

<b>TO:</b>	<b>CHAIR AND MEMBERS CIVIC WORKS COMMITTEE MEETING OF DECEMBER 4, 2018</b>
<b>FROM:</b>	<b>KELLY SCHERR, P.ENG., MBA, FEC MANAGING DIRECTOR, ENVIRONMENTAL AND ENGINEERING SERVICES AND CITY ENGINEER</b>
<b>SUBJECT</b>	<b>FLOODING MATTERS WEEPING TILE CONNECTION CHARGE FEASIBILITY ANALYSIS</b>

<b>RECOMMENDATION</b>
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That on the recommendation of the Managing Director, Environmental and Engineering Services and City Engineer, the following Flooding Matters Campaign Update Report **BE RECEIVED** for information.

<b>PREVIOUS REPORTS PERTINENT TO THIS MATTER</b>
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CWC Report of 2017-05-09, Item 6, Basement Flooding Grant Program By-law Update

CWC Report of 2016-12-12, Item 3, Flooding Matters, Phase II – Progress Report

CWC Report of 2016-10-04, Item 9, Foundation Drain Disconnection to Mitigate Basement Flooding

CWC Report of 2016-07-18, Item 12, Flooding Matters, Work Plan – Phase II

CWC Report of 2016-06-08, Item 16, Flooding Matters, Work Plan – Phase I (Investigation)

CWC Report of 2015-12-01, Item 10, Flooding Matters Work Plan Proposal

CWC Report of 2015-10-06, Item 6, Flooding Matters, Terms of Reference

CWC Report of 2015-07-20, Item 5, Update on Rainfall Event of June 23, 2015

CWC Report of 2014-09-22, Item 9, Update on Rainfall Event of September 10, 2014

CWC Report of 2012-08-22, Foundation Drain Disconnection to Mitigate Basement Flooding

BNEC Report of 2011-11-14, Foundation Drain Disconnection to Mitigate Basement Flooding

<b>BACKGROUND</b>
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**Purpose**

The purpose of this report is to provide information in response to a council direction “to report back on potential changes to the water rate to reflect a rate for those properties with weeping tiles connected to the sanitary drains and for those properties without weeping tiles connected to the sanitary drains”.

## Background

On December 12, 2016, administration submitted a progress report on the Flooding Matters Initiative which originated in 2015, following a number of high intensity, short duration rainfall events experienced in the City of London. Through a collaborative effort between Council and administration, 22 new initiatives were derived with an intense focus on basement flooding mitigation. On December 12, 2016, a Flooding Matters Phase II – Progress Report was presented to the Civic Works Committee confirming the status of the 22 flooding mitigation initiatives. Upon the conclusion of the Flooding Matters discussion, administration received direction to explore and confirm the feasibility of imposing a charge on properties that contribute undesired stormwater flows to the City's sanitary collection system through weeping tile connections.

## DISCUSSION

Weeping tile connections are a leading cause of sanitary sewer overloading during heavy rainfall events that result in basement flooding. Homes generally built between the 1920s and 1980s are likely to have weeping tiles connected to the City's sanitary sewer collection system. Subdivisions built post 1985 have sump pits and sump pumps in basements addressing weeping tile flow, which consists of natural ground water, rainwater and snowmelt. There are an estimated 50,000 weeping tile connections contributing unwanted flow in the City's sanitary collection system.

In order to satisfy Council's direction to explore and confirm the feasibility of imposing a charge against properties with weeping tile connections, consideration was given to potential administrative and implementation implications. The concept of establishing a charge for homes with weeping tile connections creates a financial disincentive for homeowners that have not participated in the City's Basement Flooding Grant Program. Disincentive programs can be effective when appropriate financial penalties are understood and implemented.

Significant disincentive fees, however, increase the risk of legal challenges associated with such a program. As with most disincentive programs, it is anticipated that a weeping tile connection charge would be highly unpopular with members of the public and may pose a significant social impact in the form of financial hardship to some property owners. Weeping tile connection charges could be based on the estimated cost to treat annual weeping tile discharges. The approximate cost of treating a liter of wastewater in the City of London is \$0.00022/liter. It is estimated that on average a single residential home discharges 14 cubic metres per month, or 168,000 liters annually, into the City's sanitary sewer system. Using these values as a basis, the additional charge would be approximately \$3.00 per month. Given the low cost per month of the estimated charge, this approach is unlikely to provide a large motivation for property owners to take advantage of the City's Basement Flooding Grant Program.

