

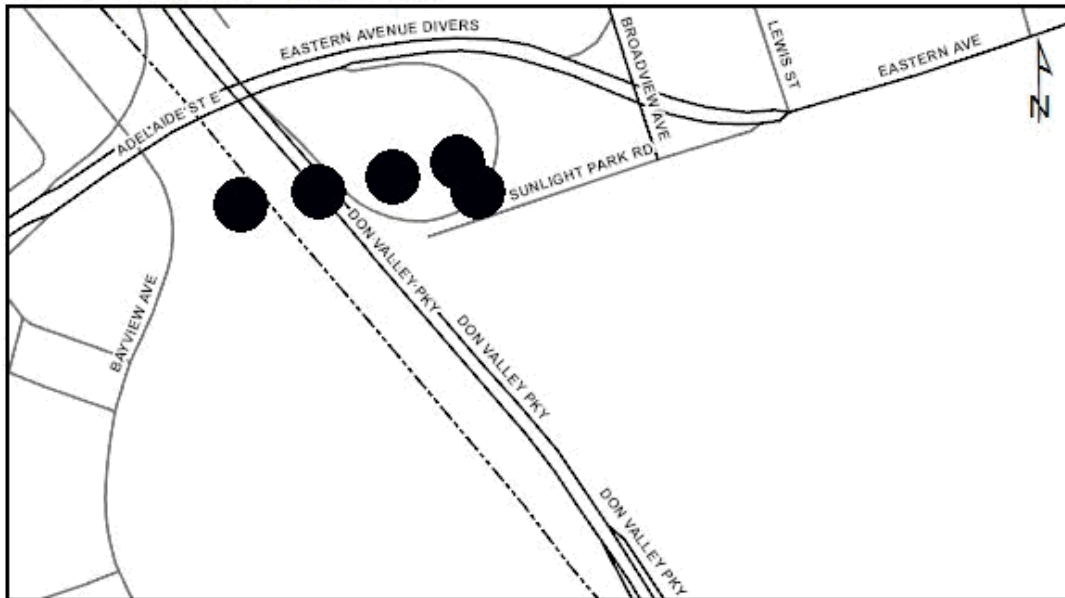
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CITY OF TORONTO (TORONTO AND EAST YORK COMMUNITY COUNCIL AREA)

11.3 ENBRIDGE GAS INC.

To construct, reconstruct, erect or place a building or structure on (crossing the Don River south of Eastern Avenue near Broadview Avenue), in the City of Toronto (Toronto and East York Community Council Area), Don River Watershed as located on the property owned by Metrolinx TRCA and the City of Toronto through Easements. The purpose is to 350 metre section of Nominal Pipe Size (NPS) 30 gas pipeline crossing beneath the Don River, south of Eastern Avenue, in the City of Toronto. The pipe alignment is from the Dog of Leash Park located just west of Bayview Avenue and east of the West Don Flood Protection Landform (FPL), going eastwards underneath the rail corridor, Don River, Don Valley Parkway (DVP) into an open area adjacent to the DVP on ramps, where it will proceed southwards to Sunlight Park road to connect to an existing system. There are no inwater works associated with this project.

MAP LOCATION: Enbridge NPS 30 Don River



The permit will be issued for the period of February 8, 2019 to February 7, 2021 in accordance with the following documents and plans which form part of this permit:

- Page 1 of 1 – Project No. 20008040; Enbridge NPS 30 Don River Replacement; Prepared by Stantec Consulting Ltd on behalf of Enbridge Gas Distribution Inc.; Dated October 26, 2019; received by TRCA on November 6, 2018;
- Page 1 of 13 - Project No. 20008040; Enbridge NPS 30 Don River Replacement - West Tie-In; Prepared by Stantec Consulting Ltd on behalf of Enbridge Gas Distribution Inc.; Dated October 29, 2018; received by TRCA on November 6, 2018;
- Page 2 of 13 - Project No. 20008040; Enbridge NPS 30 Don River Replacement - Bill of Material and Test Information for Micro-Tunneling and Shafts; Prepared by Stantec Consulting Ltd on behalf of Enbridge Gas Distribution Inc.; Dated October 29, 2018; received by TRCA on November 6, 2018;
- Page 2A of 13 - Project No. 20008040; Enbridge NPS 30 Don River Replacement - Proposed Microtunnel Crossing Metrolinx, Don River, West of Don Valley Parkway,

