

Date: **February 23, 2018**

To: **Public Works and Infrastructure Committee**

From: Debra Satok

Re: **PW27.4 Feasibility of Ensuring the Disconnection of Sanitary and Storm Laterals at the Time of Demolition**

Summary

I write to you regarding the Report from the General Manager, Toronto Water regarding the feasibility of capping the laterals at the time of demolition.

I submit to you that the report submitted does not accurately analyze the true impact of infiltration resulting from uncapped laterals nor does it attempt to quantify the cost uncapped abandoned laterals represents to the city of Toronto.

Recommendation

Ask Toronto Water to report back on the following:

- 1) What is the total cost of infiltration annually to the city of Toronto? In 2007 it was reported as **\$1.8 billion**.
- 2) Assuming that at a minimum 5% of laterals do not ever get capped as stated in this report, what is the cost annually of this infiltration to the city of Toronto and what is the cumulative impact?
- 3) Since Toronto Water cannot account for an additional 16% of abandoned laterals per year as outlined below, what would the cost of 21% of all laterals permanently remaining open after demolition be annually to the city of Toronto?
- 4) What is the cost to the city of Toronto of uncapped abandoned laterals from demolition of buildings for redevelopment of industrial, commercial, institutional and multi-residential properties?
- 5) What would the cost be to have an independent consultant review the current process for capping laterals and the alternatives and provide a report to council?

Background

Toronto Water has done an admirable job simplifying the role laterals play in conveying wastewater or stormwater from a building to the city's sewer main. They have described the process by which they believe these laterals are capped when homes are demolished, and the pipe is no longer needed.

What they haven't described is the cost that unnecessary infiltration into our sewers has, not only on the city's operating budget, but on the impact to single family homes when they are flooded. Because, let's face it, homes only flood during heavy rains and that is because water that doesn't belong in our sewers is getting in.

What they also have not reported is that despite the fact that in many neighbourhoods where single-family homes that previously had foundation drains and downspouts connected to the

sewers have been demolished, thereby eliminating the source of groundwater, the evidence of infiltration and not coincidentally basement flooding has actually increased.

They also have not shared that finding uncapped laterals is actually very difficult to do. That is because a CCTV camera in the sewermain cannot usually detect them.

They also failed to mention that once a home has been demolished and the surrounding ground disturbed by the new home construction, it is far more difficult to locate the abandoned lateral and cap it. Toronto Water's historical records just aren't that accurate through no fault of the current administration. It is far easier to locate and cap the laterals prior to the demolition of a home.

Also true, is that despite the millions of dollars spent on basement flooding studies, consultants hired are **not** instructed to look for uncapped laterals. I have been told by members of Toronto Water that this is because they don't think it's important. When I approached a consultant and shared this statement, they thoroughly disagreed and were shocked when I told them of Toronto Water's policy of not capping laterals prior to demolition; they simply had no idea.

In fact, I have had dozens of conversations with engineers from around the country who all expressed bewilderment and consternation at this policy. Yet, to my dismay, none are willing to put their careers on the line and take on the city of Toronto.

Comments Pertaining to the Report

1. Toronto Water has acknowledged that homes can have a single connection to the sanitary sewer, or two connections, one to the sanitary and one to the storm sewer. However, for the remainder of the analysis provided they have discussed only the impact of uncapped laterals connected directly to sanitary sewers. Since most storm sewers within the city are operating below targeted 1/100 year storm levels, and the cost of increasing capacity is often beyond the city's \$32,000 per benefitting property threshold, it behoves them to consider the impact as well.
2. The report readily acknowledges that 5% of laterals do not **EVER** get capped and suggests that this is because the location of the sewer service connection could not be found when connected to a double sewer connection, or because they were unable to determine which connection was active. In either case, this is unacceptable.
 - i) For shared connections, the only method of capping the laterals is on private property, beyond the public road allowance. A change in the bylaws requiring contractors to cap the lateral prior to demolition would be required to address this issue.
 - ii) Given the depth of the lateral connection, it is understandable that after demolition it can be challenging to find the location and properly cap it. A change in the bylaws requiring capping prior to demolition would alleviate this issue.

- Table 3 from the report illustrates the number of demolitions versus applications for site servicing but fails to calculate the **percentage of applications where no contract to cap the laterals exists**. I have updated this table with percentage calculations to demonstrate the significance of this issue.

Table 3 Revised

Year	Demolition Permits Issued by Toronto Building-Residential Buildings	Single-Family Residential Applications for Site Servicing (including Capping Laterals)	Percentage of Homes Demolished with Laterals Capped
2014	1178	905	76%
2015	1285	1118	87%
2016	1224	1093	89%
2017	1165	962	82%
Average			84%

These statistics provided by Toronto Water suggest that an alarming 16% of all properties demolished in the city of Toronto do not follow the current procedural guideline and likely **NEVER GET CAPPED!** This combined with the 5% of properties previously acknowledged to be left uncapped, means 21% of all properties demolished annually **DO NOT GET CAPPED, EVER!**

- The report acknowledges that residential properties that are demolished have laterals that remain open on average for 121 calendar days but fails to quantify the impact of this to our sewer shed. Certainly, in areas with a high-water table, the amount of ground water that is able to enter the sanitary or storm sewers could be quite significant.
- Open laterals represent significant **health hazards** as surcharging conditions brought on by heavy rains will cause untreated sewage to flow out of these openings to the ground beneath the home. Some of this waste water will then be picked up by nearby weeping tiles to be discharged to either storm sewers, sanitary sewers, combined sewers or the homeowners' lawns. Waste water entering the storm sewer system does not get treated but flows instead to open bodies of water. Waste water pumped to grade will enter unknowingly to residents' gardens.
- The report refers to two area-specific I&I studies (**Basement Flooding Study Area 9 I&I Study and Wirral Court Pumping Station (Phase 1 Pilot) I&I Reduction Study**) recently completed. According to the report, the two studies did not identify groundwater infiltration contributions from private sewer service connections as main contributors of I&I to the sanitary system.

In Study area 9 sited, flooding was found to occur primarily in areas where houses were built in the **1950s** (see attached), and as such the number of uncapped laterals would be very few. Only homes that have been redeveloped have the potential for uncapped laterals.

Neither of the study areas sited are significant to the issue at hand. Simply put, only neighbourhoods with high rates of redevelopment or infill will have a problem with uncapped laterals impacting the sewer shed. We know from historical findings that EA18 found such problems in Ward 16 which in the period 2010-2017 based on the city's open source data has about 4 times more permits for demolition than either of the two study areas (925 vs 244(first study area) and 219(second study area)).

7. The report states that the disconnection of laterals when undertaken is done by “severing and capping, plugging, or clamping the pipe **at its connection point to the sewer main**”. This is in fact not true. I have witnessed at least half a dozen laterals being capped and in none of these circumstances was it done at the sewer main. Instead it is done usually at the curb, regardless of where this point is in relation to the sewer main. Contracts with third party companies do NOT stipulate the location of the cap allowing these contractors to select the easiest point to access. This may seem to be an unimportant and technical detail, but it is one that is important to understand as it impacts Toronto Water's ability to find laterals that are not capped or ones whose cap has loosened or slipped off.
8. Notable in the jurisdictional review of other city's capping policies, is that Toronto Water could only find two that follow the same procedure (Markham and Calgary). In contrast almost every other city in North America mandates that prior to demolition, the lateral be capped. Why are so many other cities doing it this way? Because it is the industry BEST PRACTICE.

According to the BEST PRACTICES of the Ontario Regional Common Ground Alliance (ORCGA), a growing organization with over 530 active stakeholders who advocate for prevention of damage to underground infrastructure, and its parent organization the Canadian Common Ground Alliance (CCGA) “municipalities shall have a process requesting that the demolition permit applicant receives confirmation of all utility disconnects prior to issuing the demolition permit.” (see attached).

9. The assessment of options acknowledges that the only way to eliminate infiltration to the sewer shed from uncapped laterals is to cap them prior to demolition. The disadvantages are either all administrative or cost related. Since the homeowner will be responsible for costs associated with the capping, any cost implications should be discounted. Further, failing to do the right thing because it is perceived to be administratively burdensome, is fundamentally wrong. How is it that other similarly sized cities manage to do the right thing?

Conclusion

This report contains inaccuracies, unfair comparisons, and lacks quantitative analysis.

Given the preponderance of cities in North America that choose to mandate that lateral connections to the sewer be capped prior to demolition, it is evident that a thorough, objective assessment is required to accurately and appropriately assess BEST PRACTICES for the city of Toronto.

It may seem a small thing. Demolish a single-family home and wait 121 days on average until the hole left in the lateral pipe leading to the sewers is capped, if it is capped at all. Unfortunately, even small things can make a big difference when it comes to preventing basement flooding and trying to improve our cities resiliency.

Sincerely,

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*Basement Flooding Study Area 9
Project File Report*



STUDY OVERVIEW

2. STUDY OVERVIEW

2.1 Description of Study Area

Study Area 9, shown in Figure 2.1, is located in the former City of Etobicoke in Ward 3 – Etobicoke Central. The area is centred on Burhamthorpe Road and Renforth Drive, south of Rathburn Road, north of Bloor Street West, west of Elmcrest Creek and east of The West Mall. The study area is approximately 46 hectares and consists of 1,505 residential properties developed largely before 1960 in the mid to late 1950's.

The area where flooding has occurred is predominately single-family detached residential housing constructed in the late 1950's. Connection records for the area and historical connection practices indicate foundation drains are likely connected to the sanitary system. Based on the downspout survey approximately 80% of downspouts are disconnected and discharged to the surface. Homes identified to have downspouts that discharge underground are believed to be connected to the storm system based on available connection card information. There were 12 reverse driveways identified in the area. The sanitary system generally flows southwest toward Saturn Road and Boreal Road where it discharges into the Elmcrest Creek Sanitary Trunk Sewer. The Elmcrest Creek Trunk Sewer is located west of Area 9, flows south combining with the Etobicoke Creek and Long Branch Sanitary Trunk Sewers and ultimately conveying flows to the Lakeview Wastewater Treatment Plant.

Canadian Common Ground Alliance Best Practices p. 23

1-18: Demolition Permit Application Process

Practice statement: The Municipality shall have a process requesting that the demolition permit applicant receives confirmation of all utility disconnects prior to issuing the demolition permit.

Practice Description: The Municipality shall request that the applicant makes arrangements with the appropriate utilities for the termination and capping of all the water, sewer, gas, electric, telephone, cable or other facilities/services. Furthermore, the Municipality should indicate on the demolition permit that locates should be obtained from utilities prior to the demolition beginning.