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<b>TO:</b>	<b>CHAIR AND MEMBERS CIVIC WORKS COMMITTEE MEETING ON OCTOBER 4, 2016</b>
<b>FROM:</b>	<b>JOHN BRAAM, P.ENG. MANAGING DIRECTOR, ENVIRONMENTAL &amp; ENGINEERING SERVICES &amp; CITY ENGINEER</b>
<b>SUBJECT:</b>	<b>FOUNDATION DRAIN DISCONNECTION TO MITIGATE BASEMENT FLOODING</b>

<b>RECOMMENDATION</b>
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That, on the recommendation of the Managing Director, Environmental & Engineering Services & City Engineer, this report **BE RECEIVED** for information.

<b>PREVIOUS REPORTS PERTINENT TO THIS MATTER</b>
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“Flooding Matters Phase II”, Civic Works Committee, July 18 2016.

“Flooding Matters Work Plan Phase 1 (Investigation)”, Civic Works Committee, June 8 2016.

“Update on Results of Sherwood Forest Weeping Tile Disconnect Pilot Project”, CWC, May 5, 2015

“Contract Award: Tender No. 13-49 & 13-22 Sherwood Forest Weeping Tile Disconnect Internal & External Works (ES2680) (Irregular Result), CWC, May 6, 2013.

"Foundation Drain Disconnection to Mitigate Basement Flooding", CWC, August 21, 2012.

"Foundation Drain Disconnection to Mitigate Basement Flooding", BNEC, November 14, 2011.

“Measures to Reduce Inflow and Infiltration into Sanitary Sewers”, ETC, June 21, 2010.

“Voluntary Downspout Extension Pilot Study: Sherwood Forest”, ETC, June 7, 2010.

“Sherwood Forest Flooding Assessment and Mitigation Works Study – Scope Change – ES2680”, ETC, December 7, 2009.

“Basement Flooding Report: Follow-up to Flooding Events in February 2009 and May 2009”, ETC, November 16, 2009.

“Appointment of Consultant for Sherwood Forest Flooding Assessment and Mitigation Works Study”, ETC, August 24, 2009.

“Grants for Sump Pump, Sewer Ejector and Storm Private Drain Connection By-law”, ETC, August 24, 2009.

“Smoke Testing Sanitary Sewers”, ETC, July 20, 2009.

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## 2015-19 STRATEGIC PLAN

The 2015 – 2019 Strategic Plan identifies this objective under Building a Sustainable City; 1B – Manage and improve our water, wastewater and stormwater infrastructure and services; and 3F- Use new ways to help residents protect their basements from flooding.

## BACKGROUND

### **Purpose**

The purpose of this report is to present the Civic Works Committee with an update on the Foundation Drain Disconnect program. This program targets foundation drain disconnections for homes in specific areas in the City of London. Following the success of the Sherwood Forest foundation drain disconnect pilot project which took place on Blanchard Crescent in the summer of 2013, five areas have been selected as candidates for foundation drain disconnection.

### **Context**

There are residential areas in London, typically in neighbourhoods built before 1985, which have experienced repeated occurrences of basement flooding, as documented through voluntary homeowner reporting to the City.

The most common cause of basement flooding is due to residential foundation drain connections to the sanitary sewer. During a heavy downpour excessive amounts of water enter the foundation drains and subsequently flow into sanitary sewers, exceeding the sanitary sewers hydraulic capacity and causing sanitary sewage backups into basements.

The City developed a focused foundation drain disconnection initiative to reduce the risk of future basement flooding and implemented this initiative as a pilot project in the Sherwood Forest area that saw a positive outcome. This approach represents a significant cost savings over traditional pipe upsizing/storage solutions. It is Civic Administration's firm belief that it is much more sustainable in both the short term and the long term to remove extraneous flow at the source, rather than accept and attempt to convey and treat it.

Like the Sherwood Forest pilot, this foundation drain disconnection approach will be undertaken only where sufficient homeowner buy-in is achieved. Similar to the previous pilot project, flow monitoring before and after implementation in the selected area will take place to ensure that the disconnection initiative has provided the desired effect of storm water infiltration removal to reduce the likelihood of future basement flooding.

### **Discussion**

A number of residential areas throughout London have a record of recurring basement flooding events. All of these areas had a number of common characteristics:

- Most of the homes were constructed before 1985; therefore, foundation drains were connected directly to the sanitary sewer (providing a direct path for storm water flows into the sanitary sewer).

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- Poor lot grading was common, lot grading has settled around the home or has been altered over the years, allowing surface runoff to flow toward home foundations, rather than away.

To set priorities, the areas were analyzed through a decision matrix that recognizes the importance of both the percentage of homes affected in an area and the number of times it has occurred. Five priority areas that scored the highest in the decision matrix are within the Old South, Glen Cairn, Lockwood Park and White Oaks neighbourhoods. The areas will be the subject of education and surveys to determine interest in participating in the program.

This foundation drain disconnection program includes the installation of a backwater valve, sump pit and sump pump in the homeowner's basement. To alleviate concerns associated with sump pump discharge creating surface flooding or winter icing issues, a storm private drain connection (PDC) will also be constructed to allow sump pump discharge to be directed to a storm sewer. The City will construct and fund 100% of the costs for the installations, and also provide an allotment of \$1,000 to each homeowner to cover future operating and maintenance costs for running the sump pump.

