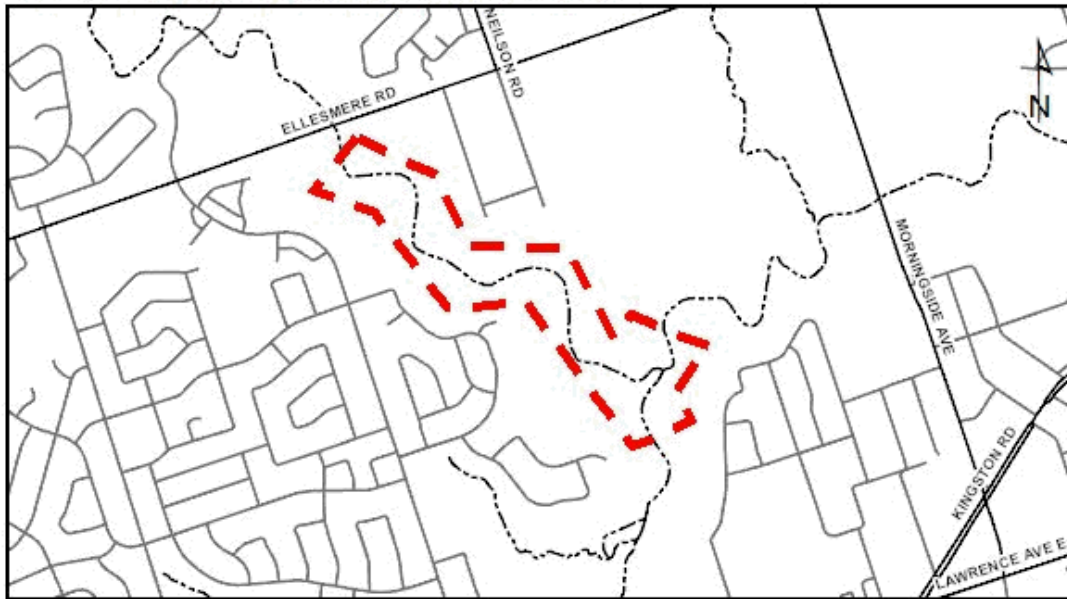


## CITY OF TORONTO (SCARBOROUGH COMMUNITY COUNCIL AREA)

### 10.6 CITY OF TORONTO

To construct - reconstruct - erect or place a building or structure, site grade, temporarily or permanently place - dump or remove any material - originating on the site or elsewhere, alter a watercourse on Highland Creek Valley Segment 8 downstream of Ellesmere Road near Morningside Avenue, in the City of Toronto (Scarborough Community Council Area), Highland Creek Watershed as located on the property owned by City of Toronto. The purpose is to Complete restoration work within East Highland Creek Valley Segment 8. The coldwater construction timing window of September 16th to June 15th applies to this project.

**MAP LOCATION:** East Highland Creek Valley Segment 8 Restoration



The permit will be issued for the period of January 10, 2020 to January 9, 2022 in accordance with the following documents and plans which form part of this permit:

- **Sheet No. 1 of 26; Drawing No. GP-1; East Highland Creek – Segment 8, Channel Restoration, City of Toronto; General Plan – Existing Conditions; prepared by Aquafor Beech Limited on behalf of City of Toronto; Revision No. 6; dated November 28, 2019; received by TRCA on December 10, 2019;**
- **Sheet No. 2 of 26; Drawing No. GP-2; East Highland Creek – Segment 8, Channel Restoration, City of Toronto; General Plan – Proposed Works; prepared by Aquafor Beech Limited on behalf of City of Toronto; Revision No. 6; dated November 28, 2019; received by TRCA on December 10, 2019;**
- **Sheet No. 3 of 26; Drawing No. GP-3; East Highland Creek – Segment 8, Channel Restoration, City of Toronto; General Plan – Proposed Works; prepared by Aquafor Beech Limited on behalf of City of Toronto; Revision No. 6; dated November 28, 2019; received by TRCA on December 10, 2019;**
- **Sheet No. 4 of 26; Drawing No. PP-1; East Highland Creek – Segment 8, Channel Restoration, City of Toronto; Plan and Profile – Proposed Works; prepared by Aquafor Beech Limited on behalf of City of Toronto; Revision No. 6; dated November 28, 2019; received by TRCA on December 10, 2019;**

