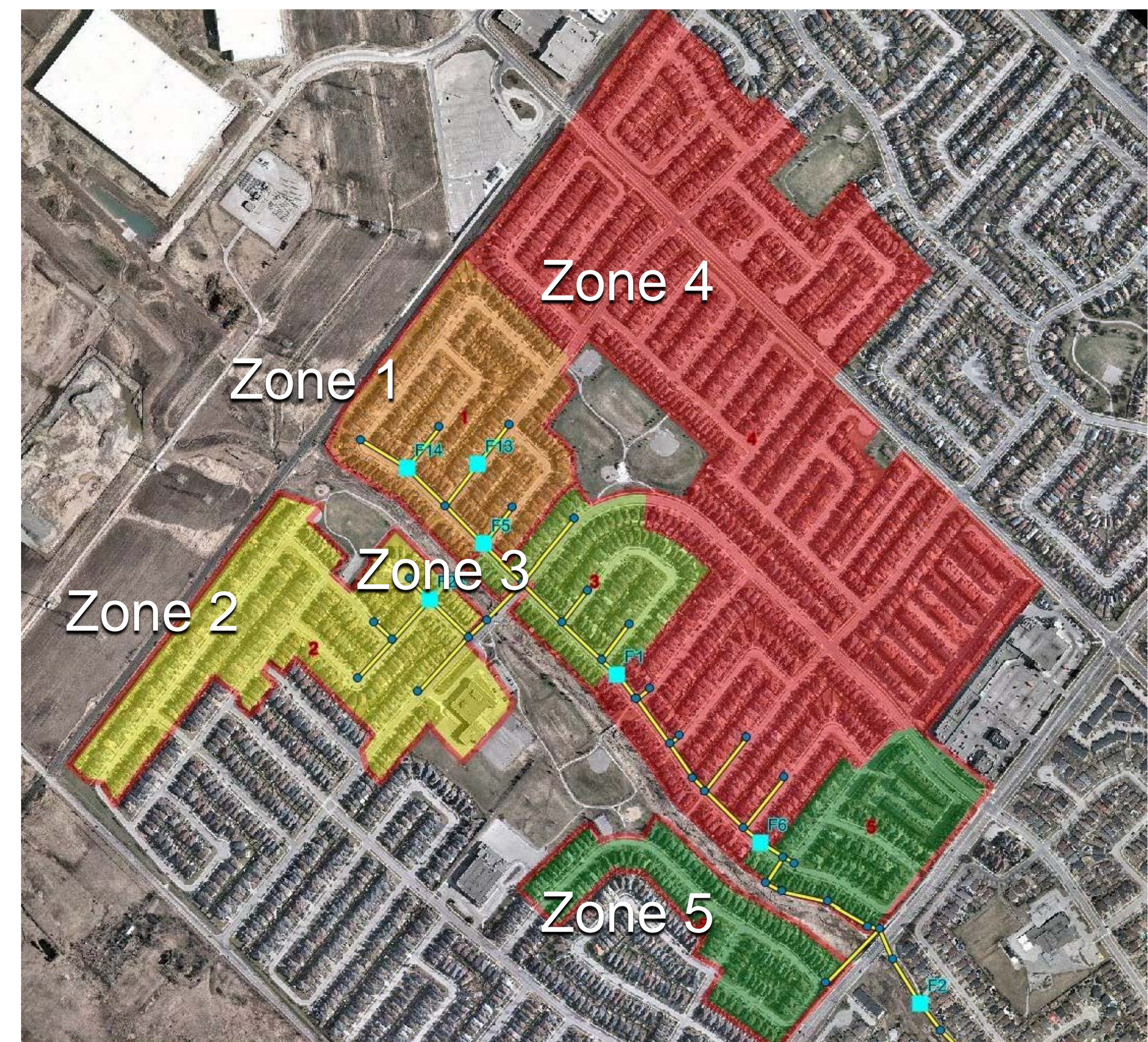
Leading to the Selection of a Preliminary Preferred Site

7. Pumping Station Assessment

Technical Assessment

A hydraulic model of the FDC sewer system was developed to assess expected rates of flow within the FDC system during storm events in order to evaluate the effectiveness of potential pumping station locations, including the number of pumps required and their size and capacity.