### **Determining a Project Area**

The purpose of having sufficient homeowner buy-in, 60% or greater, is because this percentage represents the number of homes that are deemed necessary to justify moving forward with the disconnection initiative. Disconnecting a number of homes below the target percentage will not effectively protect the vulnerable homes during significant rain events. It is therefore not considered cost effective or prudent for the City to disconnect homes in areas which do not meet the target criteria. Individual homeowners who reside in the 'below' target areas still have the option to take advantage of the existing Basement Flooding Grant Program to help protect their home. (See Appendix A)

The number of homes in the areas to be surveyed ranges from 20 to 65. The costs to proceed in one of the five possible areas is estimated to be in the range of \$300,000-\$700,000. Areas that exceed the 60% acceptance rate, will be scheduled over the near term, subject to budget availability. At least one of these will be informed that the project will proceed in 2017. A public meeting will be held to explain the project details to the target homeowners and to answer any questions they may have.

### **Next Steps**

The next step will be to send out a homeowner letter to an area within the candidate neighbourhoods explaining the proposed project and buy-in requirements along with a form to send back which will indicate if they would like to participate in the program or not.

Ward Councillors will be notified, prior to the mail out, about which areas in their ward are being targeted, allowing for ample time to conduct outreach measures. Ward Councillors will also be copied on the letters, and once these forms are returned they will be notified of the area's willingness to participate.

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**Acknowledgements:**

This report was prepared within the Wastewater and Drainage Engineering Division by Mitchell Heighway, EIT.

<b>PREPARED BY:</b>	<b>SUBMITTED BY:</b>
<b>TOM COPELAND, P. ENG. DIVISION MANAGER, WASTEWATER &amp; DRAINAGE ENGINEERING</b>	<b>JOHN LUCAS, P. ENG. DIRECTOR, WATER AND WASTEWATER</b>
<b>RECOMMENDED BY:</b>	
<b>JOHN BRAAM, P.ENG. MANAGING DIRECTOR, ENVIRONMENTAL &amp; ENGINEERING SERVICES &amp; CITY ENGINEER</b>	

September 26, 2016

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## Appendix A – Existing Sump Pump Grant Program Details

### The Application Process

1. **Contact a licensed plumber** to assess the appropriate remedial measure(s) for your property and obtain a cost estimate.
2. **Obtain an information package.** Contact the Environmental Programs & Customer Relations Division at 519 661-2500 ext. 8413, or visit the 8th floor of City Hall.
3. **Fill out the application.**
4. **Allow two to four weeks for the City to review your application** and approve the amount of your grant in writing. The amount of grant will depend on assessment of the work completed.
5. **When approved, hire a plumber** to do the work and obtain a Plumbing Permit from Building Control, City Hall, 7th floor.
6. **Contact Building Control to inspect the work** and sign off on the installation (as per the Plumbing Permit requirements). Also notify the Environmental Programs & Customer Relations Division (ext. 8413) to verify if further inspection is required.
7. **Provide** both the inspection form signed by the City's plumbing inspector and a paid, itemized invoice detailing all the work that was completed to:
 

Environmental Programs &  
Customer Relations Division  
8th Floor, 300 Dufferin Avenue  
P.O. Box 5035  
London Ontario  
N6A 4L9  
Attention: Basement Flooding Grant Program
8. Subject to approval of the submission, **the City will issue a cheque for the grant** within four to six weeks.

## Protect Your Basement



## Basement Flooding Grant Program

to help homeowners  
reduce the likelihood  
of basement flooding

Environmental & Engineering  
Services Department



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## Basement Flooding Grant Programs

### Eligibility Criteria

You may be eligible for the City's grant program if basement flooding is happening due to:

- Weeping (footing) tiles directly connected to the sanitary or storm sewer
- Sanitary or storm sewer surcharging in your basement
- Your property being in an area identified by the City as prone to basement flooding
- Evident erosion or icing problems

### The Program – An Overview

**Residential homes** (Single detached, semi-detached, duplex dwellings):

Remedial measure	Grant: 75% of total cost to a maximum of
Full port-type backwater valve <sup>1</sup>	\$575
Sewage ejector installed with a sump pump <sup>2</sup>	\$1,525
Sump pumps: with weeping tiles disconnected <i>inside</i> the basement	\$1,875
Sump pumps: with weeping tiles disconnected <i>outside</i> the basement	\$2,650
Storm private drain connection (PDC) for work within the City Road Allowance or City Easement <sup>3</sup>	\$3,775

<sup>1</sup>Where a sump pump already exists. <sup>2</sup>Instead of a full port-type backwater valve. <sup>3</sup>The homeowner pays for the work on private property.

**Condominium Corporations, Non-profit Housing Co-operatives :**

Remedial measure	Grant: 75% of total cost to a maximum of
Engineering report	\$2,000
Lot grading, sump pump systems, backflow prevention systems, and certification	\$900 per unit

For more information about the remedial measures, or to obtain a copy of the City's **Basement Flooding Guide**:

- Phone 519 661-2500 ext. 8413;
- Visit City Hall, 8th Floor, 300 Dufferin Avenue, London; or
- View our website, [www.london.ca](http://www.london.ca) and enter "Basement Flooding Grant Program" into the *Search* field.