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- South of Eastern Avenue; Prepared by Stantec Consulting Ltd on behalf of Enbridge Gas Distribution Inc.; Dated August 16, 2018; received by TRCA on November 6, 2018;
- Page 3 of 13 - Project No. 20008040; Enbridge NPS 30 Don River Replacement - Proposed Microtunnel Crossing Metrolinx, Don River, East of Don Valley Parkway, South of Eastern Avenue; Prepared by Stantec Consulting Ltd on behalf of Enbridge Gas Distribution Inc.; Dated October 26, 2018; received by TRCA on November 6, 2018;
 - Page 4 of 13 - Project No. 20008040; Enbridge NPS 30 Don River Replacement - East Tie-In; Prepared by Stantec Consulting Ltd on behalf of Enbridge Gas Distribution Inc.; Dated October 26, 2018; received by TRCA on November 6, 2018;
 - Page 5 of 13 - Project No. 20008040; Enbridge NPS 30 Don River Replacement - NPS 30 Abandonment; Prepared by Stantec Consulting Ltd on behalf of Enbridge Gas Distribution Inc.; Dated October 26, 2018; received by TRCA on November 6, 2018;
 - Page 6 of 13 - Project No. 20008040; Enbridge NPS 30 Don River Replacement - Detail Metrolinx Rail Crossing; Prepared by Stantec Consulting Ltd on behalf of Enbridge Gas Distribution Inc.; Dated October 26, 2018; received by TRCA on November 6, 2018;
 - Page 7 of 13 - Project No. 20008040; Enbridge NPS 30 Don River Replacement - Detail NEB Pipelines Crossing; Prepared by Stantec Consulting Ltd on behalf of Enbridge Gas Distribution Inc.; Dated October 26, 2018; received by TRCA on November 6, 2018;
 - Page 8 of 13 - Project No. 20008040; Enbridge NPS 30 Don River Replacement - Weld Table; Prepared by Stantec Consulting Ltd on behalf of Enbridge Gas Distribution Inc.; Dated October 26, 2018; received by TRCA on November 6, 2018;
 - Page 9 of 13 - Project No. 20008040; Enbridge NPS 30 Don River Replacement - Temporary Work Space- West Side; Prepared by Stantec Consulting Ltd on behalf of Enbridge Gas Distribution Inc.; Dated October 26, 2018; received by TRCA on November 6, 2018;
 - Page 10 of 13 - Project No. 20008040; Enbridge NPS 30 Don River Replacement - Temporary Work Space- East Side; Prepared by Stantec Consulting Ltd on behalf of Enbridge Gas Distribution Inc.; Dated October 26, 2018; received by TRCA on November 6, 2018;
 - Page 11 of 13 - Project No. 20008040; Enbridge NPS 30 Don River Replacement - Temporary Work Space- Sunlight Park Road; Prepared by Stantec Consulting Ltd on behalf of Enbridge Gas Distribution Inc.; Dated October 26, 2018; received by TRCA on November 6, 2018;
 - Page 12 of 13 - Project No. 20008040; Enbridge NPS 30 Don River Replacement - Detail of West Shaft; Prepared by Stantec Consulting Ltd on behalf of Enbridge Gas Distribution Inc.; Dated October 26, 2018; received by TRCA on November 6, 2018;
 - Page 13 of 13 - Project No. 20008040; Enbridge NPS 30 Don River Replacement - Detail of East Shaft; Prepared by Stantec Consulting Ltd on behalf of Enbridge Gas Distribution Inc.; Dated October 26, 2018; received by TRCA on November 6, 2018;
 - Displacement Monitoring Program for Toronto and Region Conservation Authority Flood Protection Landform NPS 30 Don River Crossing via Microtunnelling; Prepared by Stantec Consulting Ltd. On behalf of Enbridge Gas Distribution Inc.; Dated December 11, 2018; received by TRCA on January 10, 2019;
 - Memo/Letter; No title; Prepared by Christine Lam (Enbridge Gas Inc.); to address future BE flood protection landform and provide engineering's response to key item #5 from TRCA's letter dated Dec 6, 2018 regarding NPS 30 Don River Replacement-