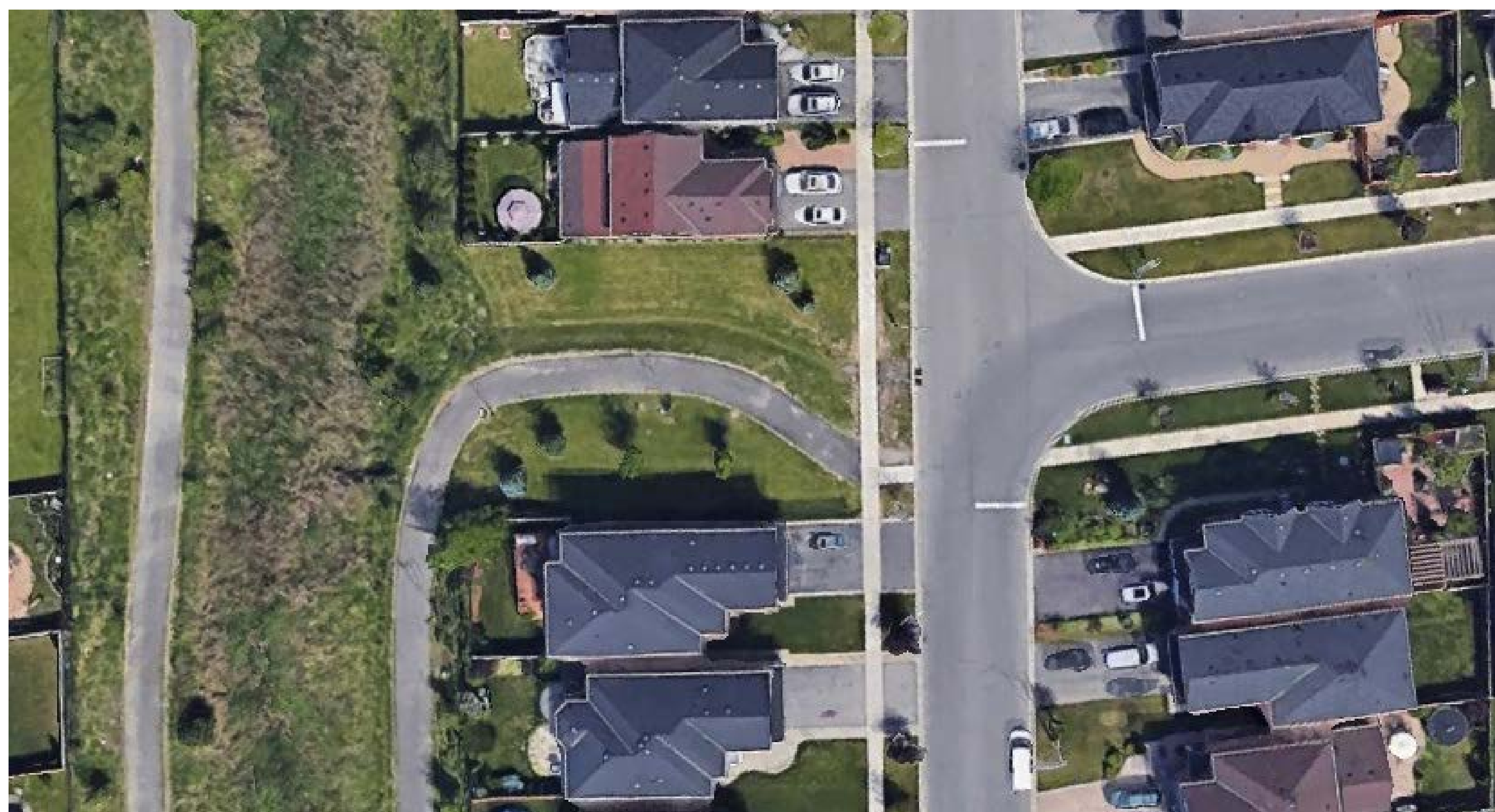
- The model was compared to four large rainfall events between 2012 and 2017 to determine locations where greatest surcharging (overloading) of FDC sewers occurred
- Zone 1 demonstrated the highest rates of FDC flow contributions, followed by Zone 2
- The Highest relative overall benefit was determined to be from pumping systems in these areas (i.e. Zones 1 and 2)