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- Sheet No. 5 of 26; Drawing No. PP-2; East Highland Creek – Segment 8, Channel Restoration, City of Toronto; Plan and Profile – Proposed Works; prepared by Aquafor Beech Limited on behalf of City of Toronto; Revision No. 6; dated November 28, 2019; received by TRCA on December 10, 2019;
- Sheet No. 6 of 26; Drawing No. GP-4; East Highland Creek – Segment 8, Channel Restoration, City of Toronto; General Plan – Proposed Works; prepared by Aquafor Beech Limited on behalf of City of Toronto; Revision No. 6; dated November 28, 2019; received by TRCA on December 10, 2019;
- Sheet No. 7 of 26; Drawing No. PP-3; East Highland Creek – Segment 8, Channel Restoration, City of Toronto; Plan and Profile – Proposed Works; prepared by Aquafor Beech Limited on behalf of City of Toronto; Revision No. 6; dated November 28, 2019; received by TRCA on December 10, 2019;
- Sheet No. 8 of 26; Drawing No. PP-4; East Highland Creek – Segment 8, Channel Restoration, City of Toronto; Plan and Profile – Proposed Works; prepared by Aquafor Beech Limited on behalf of City of Toronto; Revision No. 6; dated November 28, 2019; received by TRCA on December 10, 2019;
- Sheet No. 9 of 26; Drawing No. XS-1; East Highland Creek – Segment 8, Channel Restoration, City of Toronto; Cross - Sections; prepared by Aquafor Beech Limited on behalf of City of Toronto; Revision No. 6; dated November 28, 2019; received by TRCA on December 10, 2019;
- Sheet No. 10 of 26; Drawing No. XS-2; East Highland Creek – Segment 8, Channel Restoration, City of Toronto; Cross- Sections; prepared by Aquafor Beech Limited on behalf of City of Toronto; Revision No. 6; dated November 28, 2019; received by TRCA on December 10, 2019;
- Sheet No. 11 of 26; Drawing No. XS-3; East Highland Creek – Segment 8, Channel Restoration, City of Toronto; Cross-Sections; prepared by Aquafor Beech Limited on behalf of City of Toronto; Revision No. 6; dated November 28, 2019; received by TRCA on December 10, 2019;
- Sheet No. 12 of 26; Drawing No. CD-1; East Highland Creek – Segment 8, Channel Restoration, City of Toronto; Construction Details - 1; prepared by Aquafor Beech Limited on behalf of City of Toronto; Revision No. 6; dated November 28, 2019; received by TRCA on December 10, 2019;
- Sheet No. 13 of 26; Drawing No. CD-2; East Highland Creek – Segment 8, Channel Restoration, City of Toronto; Construction Details - 2; prepared by Aquafor Beech Limited on behalf of City of Toronto; Revision No. 6; dated November 28, 2019; received by TRCA on December 10, 2019;
- Sheet No. 14 of 26; Drawing No. CD-3; East Highland Creek – Segment 8, Channel Restoration, City of Toronto; Construction Details - 3; prepared by Aquafor Beech Limited on behalf of City of Toronto; Revision No. 6; dated November 28, 2019; received by TRCA on December 10, 2019;
- Sheet No. 15 of 26; Drawing No. TI; East Highland Creek – Segment 8, Channel Restoration, City of Toronto; Tree Inventory -1; prepared by Aquafor Beech Limited on behalf of City of Toronto; Revision No. 6; dated November 28, 2019; received by TRCA on December 10, 2019;
- Sheet No. 16 of 26; Drawing No. CN-1; East Highland Creek – Segment 8, Channel Restoration, City of Toronto; Construction and ESC Notes; prepared by Aquafor Beech Limited on behalf of City of Toronto; Revision No. 6; dated November 28, 2019; received by TRCA on December 10, 2019;
- Sheet No. 17 of 26; Drawing No. AS; East Highland Creek – Segment 8, Channel Restoration, City of Toronto; Access and Staging; prepared by Aquafor Beech