There are several administrative problems associated with the implementation of a weeping tile charge based program. There are approximately 50,000 homes with weeping tile connections in the City of London. These homes were generally constructed between 1920 and 1980. First, a comprehensive inventory of these homes does not currently exist. As weeping tiles exist below the surface of the ground, it is difficult to determine whether or not a weeping tile is connected to the City's sanitary sewer system. In order to confirm a weeping tile connection, a dye testing procedure is required. Such a dye test is not easily accomplished. One method involves discharging a large quantity of dye outside of the home's foundation wall, followed by the application of a large volume of water, to ensure the dye enters the weeping tile located 2 meters or more below the surface of the ground. Confirmation is achieved when the dye is witnessed in a downstream sanitary sewer manhole, most often located in the municipal roadway. This method is time consuming, messy, and potentially ineffective on weeping tiles with blockages of any kind. A second method requires a flexible camera to be

inserted through an existing basement cleanout, floor drain, toilet, or shower drain. Considering the estimated 50,000 connections, regardless of the method applied, these tests would require accessing private property, which adds a host of potential challenges and complexities associated with logistics. It would be very time intensive, and possibly cost prohibitive, to develop a highly accurate list of homes with a weeping tile connection.

In addition, prior to program implementation, which would include a holistic public participation program in order to create the charge, and a public education and communication program to ensure property owners are familiar with the reasons behind the new initiative and options available to them, a substantial investment of time, effort and expense on the City's part would be required

The current annual budget for the Basement Flooding Grant Program is \$100,000 annually; however, the program receives a financial boost to \$500,000 every fourth year. It is anticipated that implementing a weeping tile connection charge would result in significant uptake in the City's Basement Flooding Grant Program beyond the current budget amount. To offset the anticipated influx of interested property owners wanting to take advantage of this program, a significant budget increase to the grant program would be required. For example, if the remaining properties with weeping tile connections applied for the subsidy over the next 10 years, then funding for an additional 5,000 properties per year would be required. At a cost of approximately \$4,340 per property, minimum, the Basement Flooding Grant Program would require an additional \$21.7 million dollars annually to disconnect 5,000 buildings per year.

### **Moving Forward**

In an extensive Flooding Matters Report, presented to the Civic Works Committee on June 8, 2016, administration confirmed the City of London's basement flooding program is robust, in that it offers a number of viable solutions to property owners experiencing basement flooding conditions. Further to that report, and as confirmed in the last Flooding Matters Civic Works Committee Report on December 12, 2016, administration continues to seek more effective and efficient ways that not only bring public awareness around basement flooding issues in the City of London, but introduce property owners to mitigating measures that greatly minimize risk. Simultaneously, and following the success of a pilot project in the Sherwood Forest area, the Wastewater and Drainage Engineering Division continues to drive its Foundation Drain Disconnect Program, targeting very specific neighbourhoods with known chronic flooding conditions. On May 9, 2017, a recommendation was made and endorsed by municipal council to increase the maximum upset limits from 75% to 90% within the City's Basement Flooding Grant Program, with the hope of realizing a greater uptake of property owners. Accurate confirmation of such an increase in participation cannot be made until the next time the City receives a short duration, high intensity rainfall event. While the concept of developing and implementing a financial disincentive program does not appear to be desirable, administration continues to commit its time and effort to explore additional preventative measures with the intention of reducing the number of basement flooding occurrences through property owner participation in the City's Basement Flooding Grant Program.

## **CONCLUSION**

In addition to the 22 initiatives introduced in a Civic Works Committee meeting on July 18, 2016, Council directed administration to explore potential changes to the water rate to reflect a rate for those with weeping tiles connected to the sanitary sewer system. As noted above, developing a specific rate for homes with weeping tile connections is likely to be effective, but would be administratively difficult to implement, and it is anticipated

to have marginal to significant social impact. That said, administration continues to invest time and effort to explore new opportunities and enhancements to current best practices that will provide great benefit to our customers experiencing basement flooding conditions.

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