8. Proposed Preliminary Solution

Recommendations:

- **The Parkette at Black Walnut Trail and Cactus Gate is the Preliminary Preferred Location**
- Construct both a Utility Trench Dewatering and FDC Pumping System in the same location to reduce construction impacts and costs.
- Monitor performance of Utility Trench Dewatering and FDC Pumping Stations.
- Additional future Pumping Stations may be considered for other areas (including South Lisgar), based on results of ongoing monitoring



8. Proposed Preliminary Solution

Mitigation Considerations:

Subject	Impact / Issue	Mitigation / Action
Construction	<ul style="list-style-type: none">•Traffic•Noise•Dust•Vibration	<ul style="list-style-type: none">•Management plan required to meet City standards•Contract will ensure City requirements are met•Pre-construction surveys of adjacent residences are proposed•Active monitoring during construction
Operation	<ul style="list-style-type: none">•Noise•Odour•Maintenance	<ul style="list-style-type: none">•Pumps will be below ground and operate infrequently•Stormwater flows (not sanitary) - no odour is anticipated•Proposed maintenance access will be through a manhole chamber
Aesthetics	<ul style="list-style-type: none">•Pumps•Parkette•Buildings	<ul style="list-style-type: none">•Both pumps would be below ground•Landscape plan will be created for restoration•A permanent servicing building may be required
Creek Discharge	<ul style="list-style-type: none">•Outlet	<ul style="list-style-type: none">•Located adjacent to creek; Conservation Halton permit may be required if works within regulated area
Climate Change	<ul style="list-style-type: none">•Resiliency	<ul style="list-style-type: none">•Pumping station and utility dewatering trench will add capacity to overall system, providing resiliency to changing climate

Next Steps:

Consultation/ EA Process

- Receive input from Public, stakeholders and Indigenous Communities
- File Project File for 30 Day Review

Design

- Initiate Detailed Design of preferred system

Approvals

- Submit for approvals and permitting, including utilities, Ministry of the Environment and Climate Change and possibly Conservation Halton

Tender & Construction

- Issue Tender and proceed to Construction, anticipated for 2018-2019, subject to Class EA Study approval

How Can You Get Involved?

- Join our Project Mailing list for timely, relevant updates by adding your name to the sign-in sheet
- Review information shared at this Public Meeting
- Provide input by completing a Comment Form
- Speak with one of the Project Team members:

Louie Jakupi, P.Eng.

City of Mississauga

Phone: (905) 615-3200, ext. 3321

Email: Louie.Jakupi@mississauga.ca

Ron Scheckenberger, M.Eng., P.Eng.

Wood Environment & Infrastructure Solutions

Phone: (905) 335-2353 ext. 3109

Email: Ron.Scheckenberger@woodplc.com

Available Next Steps for Residents:

- It is continued to be suggested that residents who qualify for the City's FDC Sump Pump Subsidy Program take advantage of this program.
- The City will subsidize homeowners who install a sump pump up to a maximum of \$6,000
- Program details are available at:
<http://www.mississauga.ca/portal/stormwater/fdc-sump-pump-subsidy/>
- *Applications forms are available here tonight*