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- Submission #2 Don River Watershed; Dated December 11, 2018; received by TRCA on January 10, 2019;
- **TBM Bearing Capacity Check and TBM Stability in Soft Material West of Don Valley; Prepared by Ward & Burke Microtunnelling; Dated December 11, 2018; received by TRCA on January 10, 2019;**
 - **Revised Shaft Decommission Plan Memo; Reference: 110903257 – Don River Pipeline Replacement; Prepared by Stantec Limited; Dated October 25, 2018; received by TRCA on January 11, 2018;**
 - **Letter of Commitment; Prepared by Melany Afara (Enbridge Gas Inc.); Dated December 21, 2018 to Renee Afoom-Boateng; received by TRCA on January 11, 2018;**
 - **Settlement and Impact from Tunnelling Work on the FPL; Prepared by Ward and Burke Microtunnelling; Dated October 18, 2018; received by TRCA on November 6, 2018;**
 - **Surface Settlement from Reinforcement Concrete Caisson Shaft Construction; Prepared by Ward and Burke Microtunnelling; Dated May 21, 2018; received by TRCA on November 6, 2018;**
 - **Stress and Settlement Analyses: NPS 30 Don River Replacement, Proposed Microtunnelling Utility Conduit, Toronto, Ontario; Prepared by Stantec Limited; Dated December 20, 2018; received by TRCA on January 10, 2019;**
 - **Email from Chuck Reaney (Enbridge Gas Inc.), reply to TRCA's response on 3rd submission; to Leila Sotoudeh; Dated January 18, 2019 (9:30am), received by TRCA on January 18, 2019;**
 - **Drawing # WB -001; NPS Don River Replacement; Enbridge Gas Distribution; Launch Shaft General Arrangement, Prepared by Ward & Burke Microtunnelling; Dated June 18, 2018; Received by TRCA on November 6, 2018;**
 - **Drawing # WB -001; NPS Don River Replacement; Enbridge Gas Distribution; Receiving Shaft General Arrangement, Prepared by Ward & Burke Microtunnelling; Dated June 18, 2018; Received by TRCA on November 6, 2018.**

RATIONALE

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

Proposal:

Enbridge Gas Inc. (Enbridge) is proposing to replace an approximately 350 metre (m) section of an existing above grade high pressure steel 30 inch gas pipeline (NPS 30) over the Don River, south of Eastern Avenue, in the City of Toronto. NPS 30 is currently suspended over the Don River in a concrete utility bridge owned by Enbridge. The utility bridge has been identified by TRCA as susceptible to flooding by the Don River; thus, the relocation of NPS 30 and the removal of the concrete utility bridge are vital for the safe operation of the utility while improving flood conditions in this area of the Don River valley. Construction is proposed to commence in Winter/Spring 2019. The concrete bridge removal is scheduled for 2021, and will be addressed in a future separate permit.

To install the replacement pipeline, an entry shaft approximately 11 m wide will be constructed within the DVP-Eastern Avenue off-ramp area, in the bedrock at approximate depths of 16 m below the ground surface. The exit shaft for the pipeline will be located just west of the Don River, near Corktown Common approximately 5 m from the West Don Flood Protection Landform (FPL), in the current Dog Off Leash Area (DOLA). These entry and exit shafts will be constructed using reinforced cast in place concrete walls constructed in lifts above the ground,

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in the dry with caisson walls thickness of approximately 500 (millimeter) mm, with a sealed concrete slab base to ensure base stability.

The pipe installation will begin from the entry shaft travelling northwest using the jack and bore micro-tunneling construction methodology at an approximate depth of 13 m below the ground surface. The tunnel will cross underneath the DVP and Don River at approximately 7 to 8 m below the riverbed. On the west of the Don River, the pipeline tunnel will travel beneath the Metrolinx Rail Corridor to the receiving exit shaft located within the DOLA, at approximate depths of 15 m below the ground surface. The new 30 inch pipe will be installed within a 1490mm reinforced concrete chamber with room for additional smaller utility conduits.

From the exit shaft, there will be a new connection to a 5 m by 7 m tie-in pit approximately 20 m north of the DOLA. Similarly, from the entry shaft, Enbridge will construct a shallower pipe (approximately 3 m below the ground surface) to the existing pipeline on Sunlight Park Road via open cut trench construction.

The exit shaft is located within 10 m of the West Don FPL, which was built by TRCA to protect and prevent flooding to about 210 hectares of the West Don Lands including a substantial portion of downtown Toronto. As the owner of the FPL, TRCA staff has worked diligently with Enbridge staff to ensure that appropriate construction methodology and mitigation measures are used to avoid impacting the FPL, and ensure the FPL will effectively serve the purpose for which it was built. These measures include using a jack and bore micro -tunneling construction technique, constricting a concrete caisson shaft, and undertaking a comprehensive monitoring plan to ensure that there are no excess stresses or settlements resulting from the construction activities. As such, staff is satisfied that there will be no adverse impacts to the West Don FPL. In addition, Enbridge has provided confirmation based on technical and engineering studies and in the selection of the construction methodology and mitigation measures, that the integrity of the FPL will not be compromised due to drilling adjacent to the West Don FPL.

