

# Environmental Impact Assessment Report

Contract RFS-2019-NAFC-110

PO 214244

HDR Project 10206938



Ontario Line Technical Advisor

*Toronto, Ontario*

April 2022

# Executive Summary

## ES.1 The Ontario Line Project

The Ontario Line is one of the largest subway expansions in Toronto's history. It has been designed to ease congestion on existing transit lines throughout the city and bring transit to underserved neighbourhoods. It will improve access to transit, increase access to economic activity, and support the relationship between transit and city building. It will support a complete travel experience by improving travel time and reliability, improving comfort and safety, and providing a more resilient and integrated transportation network. Lastly, the Ontario Line will support the development of sustainable and healthy communities by moving people with less energy and reduced emissions, improving quality of life and public health, and unlocking jobs and economic development.

The Ontario Line (the Project) is a new approximately 15.6-kilometre subway line from Exhibition/Ontario Place to the Ontario Science Centre in the City of Toronto (shown on **Figure 1-1**) with connections to Line 1 (Yonge-University) subway service, Line 2 (Bloor-Danforth) subway service, and Line 5 (Eglinton Crosstown) Light Rail Transit (LRT) service. Fifteen stations are proposed, with additional connections to three GO Transit lines (Lakeshore East, Lakeshore West and Stouffville), and the Queen, King, Bathurst, Spadina, Harbourfront, and Gerrard/Carlton streetcar routes. The Project will reduce crowding on Line 1 and provide connections to new high-order rapid transit neighbourhoods. The Project will be constructed in a dedicated right-of-way (RoW) with a combination of elevated (i.e., above existing rail corridor/roadway), tunnelled (i.e., underground), and at-grade (i.e., at the same elevation as the existing rail corridor) segments at various locations.

The Project Footprint was established based on the conceptual design for the Project. The Project Footprint includes the total area potentially affected by the proposed construction activities and operations of the Project. The proposed physical works from construction and operations includes but is not limited to temporary laydown and staging areas, potential road detours, new bridges, tunnelling and associated openings (including vent shafts and emergency egress buildings), new stations and platforms, portals, retaining walls and barriers, railway track alignments/realignments, operations, maintenance, and storage facility (OMSF), new power supply and transformers, and utility realignments.

The Project Footprint has been divided into the following sections:

- The Ontario Line West (OLW) – from Exhibition/Ontario Place to Osgoode Station
- The Ontario Line South (OLS) – from east of Osgoode Station to west of Pape Station
- The Ontario Line North (OLN) – from Pape Station to the Ontario Science Centre and includes the OMSF

An overview of the Project is provided in **Section 1.2**, the Project footprint in **Section 1.3**, and the Project background in **Section 1.4**.

## ES.2 The Study Process

The Project is being assessed in accordance with Ontario Regulation 341/20: Ontario Line Project (the Ontario Line Regulation) under the *Environmental Assessment Act*. The Ontario Line Regulation outlines a Project-specific environmental assessment process that includes an Environmental Conditions Report, Environmental Impact Assessment Report (EIAR), and an opportunity for Early Works Report(s) for assessment of works that are proposed to proceed in advance of the EIAR. The Ontario Line Draft EIAR includes a description of the Project, a summary of existing environmental conditions in the Project Footprint, the potential environmental impacts of the Project based on the conceptual design, mitigation and monitoring measures, the consultation process followed, and future permitting and approval requirements for the Project.

This Report has been prepared in accordance with Section 15 of the Ontario Line Regulation and contains the information outlined in **Table ES-1**.

**Table ES-1. EIAR Documentation Requirements**

O. Reg. 341/20 Section	Requirement	Report Section
Section 15(2)1	A statement of the purpose of the Ontario Line Project and a summary of background information relating to the Ontario Line Project.	Sections 1 and 2
Section 15(2)2	The final description of the Ontario Line Project, including a description of the preferred method of carrying it out, and a description of the other methods that were considered.	Sections 1.4 and 3
Section 15(2)3	A map showing the site of the Ontario Line Project.	Section 1
Section 15(2)4	A description of the local environmental conditions at the site of the Ontario Line Project.	Section 4
Section 15(2)5	A description of all studies undertaken in relation to the Ontario Line Project, including a summary of all data collected or reviewed and a summary of all results and conclusions.	Section 4
Section 15(2)6	An assessment and evaluation of the impacts that the preferred method of carrying out the Ontario Line Project and other methods might have on the environment, and Metrolinx's criteria for assessment and evaluation of those impacts.	Section 5
Section 15(2)7	A description of any measures proposed by Metrolinx for mitigating any negative impacts that the preferred method of carrying out the Ontario Line Project might have on the environment.	Section 5
Section 15(2)8	A description of the proposal for monitoring or verifying the effectiveness of mitigation measures.	Section 5

O. Reg. 341/20 Section	Requirement	Report Section
Section 15(2)9	A description of any municipal, provincial, federal, or other approvals or permits that may be required for the Ontario Line Project.	Section 7
Section 15(2)10	A consultation record including: <ul style="list-style-type: none"> <li>• A description of the consultations carried out with Indigenous communities and interested persons</li> <li>• A list of the Indigenous communities and interested persons who participated in the consultations</li> <li>• Summaries of the comments submitted by Indigenous communities and interested persons</li> <li>• A summary of discussions that Metrolinx had with Indigenous communities</li> <li>• Copies of all written comments submitted by Indigenous communities</li> </ul>	Section 6

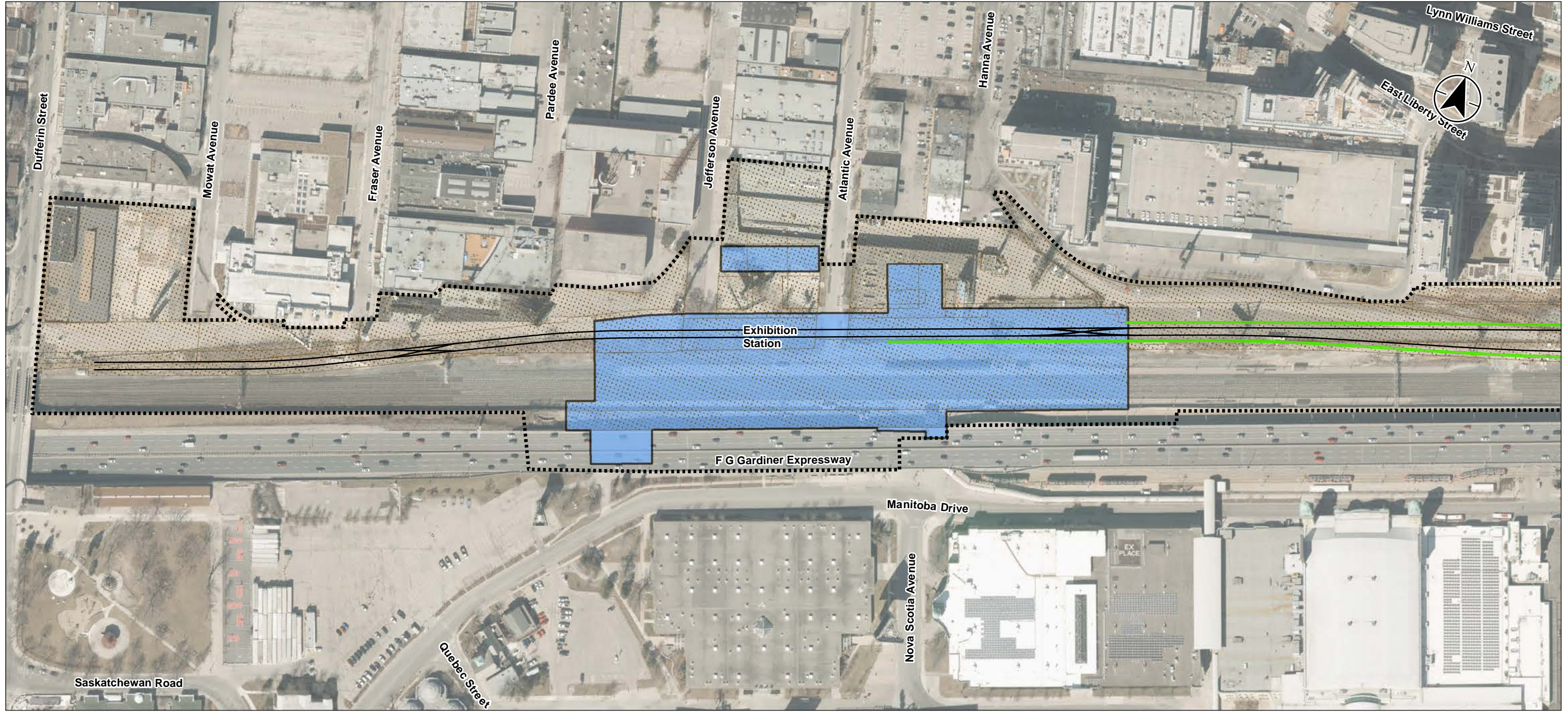
**Section 2.2** outlines the planning context for the Project.