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Limited on behalf of City of Toronto; Revision No. 6; dated November 28, 2019; received by TRCA on December 10, 2019;

- Sheet No. 18 of 26; East Highland Creek – Segment 8, Channel Restoration, City of Toronto; Construction Staging – Phase 1 & 2; prepared by Aquafor Beech Limited on behalf of City of Toronto; Revision No. 5; dated November 28, 2019; received by TRCA on December 10, 2019;
- Sheet No. 19 of 26; East Highland Creek – Segment 8, Channel Restoration, City of Toronto; Construction Staging Plan – Phase 2 & 3; prepared by Aquafor Beech Limited on behalf of City of Toronto; Revision No. 5; dated November 28, 2019; received by TRCA on December 10, 2019;
- Sheet No. 20 of 26; East Highland Creek – Segment 8, Channel Restoration, City of Toronto; Construction Staging – Phase 5 & 6; prepared by Aquafor Beech Limited on behalf of City of Toronto; Revision No. 5; dated November 28, 2019; received by TRCA on December 10, 2019;
- Sheet No. 21 of 26; East Highland Creek – Segment 8, Channel Restoration, City of Toronto; Construction Staging – Phase 1 & 2; prepared by Aquafor Beech Limited on behalf of City of Toronto; Revision No. 5; dated November 28, 2019; received by TRCA on December 10, 2019;
- Sheet No. 22 of 26; East Highland Creek – Segment 8, Channel Restoration, City of Toronto; Construction Staging – Phase 3 & 4; prepared by Aquafor Beech Limited on behalf of City of Toronto; Revision No. 5; dated November 28, 2019; received by TRCA on December 10, 2019;
- Sheet No. 23 of 26; East Highland Creek – Segment 8, Channel Restoration, City of Toronto; Construction Staging – Phase 5 & 6; prepared by Aquafor Beech Limited on behalf of City of Toronto; Revision No. 5; dated November 28, 2019; received by TRCA on December 10, 2019;
- Sheet No. 24 of 26; Drawing No. RP-1; East Highland Creek – Segment 8, Channel Restoration, City of Toronto; Restoration Plan - 1; prepared by Aquafor Beech Limited on behalf of City of Toronto; Revision No. 6; dated November 28, 2019; received by TRCA on December 10, 2019;
- Sheet No. 25 of 26; Drawing No. RP-2; East Highland Creek – Segment 8, Channel Restoration, City of Toronto; Restoration Plan - 2; prepared by Aquafor Beech Limited on behalf of City of Toronto; Revision No. 6; dated November 28, 2019; received by TRCA on December 10, 2019;
- Sheet No. 26 of 26; Drawing No. RD-1; East Highland Creek – Segment 8, Channel Restoration, City of Toronto; Restoration Details - 1; prepared by Aquafor Beech Limited on behalf of City of Toronto; Revision No. 6; dated November 28, 2019; received by TRCA on December 10, 2019.

### **RATIONALE**

The application was reviewed by staff on the basis of the following information:

#### Proposal:

The City of Toronto is proposing to complete restoration works within East Highland Creek Valley - Segment 8. The project is located southwest of Morningside Avenue and Ellesmere Road.

City of Toronto completed Wet Weather Flow Master Management Plan (WWFMMP) study in 2003 to address concerns regarding systemic Highland Creek channel instability and frequent infrastructure exposure along Highland Creek. In response, an Environmental Assessment was

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undertaken for Highland Creek Valley Segment 8 and completed in 2006, providing the design framework for all of Valley Segment 8, south of Ellesmere Road. The City of Toronto also initiated the Highland Creek Geomorphic Systems Master Implementation Project (HCGSMIP) following the WWFMMP study. The project included a geomorphic study, a physical habitat study, a detailed infrastructure risk assessment, and an End-Of-Pipe Confirmation study. A key outcome of the HCGSMIP was a detailed strategy for stream restoration, an implementation schedule for stream restoration works, and a detailed evaluation of site constraints. The implementation schedule provides a pro-active strategy for addressing erosion concerns before they become emergencies and identifying anticipated financial budgeting to enable appropriate fiscal planning for any required remedial works.

Valley Segment H8 is the most downstream valley segment of the East Branch of Highland Creek. This segment is supplied upstream by Valley Segments H7 (the Malvern Branch) and H4a (the Markham Branch). Results of field investigations and risk assessment have identified the largest magnitude of problems within Valley Segment H8, including: multiple sanitary crossings have been exposed by the channel bed; several manholes and segments of sanitary trunks are at risk of lateral channel migration; various bank protection treatments have failed; active erosion is apparent at various banks and valley wall impingements; protection around an outfall has failed; and fish barriers caused by man-made channel structures exist.

The proposed works for this permit aim to complete restoration works within East Highland Creek Valley Segment 8. The works are being completed in two phases. The first phase is located at the confluence of the East and West branches of Highland Creek, including Reaches 4, 5, & 6 (500m channel restoration). The second phase is located on East Highland Creek including Reaches 1 and 2 (570m channel restoration). The channel is being regraded with stabilized riffles and armourstone rib structures, raising bed elevations to increase cover over sanitary trunk sewer crossings. The bed profile has been designed to incorporate pool-riffle sequences. The MH8 to MH9 sewer crossing is being structurally encased, and the MH1 to MH20 sewer crossing encasement is being replaced. Armourstone retaining walls are being extended and added to minimize risk of lateral erosion. All disturbed areas will be restored with native trees and shrubs, and two areas have been identified for additional habitat restoration, including creation of floodplain terraces and pocket wetlands.

Construction will be completed in the sections as indicated on the drawings. In-channel works will be performed so as no equipment will drive on placed bed or bank material. During all works, the contractor is responsible to ensure flow is routed around the working area. This will be performed through construction of bypass channels, diverting the creek between the upstream and downstream extents of the active work area. An assessment of current conditions immediately before start of construction will be collected and transferred further downstream by qualified personnel after being issued a License to Collection Fish for Scientific Purposes by the Ministry of Natural Resources and Fisheries.

### Control of Flooding:

The increases in Water Surface Elevation are considered negligible and are contained within the valley.

### Pollution:

Erosion and sediment control measures have been provided in accordance with the Ontario Government Publication, Guidelines on Erosion and Sediment Controls for Urban Construction Sites (2006).

## Item 10.6

### Dynamic Beaches:

Not applicable.

### Erosion:

Proposed works include a number of bank stabilization and erosion control features throughout the extent of the study area, such as extending armourstone retaining walls and placing rip-rap on steep slope surfaces. The final slope surface will be vegetated with suitable native non-invasive species and maintained with erosion control blankets until established. Valley toe erosion will be protected with a vegetated buttress. Erosion and sediment control measures should be used throughout the construction process and for two year post-construction.

### Conservation of Land:

The coldwater construction timing window of September 16th to June 15th applies to this project.

### *Plantings*

Following completion of construction, disturbed areas will be restored using native trees, shrubs, and seed mixes. It is recommended that disturbed areas along the riparian corridor is planted with trees at a ration of 1000 trees/ha, and five shrubs are planted for every tree planted. Disturbed meadow, thicket, and forest communities should be seeded with herbaceous species appropriate to the respective vegetation community disturbed.

### Policy Guidelines:

This proposal complies with *Section 8.9*Infrastructure Policies of the Living City Policies for Planning and Development in the Watersheds of the Toronto and Region Conservation Authority.

**CFN: 61665 - Application #: 0583/19/TOR**

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**Date: December 12, 2019**