With regards to the entry shaft that is located within the area of the future proposed Broadview Eastern flood protection solution, TRCA staff worked closely with Enbridge staff to ensure that the location of the pipeline will not preclude the development of a future flood protection solution, particularly with regards to stress, settlement and loading associated with construction and fill placement onto NPS 30.

Site preparation for the shafts will consist of the removal of the entire DOLA asphalt surface and vegetation removal and grading within the DVP on-ramp area, installation of the jersey barriers and appropriate erosion and sediment control measures. Approximately 274 trees and shrubs will be removed to prepare the site for construction and remaining vegetated areas will be protected in line with the City of Toronto Tree Protection Policy and Specifications for Construction near trees. Enbridge will be providing the City Urban Forestry staff (cash in lieu) approximately \$250, 000 for future watershed wide restoration activities within the Lower Don River Corridor.

Once construction of the tunnel is completed, the concrete shafts will be removed to approximately 1m below the ground surface. The shafts and abandoned sections of the existing pipe will be backfilled with native materials, as agreed to by TRCA staff, in order to prevent future instability and settlement and avoid impacts to the nearby existing and proposed flood protection landforms. A cementitious-based flowable fill will be used to backfill the shafts to eliminate the need for compaction (improve overall safety and avoid exposing the carrier pipe to vibrational loads) and reduce permeability the NPS 30.

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Additionally, the following specific commitments were made as part of the permit review and approval process:

Enbridge will obtain and provide to TRCA the necessary temporary and permanent easements from affected land owners prior to construction commencement.

Enbridge will initiate City of Toronto Official Plan Amendment process in 2019, as required for Enbridge to obtain the necessary permanent easements and approvals from the City of Toronto. The City has advised that this process will commence shortly. In the meantime, a temporary easement from the City will be required, as per #1, above.

Enbridge will provide a Construction Flood Contingency Plan to TRCA for review and approval prior to construction commencement.

As a precaution, Enbridge has committed to address any unanticipated construction/drilling impacts associated with the West Don FPL in the event that the drilling operations of the pipeline impact the West Don FPL during construction.

Enbridge will undertake a five (5) year Displacement Monitoring Program within area of the West Don FPL to monitor conditions occurring during and after the construction period and to identify any potential adverse effects associated with the construction of the pipeline.

Enbridge has confirmed that based on available information on the Broadview Eastern Flood Protection Solution, Enbridge has no concerns at this time with the relocated NPS 30 withstanding the anticipated maximum earth loading associated with the construction and long-term sitting of the new FP solution on top of the pipeline.

Enbridge has confirmed that the new pipe will not be subjected to any intrusive maintenance activities or intrusive investigations once construction is complete. Should intrusive repairs be required, Enbridge will abandon the pipe and look for alternative options as it is understood that the FPL(s) cannot be altered.

Enbridge will commence the removal of the Don Valley Bridge in 2021 subject to specific conditions. Enbridge has provided a letter of credit, in the amount of \$2 Million to TRCA. This letter of credit will be released upon the removal of the Don Valley Bridge based on the agreed upon plans by TRCA and Enbridge.

Control of Flooding:

Although the project site is located within the Don River flood plain, the proposed works are not anticipated to impact flooding, flood storage or conveyance of flood waters. As a precautionary measure and upon TRCA request, Enbridge will implement a construction flood contingency plan during the construction period to ensure the protection of life and property as well as to allow for flood water conveyance. Once construction is complete, all construction equipment and staging materials will be removed from the site, then the construction site grades and other surfaces will be restored and seeded to its original condition or better.

Pollution:

Erosion and sediment control measures including, heavy duty silt fencing, filterxx, siltsoxx and ditchchexx and catch basin protection will be installed prior to construction and maintained for the entire duration of construction. These measures will be implemented to prevent the release of construction generated sediments into Don River. Erosion and sediment control measures have been provided in accordance with the Greater Golden Horseshoe Area Conservation Authorities Erosion and Sediment Control Guidelines for Urban Construction (2006).

Dynamic Beaches:

The proposal will not have any implications to dynamic beaches.

Erosion:

There are no impacts identified to slope stability or erosion as a result of these works.

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Conservation of Land:

There are no in-water works associated with this project.

Plantings

The City of Toronto Tree Protection Policy and Specifications for Construction near trees will be adhered to during the construction period. Approximately 274 trees and shrubs will be removed to prepare the entry and exit shaft sites for construction. These trees will be replaced in line with the City of Toronto Tree removals ratio of 3:1; thus, Enbridge will be providing the City Urban Forestry staff (cash in lieu) approximately \$250, 000 to be used for future watershed wide restoration activities with in the Lower Don River Corridor.

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: 60215 - Application #: 0783/18/TOR

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Date: February 6, 2019