### ES.3 Project Description

Key project components are outlined in **Section 3.1** and include bridges, Emergency Egress Buildings (EEBs), noise barriers, operations and maintenance, retaining walls, stations, and tracks and tunnels. The anticipated construction and operation activities that will be associated with the Project are outlined in **Table 3-1** of **Section 3.2** and **Table 3-2** of **Section 3.3**, respectively. These activities have the potential to interact with the existing environment and are used to determine the potential environmental impacts of the Project during construction and operation. As the design advances, construction and operation activities will be confirmed.

A description of the conceptual design is provided by sections in **Section 3.4** and is shown on **Figure ES-1** to **Figure ES-19**.

Modifications to existing infrastructure (known as ‘ancillary works’) are also being undertaken to facilitate the construction and operation of Ontario Line and as such are assessed as part of this EIAR (see **Section 3.5**). Ancillary works include Banigan Drive, Hydro One Corridor Relocations, Liberty New Street, the Last Mile Connection, Richmond Hill GO Corridor Realignment, York Street Queen Streetcar Detour, Road Closures, and Road Conversions.



- Legend**
- Project Footprint
  - Alignment - Current**
  - Ontario Line Tracks
  - Portal
  - Construction Staging and Laydown Area
  - Station

0 40 80 metres  
1:2,500 (At original document size of 11x17)

**General Note:**  
The construction impacts within the EIA/R project footprint will be refined as detailed design progresses.



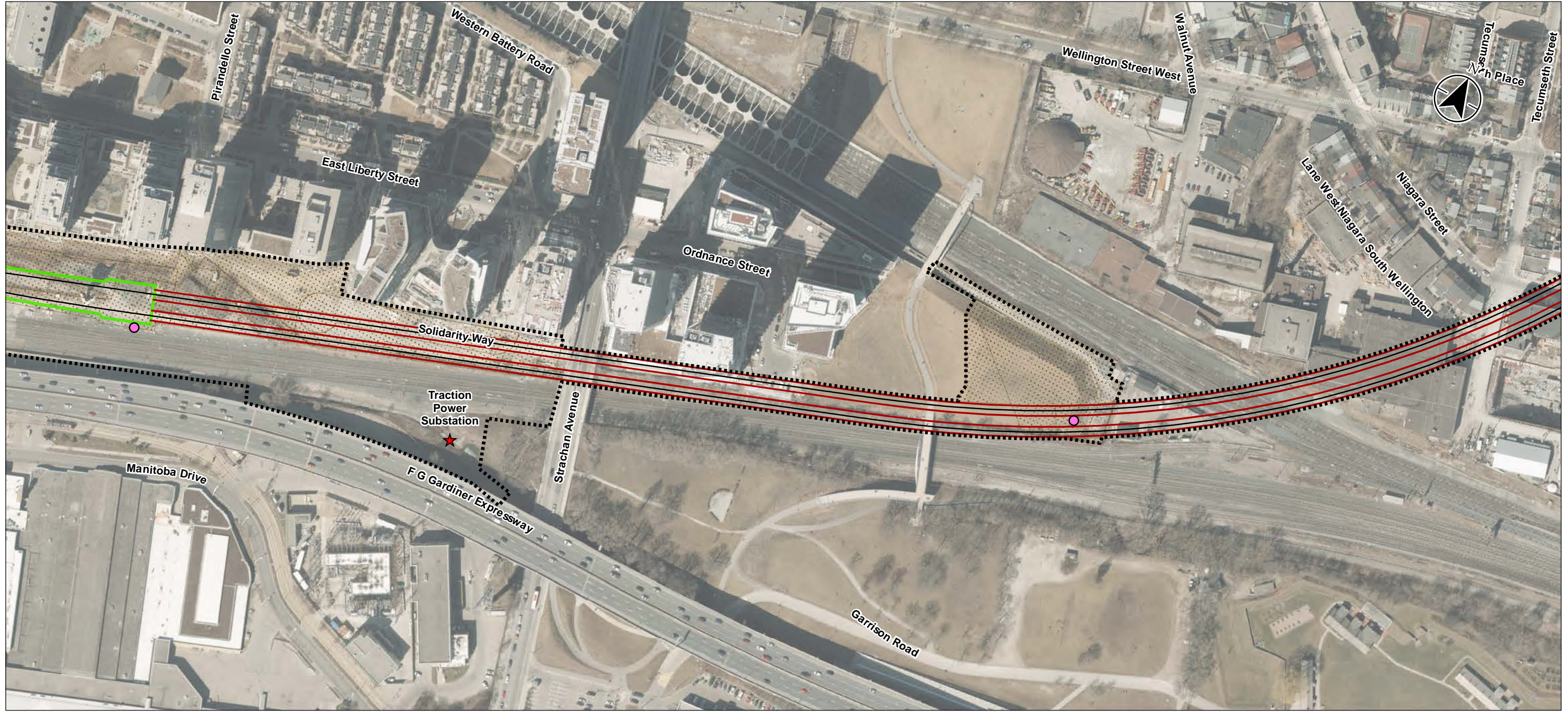
Project Location: Toronto, ON Prepared by BCC on 2022-04-04

Client/Project: HDR CORPORATION ONTARIO LINE TA 160560009 REVA

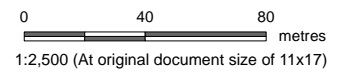
Figure No.: **ES-1**  
Title: **Project Footprint and Project Components**

**Notes**  
1. Coordinate System: NAD27 MTM zone 10  
2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2019.  
3. Orthoimagery © First Base Solutions, 2017. Imagery Date, 20XX.

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- Legend**
- Project Footprint
  - Alignment - Current**
  - Ontario Line Tracks
  - Tunnels
  - Portal
  - Emergency Egress Building (EEB)
  - Construction Staging and Laydown Area
  - Traction Power Substation



**General Note:**  
The construction impacts within the EIA/R project footprint will be refined as detailed design progresses.

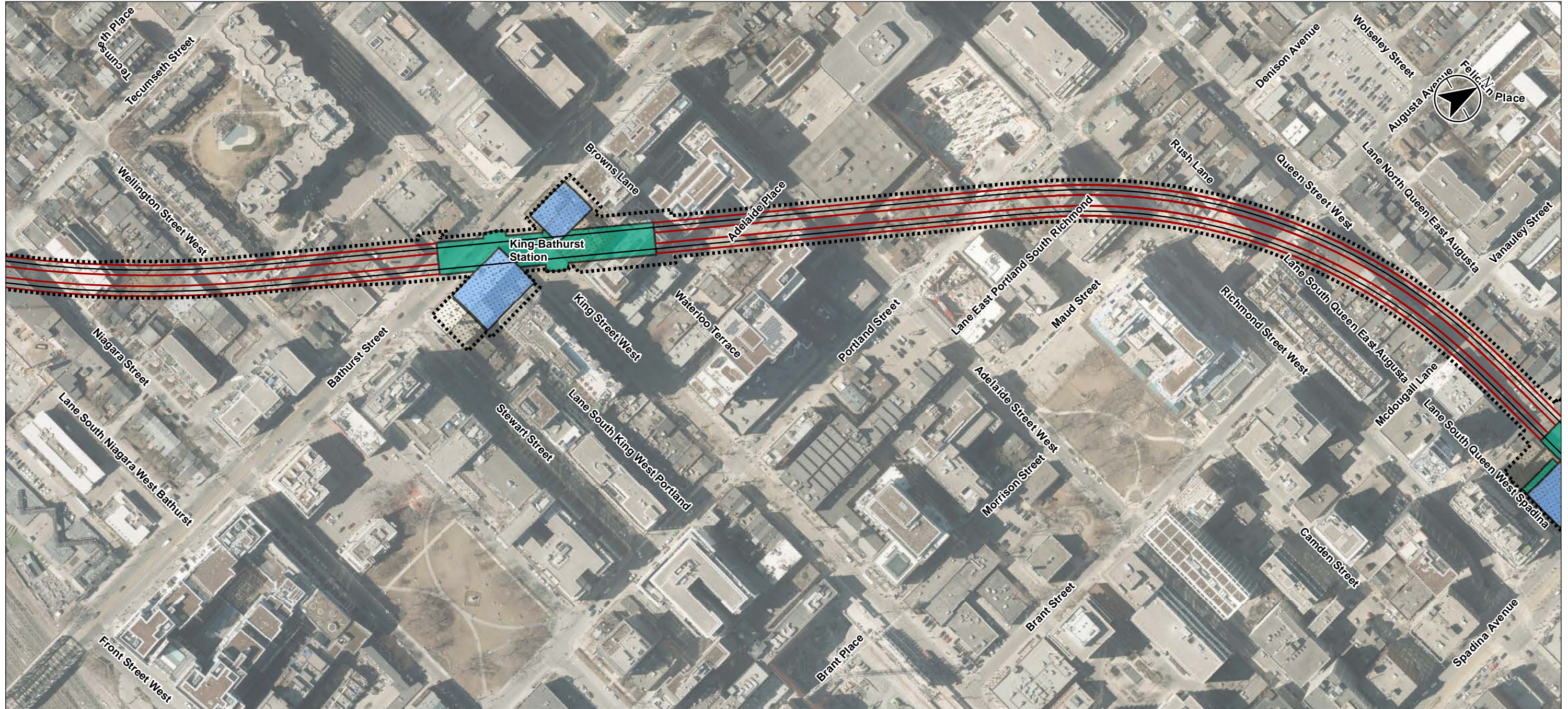


Project Location Toronto, ON	Prepared by BCC on 2022-04-04
Client/Project HDR CORPORATION ONTARIO LINE TA	160560009 REVA
Figure No. <b>ES-2</b>	
Title <b>Project Footprint and Project Components</b>	

**Notes**

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- Legend**
- Project Footprint
  - Alignment - Current**
  - Ontario Line Tracks
  - Tunnels
  - Construction Staging and Laydown Area
  - Station
  - Station Platform - Subsurface Level

0 40 80 metres  
1:2,500 (At original document size of 11x17)

**General Note:**  
The construction impacts within the EIA/R project footprint will be refined as detailed design progresses.



Project Location: Toronto, ON Prepared by BCC on 2022-04-04

Client/Project: HDR CORPORATION ONTARIO LINE TA 160560009 REVA

Figure No. **ES-3**  
Title **Project Footprint and Project Components**

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- Legend**
- Project Footprint
  - Alignment - Current**
  - Ontario Line Tracks
  - Tunnels
  - Construction Staging and Laydown Area
  - Station
  - Station Platform - Subsurface Level
  - Temporary Streetcar Diversion and Permanent Enhancements to Streetcar Network
  - Details on traffic staging can be found in the Transportation and Traffic Analysis Report. Northbound access will be maintained throughout construction

0 50 100 metres  
 1:3,000 (At original document size of 11x17)

**General Note:**  
 The construction impacts within the EIA/R project footprint will be refined as detailed design progresses.



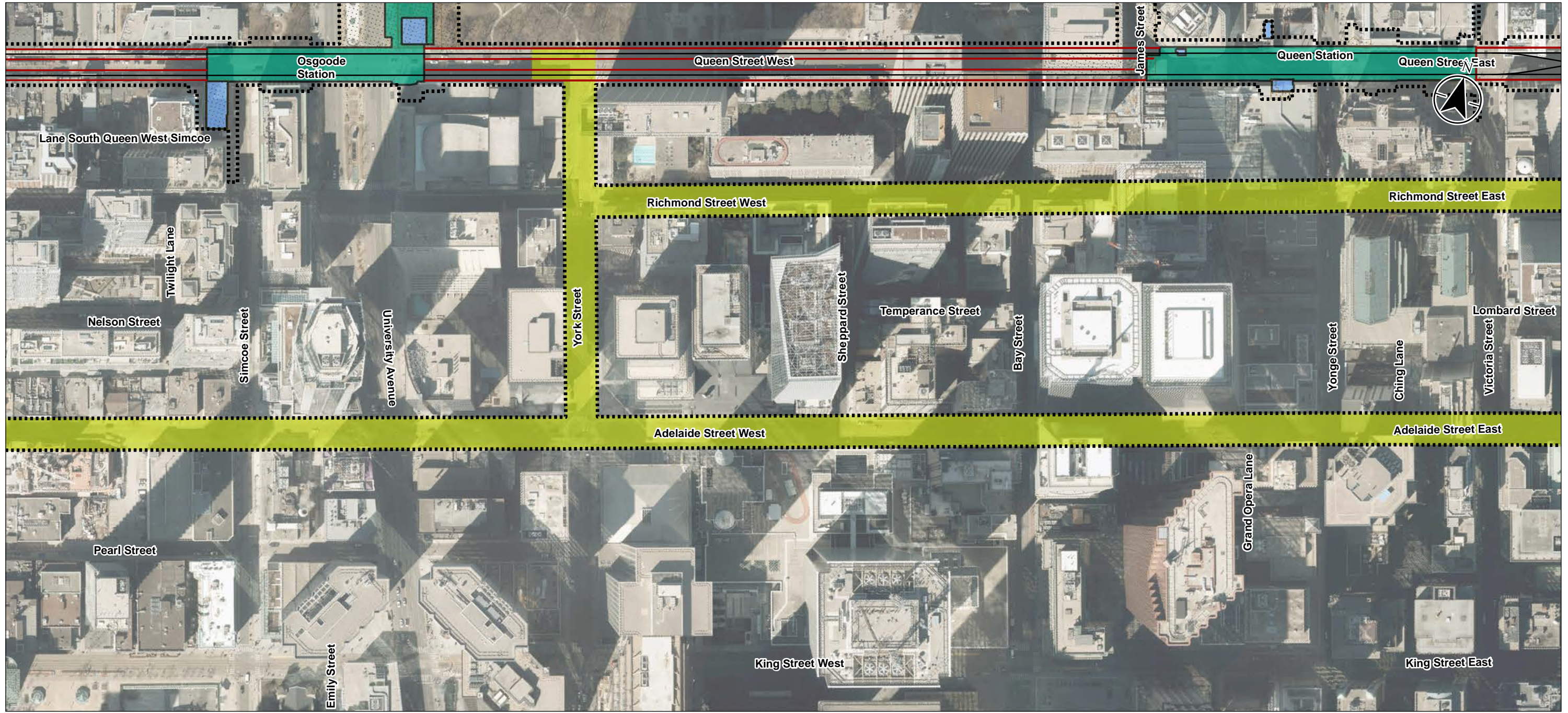
Project Location: Toronto, ON  
 Prepared by BCC on 2022-04-04

Client/Project: HDR CORPORATION, ONTARIO LINE TA  
 160560009 REVA

Figure No.: **ES-4**  
 Title: **Project Footprint and Project Components**



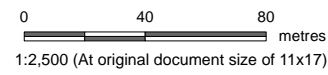
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- Legend**
- Project Footprint
  - Alignment - Current**
  - Ontario Line Tracks
  - Tunnels
  - Construction Staging and Laydown Area
  - Station
  - Station Platform - Subsurface Level
  - Temporary Streetcar Diversion and Permanent Enhancements to Streetcar Network

**Notes**

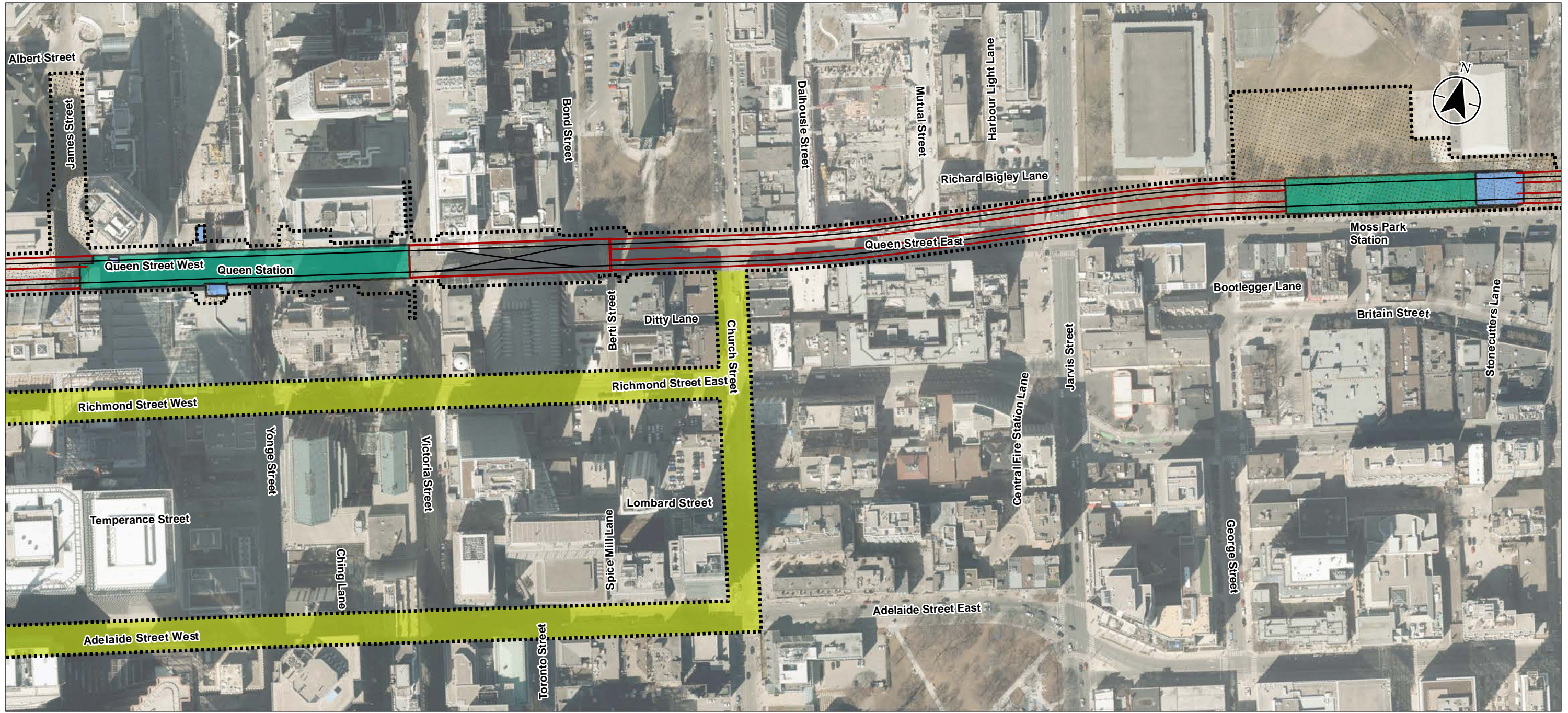
- Coordinate System: NAD27 MTM zone 10
- Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2019.
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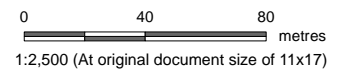
**General Note:**  
The construction impacts within the EIAR project footprint will be refined as detailed design progresses.



<b>Project Location</b> Toronto, ON	Prepared by BCC on 2022-04-04
<b>Client/Project</b> HDR CORPORATION ONTARIO LINE TA	160560009 REVA
<b>Figure No.</b> <b>ES-5</b>	
<b>Title</b> <b>Project Footprint and Project Components</b>	



- Legend**
- Project Footprint
  - Alignment - Current**
  - Ontario Line Tracks
  - Tunnels
  - Construction Staging and Laydown Area
  - Station
  - Station Platform - Subsurface Level
  - Temporary Streetcar Diversion and Permanent Enhancements to Streetcar Network



**General Note:**  
The construction impacts within the EIA/R project footprint will be refined as detailed design progresses.



*Project Location*  
Toronto, ON

*Client/Project*  
HDR CORPORATION  
ONTARIO LINE TA

*Figure No.*  
**ES-6**

*Title*  
**Project Footprint and Project Components**

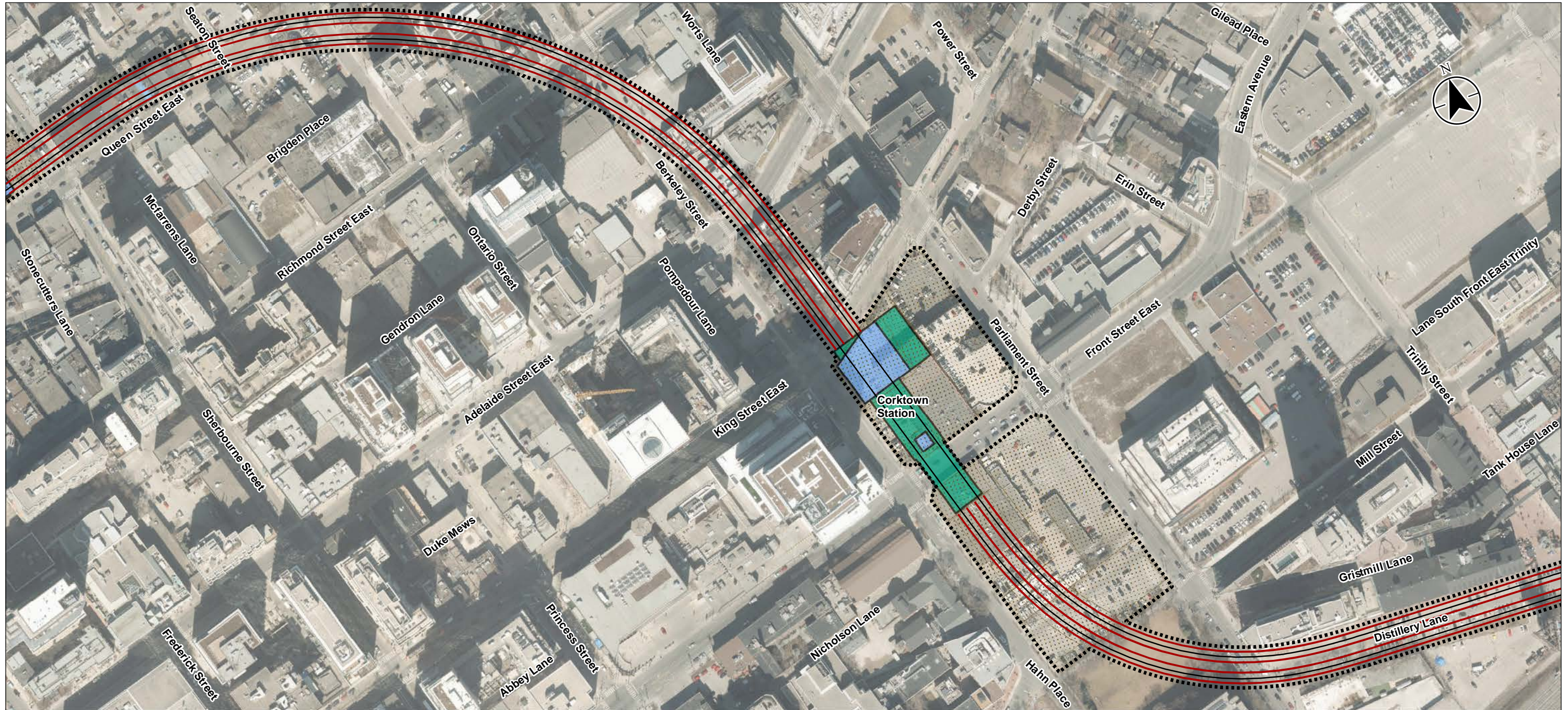
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- Legend**
- Project Footprint
  - Alignment - Current**
  - Ontario Line Tracks
  - Tunnels
  - Construction Staging and Laydown Area
  - Station
  - Station Platform - Subsurface Level

0 40 80 metres  
1:2,500 (At original document size of 11x17)

**General Note:**  
The construction impacts within the EIA/R project footprint will be refined as detailed design progresses.



Project Location: Toronto, ON Prepared by BCC on 2022-04-04

Client/Project: HDR CORPORATION ONTARIO LINE TA 160560009 REVA

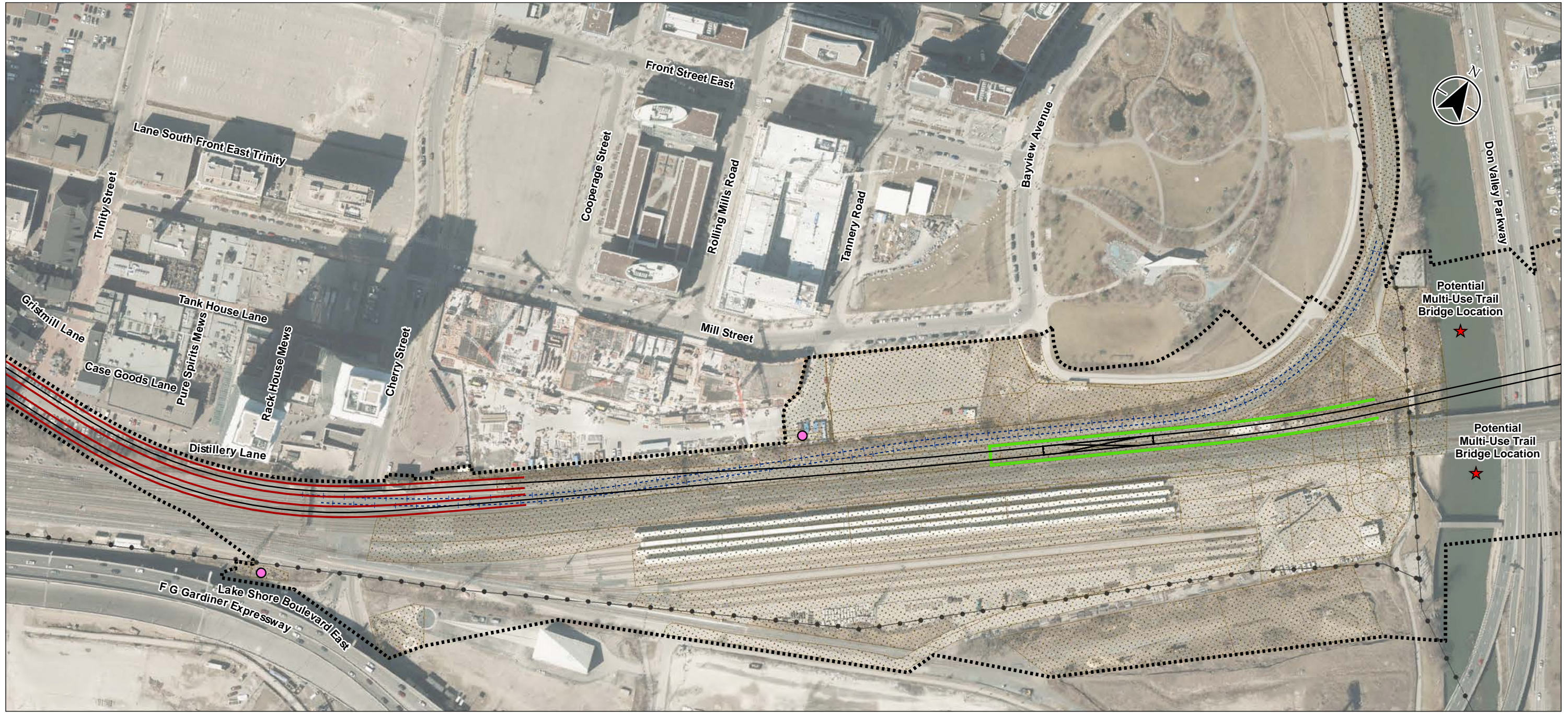
Figure No.: **ES-7**

Title: **Project Footprint and Project Components**

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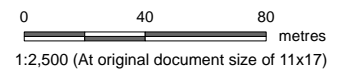
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- Legend**
- Project Footprint
  - Alignment - Current**
  - Ontario Line Tracks
  - Tunnels
  - Portal
  - Emergency Egress Building (EEB)
  - Realigned Richmond Hill Tracks
  - Construction Staging and Laydown Area
  - Existing Hydro One Electrical Transmission Line
  - ★ Potential Multi-Use Trail Bridge Location



**General Note:**  
 The construction impacts within the EIAR project footprint will be refined as detailed design progresses.



<i>Project Location</i> Toronto, ON	<i>Prepared by</i> BCC on 2022-04-04
<i>Client/Project</i> HDR CORPORATION ONTARIO LINE TA	<i>160560009</i> REVA
<i>Figure No.</i> <b>ES-8</b>	
<i>Title</i> <b>Project Footprint and Project Components</b>	

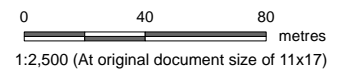
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- Legend**
- Project Footprint
  - Alignment - Current**
  - Ontario Line Tracks
  - Portal
  - Realigned Richmond Hill Tracks
  - Construction Staging and Laydown Area
  - Existing Hydro One Electrical Transmission Line
  - Station
  - Potential Multi-Use Trail Bridge Location

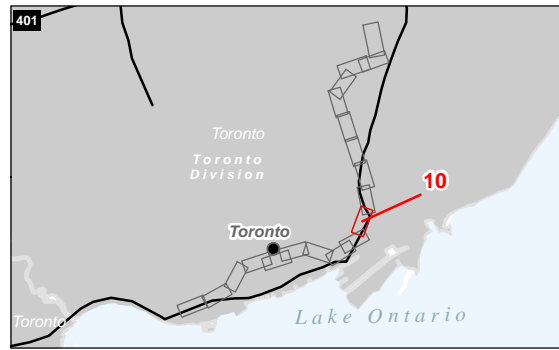
★ The Project Footprint includes areas in support of construction access, staging and laydown that may be required on a temporary basis. The extent of these land requirements may be refined and reduced to the extent feasible as project planning and design progress. Note that such lands adjacent to the Eastern Avenue rail bridge on the north side of Eastern Avenue will be shared with the Ontario Line Lakeshore East Joint Corridor early works project to reduce temporary land requirements in support of construction activities.



**General Note:**  
 The construction impacts within the EIAR project footprint will be refined as detailed design progresses.



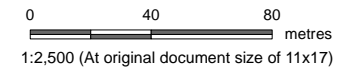
Project Location Toronto, ON	Prepared by BCC on 2022-04-04
Client/Project HDR CORPORATION ONTARIO LINE TA	160560009 REVA
Figure No. <b>ES-9</b>	
Title <b>Project Footprint and Project Components</b>	



**Legend**

- Project Footprint
- Alignment - Current**
- Ontario Line Tracks
- Construction Staging and Laydown Area
- Station
- Metrolinx is actively working with the building tenants on relocation options
- The Jimmie Simpson Recreation Centre is located outside of the Ontario Line project footprint

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**General Note:**  
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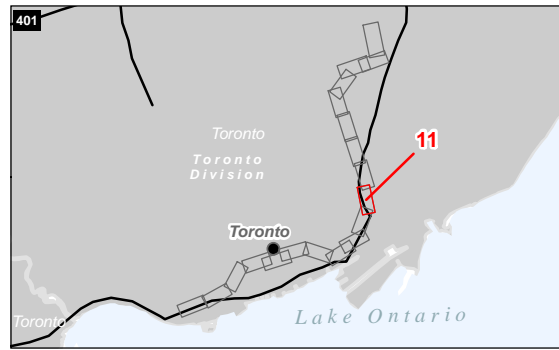


Project Location: Toronto, ON  
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Client/Project: HDR CORPORATION, ONTARIO LINE TA  
 160560009 REVA

Figure No.: **ES-10**

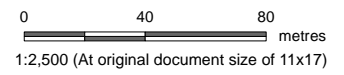
Title: **Project Footprint and Project Components**



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- Legend**
- Project Footprint
  - Alignment - Current**
  - Ontario Line Tracks
  - Tunnels
  - Portal
  - Emergency Egress Building (EEB)
  - Proposed Sewer Relocation
  - Construction Staging and Laydown Area
  - Station
  - ★ Metrolinx is actively working with the building tenants on relocation options

★ The existing sewer will be relocated using tunnelling methods underneath the Pape Avenue Junior Public School property, with no direct surface impacts anticipated on the school property. Metrolinx will continue to work with both the Toronto District School Board and Pape Avenue Junior Public School throughout the design process to minimize any potential construction impacts.



**General Note:**  
 The construction impacts within the EIAR project footprint will be refined as detailed design progresses.



*Project Location*  
 Toronto, ON Prepared by BCC on 2022-04-04

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*Client/Project*  
 HDR CORPORATION  
 ONTARIO LINE TA 160560009 REVA

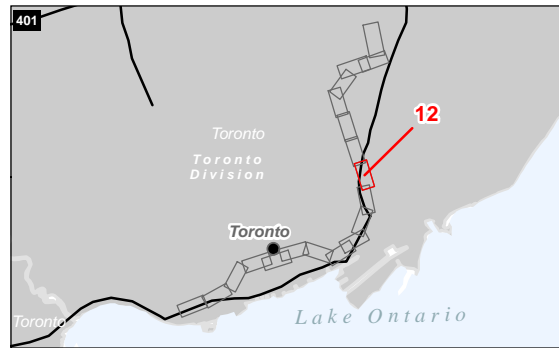
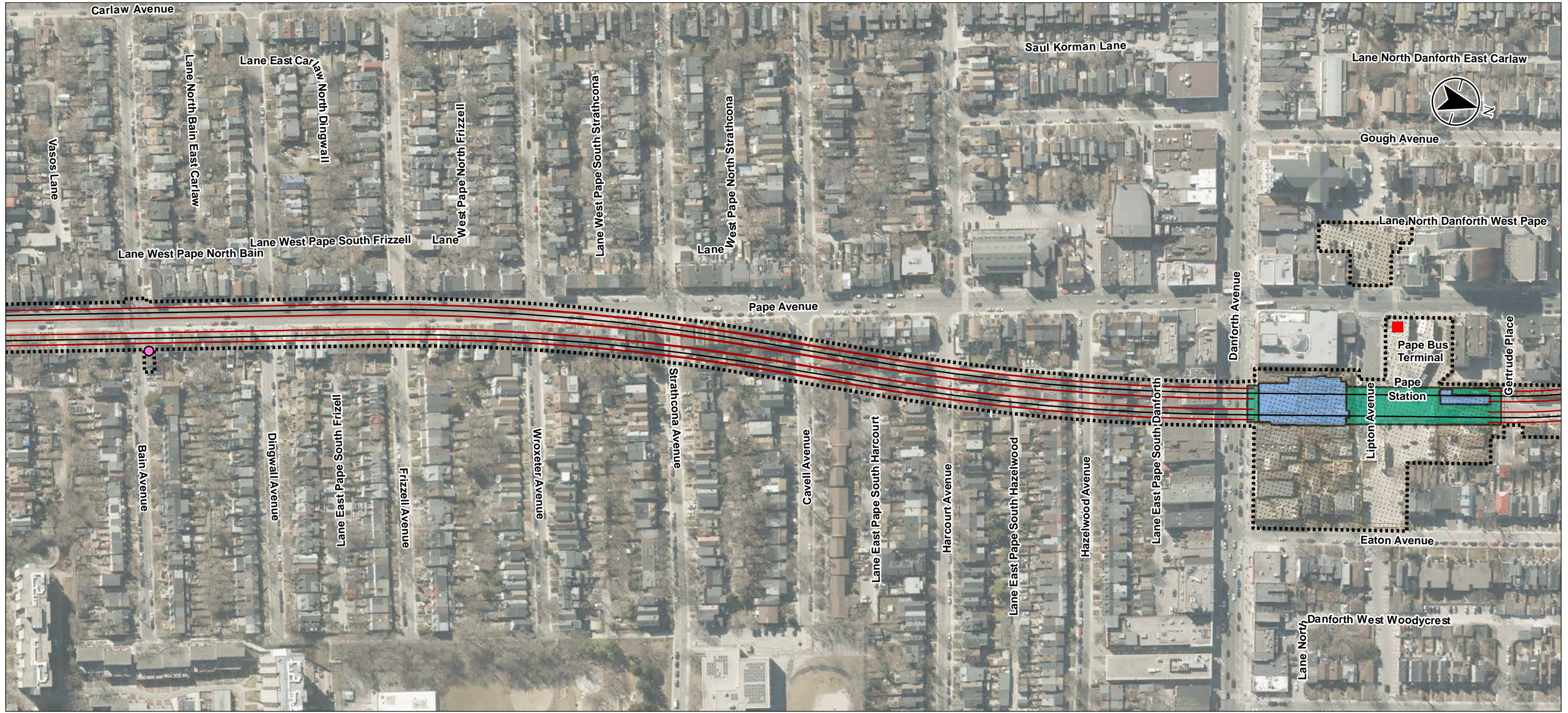
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*Figure No.*  
**ES-11**

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*Title*  
**Project Footprint and Project Components**

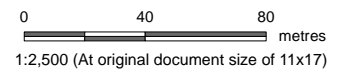
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- Legend**
- Project Footprint
  - Alignment - Current**
  - Ontario Line Tracks
  - Tunnels
  - Emergency Egress Building (EEB)
  - Construction Staging and Laydown Area
  - Station
  - Station Platform - Subsurface Level
  - The existing bus terminal at Pape Station will remain operational during the construction period

**Notes**

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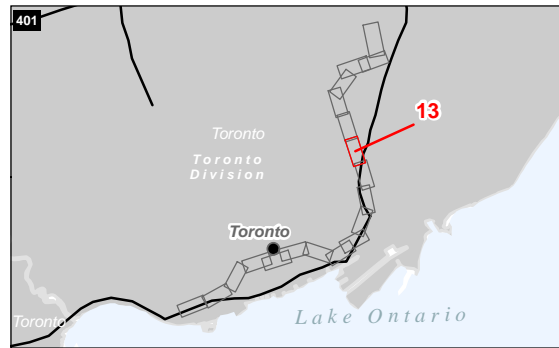
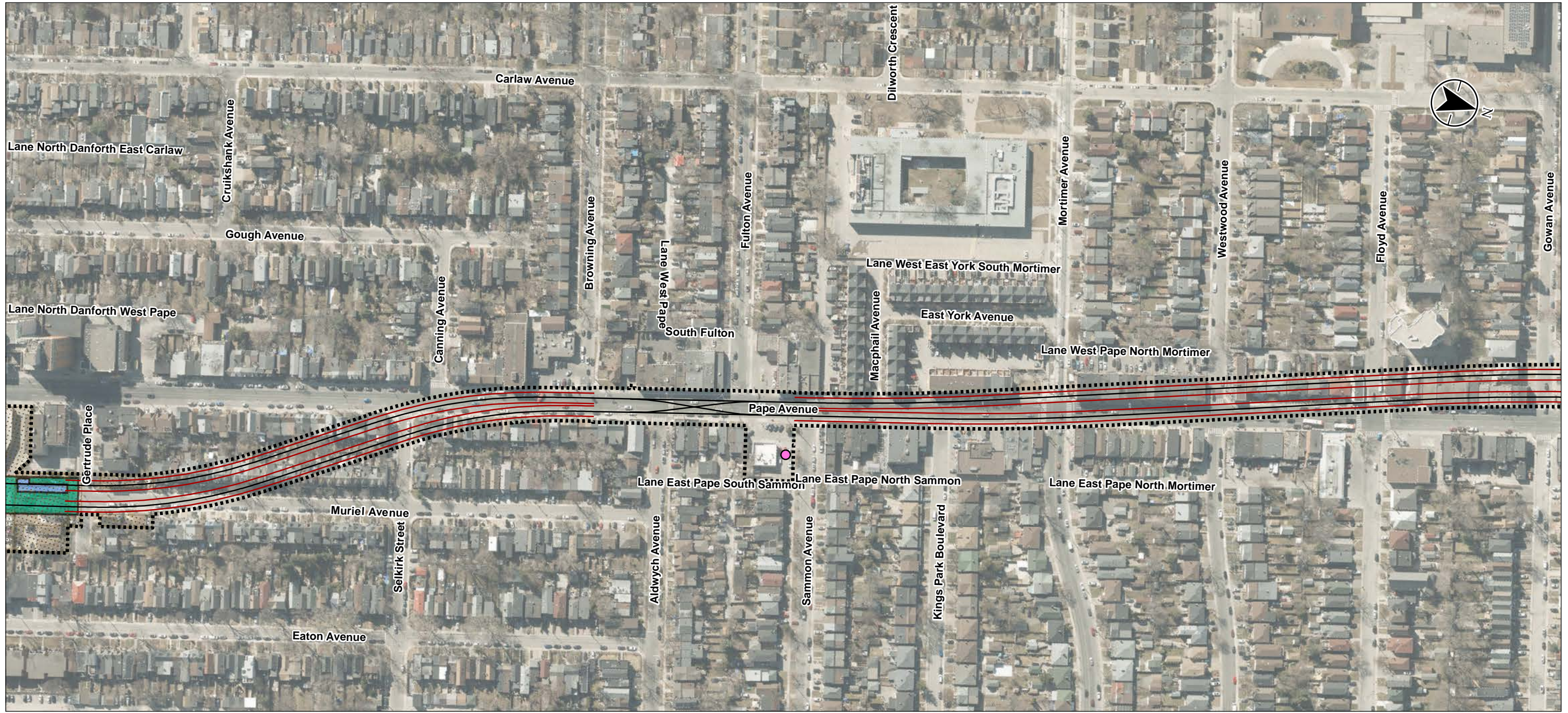


Project Location Toronto, ON	Prepared by BCC on 2022-04-04
Client/Project HDR CORPORATION ONTARIO LINE TA	160560009 REVA
Figure No. <b>ES-12</b>	
Title <b>Project Footprint and Project Components</b>	

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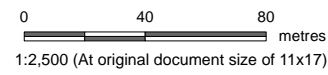
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- Legend**
- Project Footprint
  - Alignment - Current**
  - Ontario Line Tracks
  - Tunnels
  - Emergency Egress Building (EEB)
  - Construction Staging and Laydown Area
  - Station
  - Station Platform - Subsurface Level

**Notes**

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**General Note:**  
The construction impacts within the EIAR project footprint will be refined as detailed design progresses.



*Project Location*  
Toronto, ON

Prepared by BCC on 2022-04-07

*Client/Project*  
HDR CORPORATION  
ONTARIO LINE TA

160560009 REVA

*Figure No.*

**ES-13**

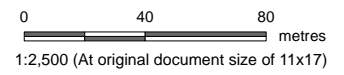
*Title*

**Project Footprint and Project Components**

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- Legend**
- Project Footprint
  - Alignment - Current**
  - Ontario Line Tracks
  - Tunnels
  - Construction Staging and Laydown Area
  - Station
  - Station Platform - Subsurface Level



**General Note:**  
The construction impacts within the EIAR project footprint will be refined as detailed design progresses.



*Project Location*  
Toronto, ON *Prepared by* BCC on 2022-04-04

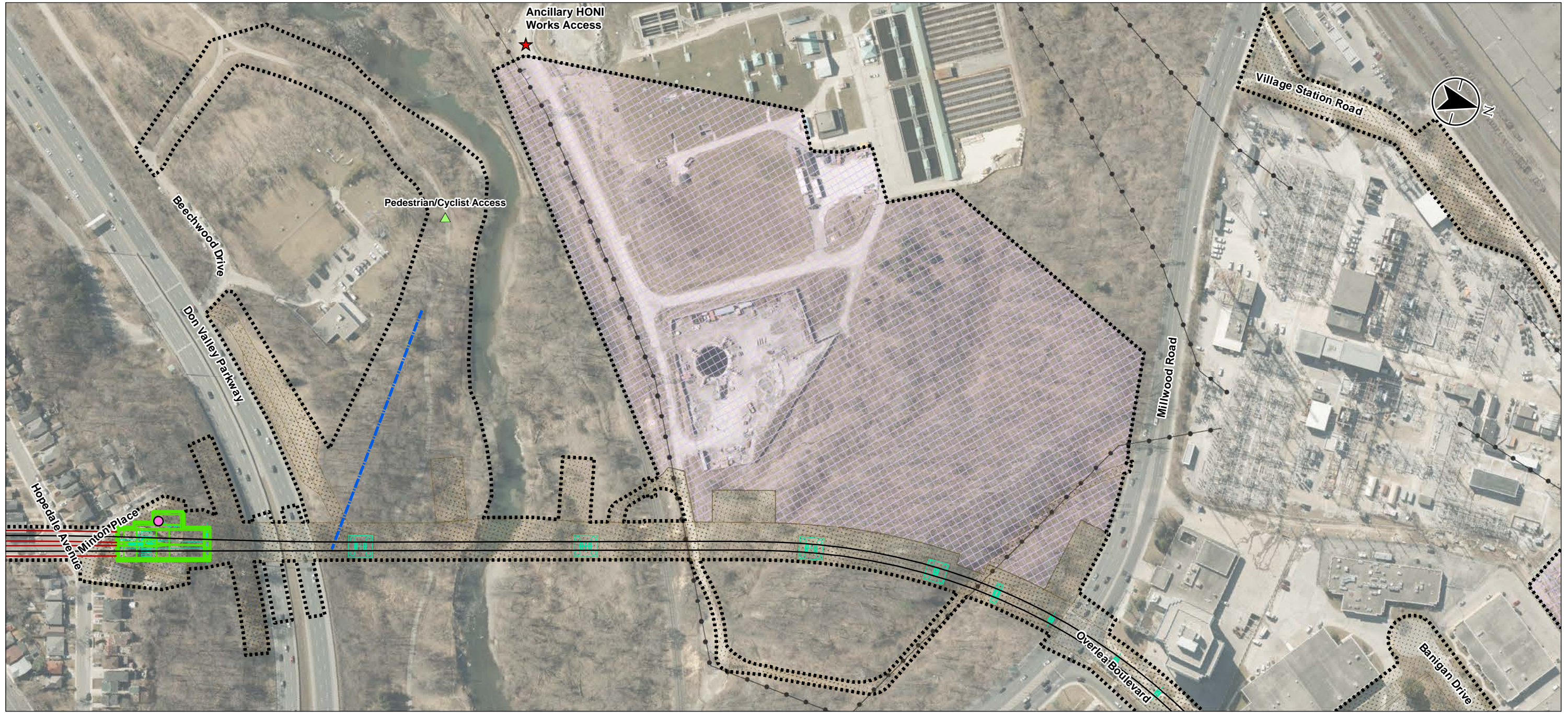
*Client/Project*  
HDR CORPORATION  
ONTARIO LINE TA *160560009* REVA

*Figure No.*  
**ES-14**

*Title*  
**Project Footprint and Project Components**

**Notes**  
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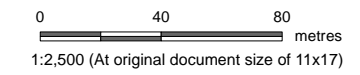


**Notes**  
 1. Coordinate System: NAD27 MTM zone 10  
 2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2019.  
 3. Orthoimagery © First Base Solutions, 2017. Imagery Date, 20XX.

- Legend**
- Project Footprint
  - Alignment - Current**
  - Ontario Line Tracks
  - Tunnels
  - Portal
  - Elevated Guideway Pier
  - Emergency Egress Building (EEB)
  - Proposed Sewer Bypass
  - Ancillary HONI Realignment Area\*
  - Construction Staging and Laydown Area
  - Existing Hydro One Electrical Transmission Line

- Ancillary HONI Works Access
- Pedestrian/cyclist access to the trail system will be maintained

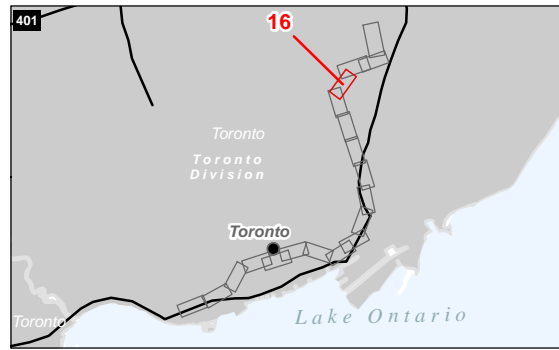
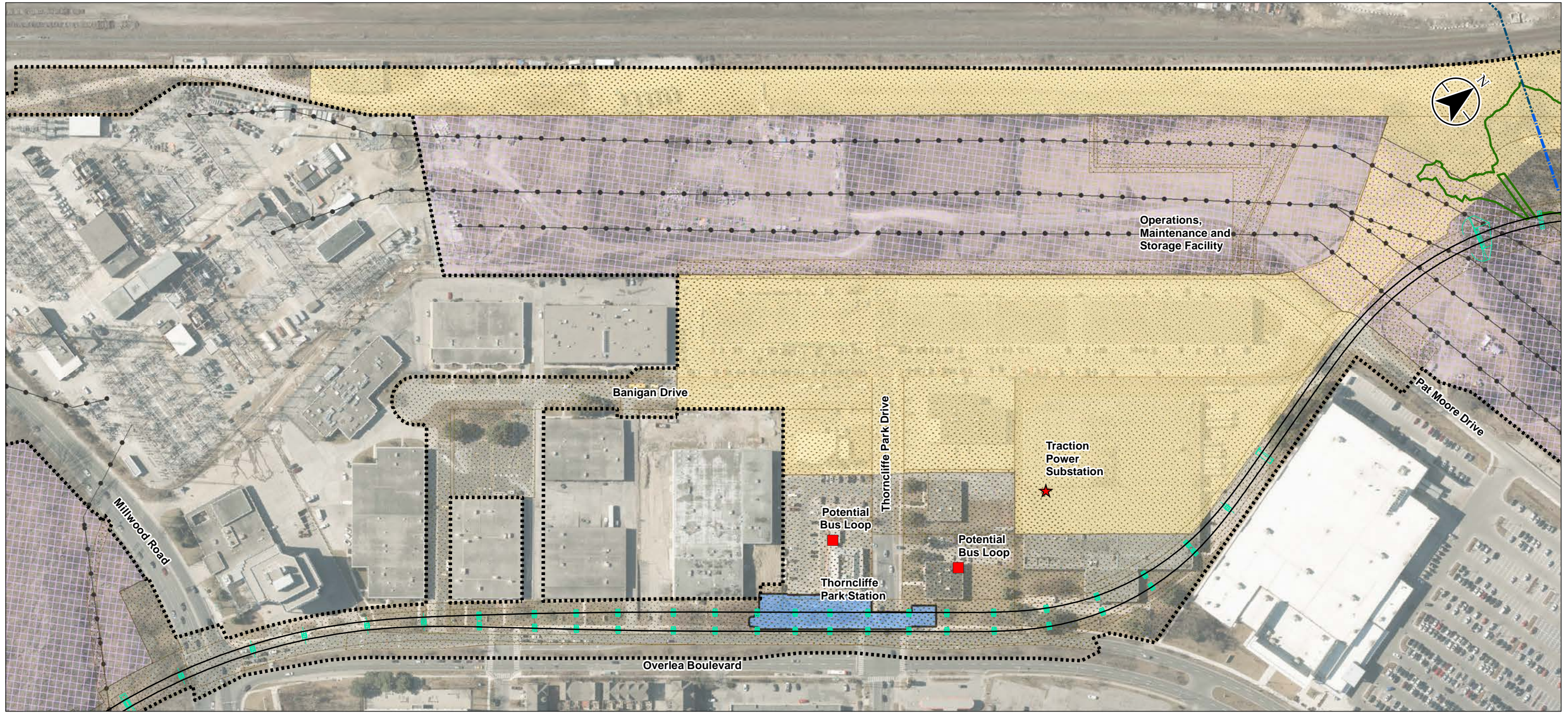
\*This area contains existing HONI infrastructure, and represents a conservatively large area within which transmission lines will be relocated to accommodate the Ontario Line. The area of potential impact will be further refined and reduced to the extent possible as design progresses, and disturbed areas will be restored in consultation with the TRCA and City of Toronto.



**General Note:**  
 The construction impacts within the EIAR project footprint will be refined as detailed design progresses.



Project Location Toronto, ON	Prepared by BCC on 2022-04-04
Client/Project HDR CORPORATION ONTARIO LINE TA	160560009 REVA
Figure No. <b>ES-15</b>	
Title <b>Project Footprint and Project Components</b>	

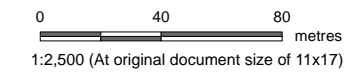


**Notes**  
 1. Coordinate System: NAD27 MTM zone 10  
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- Legend**
- Project Footprint
  - Alignment - Current**
  - Ontario Line Tracks
  - Elevated Guideway Pier
  - Existing Storm Sewer
  - Storm Sewer Extension
  - OMSF Bridge Fill Area
  - Ancillary HONI Realignment Area\*
  - Construction Staging and Laydown Area
  - Existing Hydro One Electrical Transmission Line
  - Station

- Operations, Maintenance and Storage Facility
- Potential Bus Loop
- Traction Power Substation

\*This area contains existing HONI infrastructure, and represents a conservatively large area within which transmission lines will be relocated to accommodate the Ontario Line. The area of potential impact will be further refined and reduced to the extent possible as design progresses, and disturbed areas will be restored in consultation with the TRCA and City of Toronto.



**General Note:**  
 The construction impacts within the EIA/R project footprint will be refined as detailed design progresses.

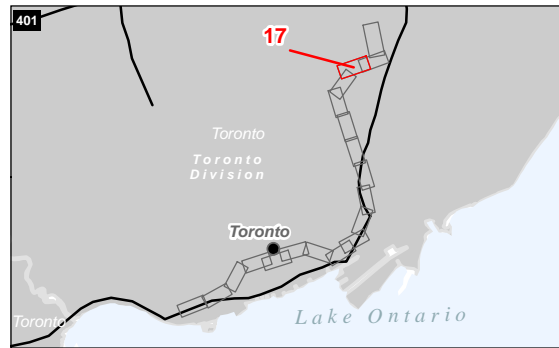
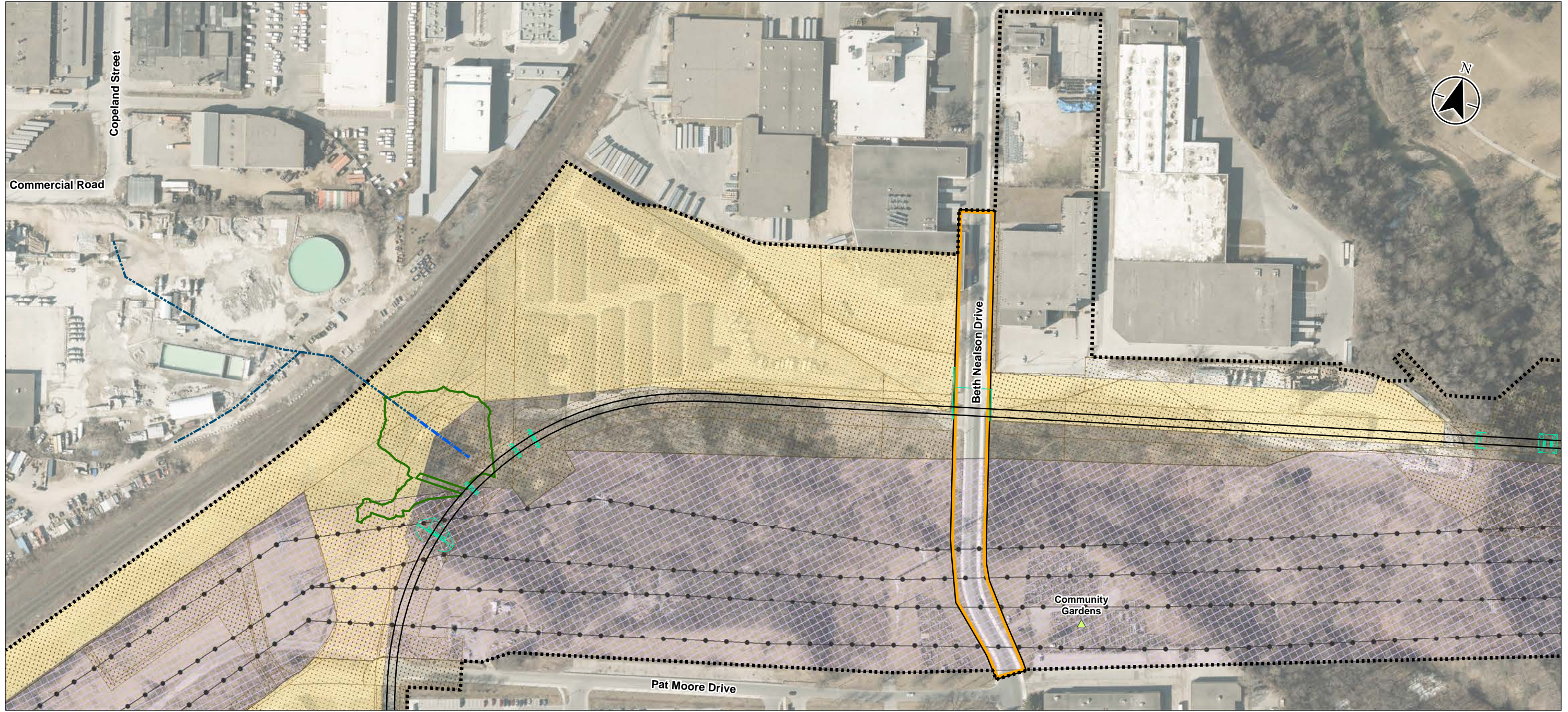


Project Location: Toronto, ON  
 Prepared by BCC on 2022-04-04

Client/Project: HDR CORPORATION, ONTARIO LINE TA  
 160560009 REVA

Figure No.: **ES-16**  
 Title: **Project Footprint and Project Components**

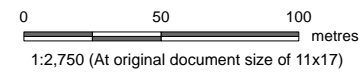
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- Legend**
- Project Footprint
  - Alignment - Current**
  - Ontario Line Tracks
  - Elevated Guideway Pier
  - Existing Storm Sewer
  - Storm Sewer Extension
  - OMSF Bridge Fill Area
  - Ancillary HONI Realignment Area\*
  - Construction Staging and Laydown Area
  - Road Under Rail Grade Separation
  - Existing Hydro One Electrical Transmission Line

- Operations, Maintenance and Storage Facility
- Community Gardens will be maintained and direct impacts are not anticipated

\*This area contains existing HONI infrastructure, and represents a conservatively large area within which transmission lines will be relocated to accommodate the Ontario Line. The area of potential impact will be further refined and reduced to the extent possible as design progresses, and disturbed areas will be restored in consultation with the TRCA and City of Toronto.



**General Note:**  
The construction impacts within the EIA/R project footprint will be refined as detailed design progresses.



Project Location: Toronto, ON Prepared by BCC on 2022-04-04

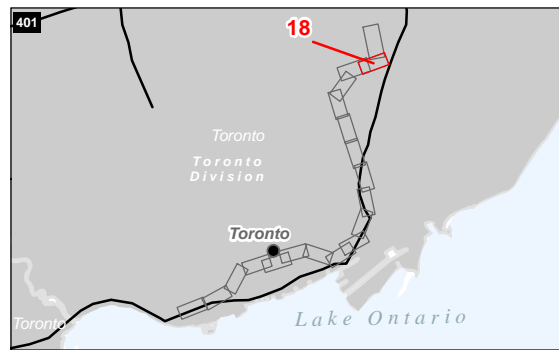
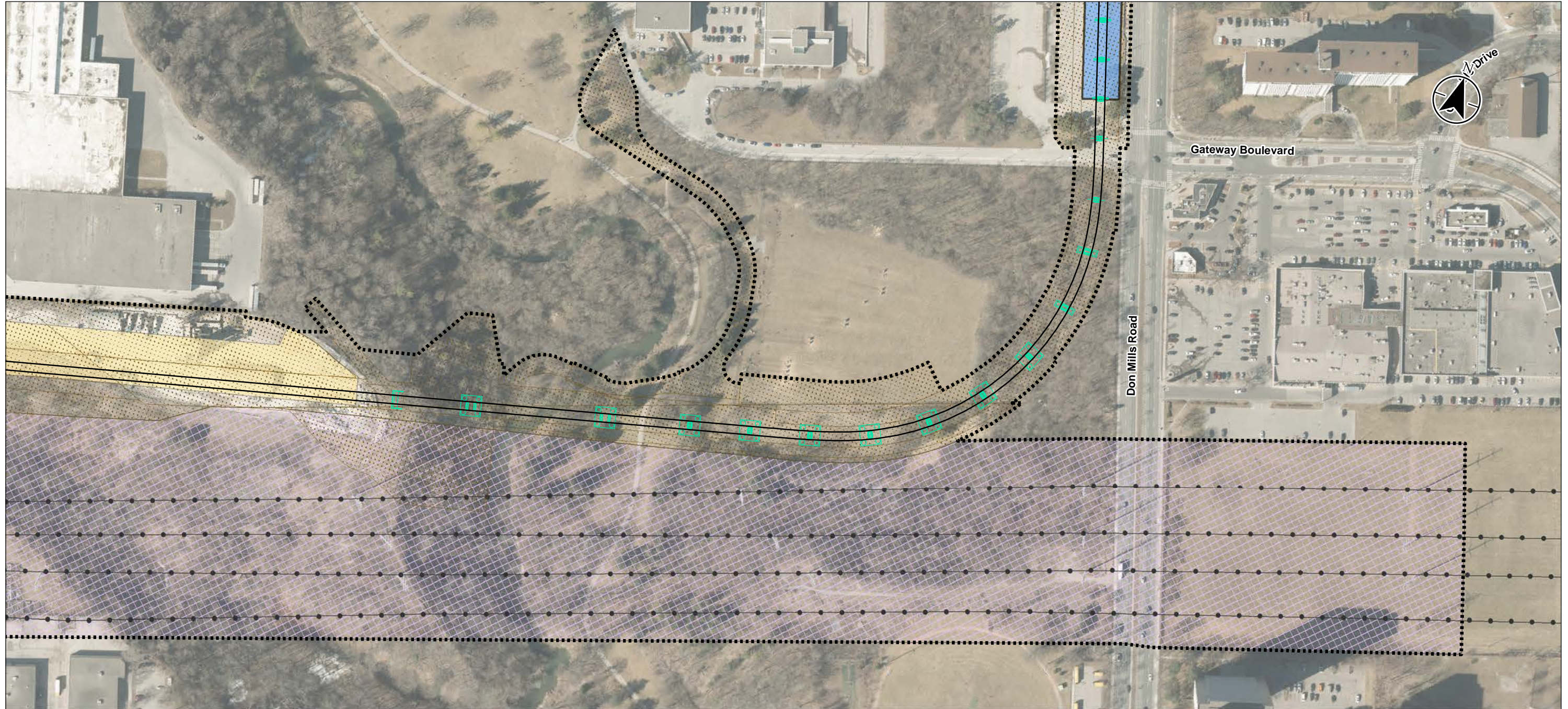
Client/Project: HDR CORPORATION ONTARIO LINE TA 160560009 REVA

Figure No. **ES-17**

Title **Project Footprint and Project Components**

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\\cd1215-10\work\_group\01605\active\160560009\11\_data\gis\_cad\gis\mxd\mapbook\mxd\Fig03-1-19\_ProjectFootprintMapbook.mxd Revised: 2022-04-04 By: bcowper

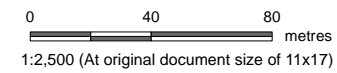


**Legend**

- Project Footprint
- