Lisgar District Basement Water Infiltration Investigation
Answers to Residents Written Questions Received by Councillors Ward 10 Office

Part A – Answers to Technical Questions

1. *There has been a tremendous amount of work done everywhere along the creek. If there was nothing wrong with the system, then why was all this work done?*

The recent work performed along the creek by the City was undertaken as a pro-active measure until the City is able to determine whether a connection exists between the creek and basement water infiltration. Based on the consultant's study findings to-date, there has been no evidence to indicate that the creek is the primary or direct cause of basement water infiltration.

2. *As we know vegetation helps soak up excess water as well as to prevent soil runoff after rainfall. However, with all the tree clearing and bulldozing of the reeds in and around Doug Leavens Blvd, what will be done to restore the cleared vegetation and older growth trees that were removed in order to prevent the creek from filling back up with soil and silt?*

Vegetation management within the channel corridor needs to be balanced between encouraging natural growth and ensuring that channel flow capacity is not limited or adversely affected by vegetation growth. The primary purpose of the work at Doug Leavens Blvd. was to remove accumulated sediment from within the three culvert openings and directly upstream and downstream of these culverts, with the objective of improving flow capacity through the channel corridor at this location. In order to achieve this objective, some vegetation (i.e. reeds, cattails, and shrubs) needs to be removed.

When work is completed and weather/creek conditions allow, topsoil and a native seed mix consisting mainly of grass varieties will be planted in the disturbed areas. Any established trees that have been removed will be replaced within the channel corridor at appropriate locations. To-date, one tree has been removed downstream of the bridge as it was affecting the creek flow path which in turn was significantly eroding the creek bank near the pedestrian path. Shrubs which had become embedded in the bridge structure were also removed to mitigate the potential for any damage to the structure.

3. *Some measures have been implemented (dredging the creek liners, removing vegetation, etc.) - if these measures are necessary to prevent stormwater surges and flooding, what is the plan for maintaining these measures, or other measures designed to prevent flooding?*

The purpose of the creek work was to improve flow capacity within the creek corridor by removing accumulated sediment and vegetation at specific locations. This creek work is not necessarily "*preventing stormwater surges and flooding*" as there has been no evidence to-date which indicates that the creek is the primary or direct cause of basement water infiltration. However, one of the intentions of this work is to generally increase flow velocities in the creek corridor and thereby lessen the rate of sediment accumulation in the system. All creek maintenance activities performed to-date have been completed with this purpose in mind, and will continue to be monitored and re-evaluated to ensure the performance of the creek work is maintained.

4. *I disagree with removing trees and consider this a window dressing solution. Notably many willows and poplars were removed, which are both water-loving species and should help manage stormwater, not negatively impact it. Please explain the rationale for this action.*

The number of trees removed as part of the channel work was relatively small. These trees were only removed where infrastructure was at-risk (i.e. pedestrian pathways, bridge footings, etc.) or where access was required to perform the creek work.

5. *What is the impact of the 9th Line Lands that are often flooded and is the City monitoring the water levels in this land to optimize their floodplain capacity?*

As part of the additional monitoring activities, it has been proposed to monitor water levels within both the Osprey Marsh SWM facility and the receiving watercourse downstream (tributary to the Sixteen Mile Creek main branch), in order to determine if there is any effect upon the performance of the overall storm drainage system.

6. *What is the original footprint of the 16 Mile Creek transposed over the present residential footprint of Lisgar?*
7. *Has the 16 Mile Creek path/route been changed in any way over the years within Lisgar and outside of Lisgar?*

The Sixteen Mile Creek tributary that runs through the Lisgar district (which outlets to the Osprey Marsh SWM Facility) does not follow its original historic alignment. Sections of the creek have been realigned over time for various reasons. Any historic changes in the path of the main branch of Sixteen Mile Creek (beyond the immediate vicinity of the Lisgar District) have not been assessed as part of the current study. The assessment to date shows no correlation between the former path of the creek and its tributaries and the homes experiencing basement water infiltration.

8. *AMEC did a detailed study for the Town of Milton regarding the 16 Mile Creek. Where can this information be accessed?*

Inquiries about AMEC studies relating to Sixteen Mile Creek which were commissioned by the Town of Milton should be directed to the Town of Milton.

9. *How many "significant rainfalls" have occurred in the Lisgar area since the October 2011 flood of almost 200 homes?*

The definition of a “significant rainfall” is somewhat variable, and can be locationally dependent (particularly for summer thunderstorm type events). It should also be noted that the storm events that have been noted to cause basement infiltration in the past have varied considerably in terms of type and magnitude.

Notwithstanding, based on Environment Canada’s Pearson Airport Rainfall gauge, the October 19-20, 2011 storm event had a total 2-day rainfall of 51 mm (1-day average of 25 mm). Using this total as a guide, there have been six storms since that event which have had a 1-day total greater than 25 mm, two of which resulted in reported basement water infiltration (November 29, 2011, and January 13, 2013). None have resulted in the same extent of surface flooding and basement water infiltration as was reported for the October 19-20, 2011 storm event.

10. What has changed in Lisgar since 2009 to cause the flooding problems?

The primary source(s) of basement water infiltration have not yet been determined. The City is continuing its efforts to identify potential source(s) through further analysis and testing. The presentation offers insight into possible changes affecting system performance in Lisgar.

11. What connects the streets that have been flooded? Is it the FDC locations? Engineering of the roads? Pathways or the flow of water from the west?

The connectivity of the different systems as related to surface flooding and/or basement water infiltration continues to be investigated. Different areas of the Lisgar district have experienced surface flooding and/or basement water infiltration for different storm events in different locations. The primary source(s) have not yet been determined, and there may be several different causes/factors of water infiltration.

12. What is the current capacity of the system?
13. What is the capacity of the 3 water/sewer systems that are unique to Lisgar and what was the capacity designed to withstand?

The FDC sewer system was designed with the typical standard of 0.075 litres/second/unit. Storm sewers were designed to a 2-year storm event standard. The overland drainage system (in combination with the storm sewer system) was designed to a 100-year storm event standard.

The sanitary sewer is designed based on population and the size of the development. Water consumption is 302.8 litres/day/person and 0.2 litres/second/hectare is used for inflow and infiltration. A peaking factor is calculated to determine peak flows in the sanitary sewer. The sanitary sewers in the Region of Peel are designed for 80% pipe full capacity for peaks.

The flow capacity of the four systems (FDC, Sanitary/Water and storm) in the Lisgar area is within these design standards.

With respect to the use of the word “unique” in Question 18, please note that the 3-pipe system is not unique to the Lisgar Area of the City. It can be found in a number of other GTA municipalities, as well as other Canadian and American municipalities.

14. Why was Lisgar developed with the 3 water/sewer systems?

The reasons for the construction of the 3-pipe system have been provided in the public presentation, and are summarized as follows:

- Gravity drainage (of foundations) to the Sixteen Mile Creek tributary is not possible since the creek is too shallow (deep storm sewer typically required if used to drain foundations)
- Alternatively sump pumps must always be maintained in good operating condition and also require a continuous supply of electricity
- Alternatively millions of cubic metres of material would need to be brought into area to elevate the land on average 1.5 m +\-, which is not practical

15. *If there is no easy/quick resolution to the flooding problems in the area, could the City at least provide a guide to waterproofing your basement (eg, laying down tiles, rubberizing the perimeter or other technical options)? It would help residents to deal with future flooding if it occurs.*

Suggestions for homeowners to mitigate potential future infiltration of water into the basements have been provided in the public presentation. These include: sealing cracks and waterproofing, installation of sump pumps, and improving lot grading. Further details on basement flood prevention can be found at the website for the Institute for Catastrophic Loss Reduction (http://www.basementfloodreduction.com/) and through private drainage contractors.

16. *Will there be ongoing (eg forever) maintenance of the creek?*

The monitoring and maintenance of creeks is a practice that the City undertakes on all of its watercourses. The work performed to-date within the creek corridor will continue to be monitored and re-evaluated on an on-going basis to assess the need for additional work at these locations. Regular maintenance within the creek corridor (i.e. wood/urban debris removal, trimming fallen branches, removing obstructions, etc.) will continue to be performed where necessary.

17. *On a personal note, I back onto the bridge at Doug Leavens and Alderwood. Dredging activities took place a few weeks ago. A small hill of mud was deposited directly behind my property creating a barrier for water run-off from my property.... when will this be removed? I support the dredging but don't want new issues created.*

The excess material has been removed off-site.

18. *What has been done to ensure stormwater is managed effectively going forward?*

As outlined in the presentation, the City is continuing its efforts to determine the source(s) of water infiltration into basements, and will take the necessary measures to address the issue once this has been determined. As part of this effort, the City will continue to monitor water levels in the FDC system, Sixteen Mile Creek system, and Osprey Stormwater Management Facility. Additional future work will include placing groundwater monitors in the bedding of FDC/sanitary sewer laterals, conducting storm sewer dye and leakage tests at strategic locations, and completing CCTV and smoke/dye testing of FDC. Once the results of the next phase of investigation are known, further physical works will be investigated by the City.

19. *Now that the Lisgar area has had multiple, widespread flooding incidents, what will be the City response to any flooding, particularly in the Lisgar area?*

The City of Mississauga has established a Flood Response Team that is placed on stand-by following a High Water Bulletin announcement from the Conservation Authority. The Flood Response Team's main objective is to monitor water levels within the Foundation Drain Collector system.

Once a High Water Bulletin has been issued, members of the Flood Response Team follow a High Water Level Protocol which includes the co-ordination of Emergency forces to set-up and man pumps at three key locations to help relieve flows from the Foundation Drain Collector system (if required).

The Flood Response Team will also inspect outlets, bridges and catch basins to ensure they are operating properly.

20. *How many homes participated in the backwater valve program? Were any of the participating homes affected by stormwater after installation?*

Seven backwater valve subsidies were granted by the Region of Peel to homes in the Lisgar/Black Walnut area. The Region indicated that no basement water infiltration issues were reported from the floor drain (which is attached to the sanitary sewer) after backwater valves were installed on the sanitary lateral under the backwater valve subsidy program.

Part B – Answers to Claims Questions

21. *Will we as homeowners be given a copy of all reports from all parties involved with the investigation, recommendations and outcomes?*

Due to on-going legal action against the City in relation to the water infiltration investigation, the City will not be releasing any reports regarding the basement water infiltration investigation.

The public presentation including responses to written questions received from residents will be posted to the City's web page following the public presentation.

22. *Obviously, everyone will be asking about our insurance claims - is the City going to address this at the meeting? It is very simple - was the City at fault or not?*

The status of our open claim files was addressed in the presentation and we will continue to search for the cause or causes of the water infiltration in order to determine how best to move forward with these claims.

23. *As homeowners, who were affected by the floods, is it guaranteed that this will not happen again and do we need to be concerned about future selling of our homes? Are we obligated to report this/these incidents on a home listing in the City of Mississauga?*

The City is continuing efforts to address the issue of basement water infiltration with the intention of minimizing the likelihood of re-occurrence, however, there is no guarantee that incidents such as this will not occur again, whether within the Lisgar district or anywhere else in the City for that matter.

A real estate lawyer should be consulted concerning any potential duties to disclose prior water infiltration events to prospective buyers.

24. *I was asked to file a claim for damages as a result of the flood in Oct. 2011 and the response back on 04/25/12 references being patient through the consultants report due to the city.*
25. *Will the City compensate homeowners affected by flooding?*

Based on the basement water infiltration study findings to-date, we are continuing to search for the cause or causes of water infiltration into the basements in the Lisgar district. Unless the legal test for liability against the City is met, there is no justification for paying out any claims associated with the basement water infiltration in the Lisgar district. If our continued efforts to find the causes uncover proof of negligence, the City will then be able to address all reported damage claims.

26. Will the City cover full costs for sump pumps and installation for homeowners who wish to use such preventive measures?

City staff will be recommending a Sump Pump Subsidy Program to assist homeowners who have reported basement water infiltration. The program would consist of a subsidy with a maximum allowable amount (cost-shared between the City and the homeowner) and subject to a drainage inspection. This program is subject to Council approval.

27. What is the City response to the LRA Deputation?

Clarification regarding this question was requested through the Councillor's Ward 10 office, but was not received prior to the public meeting.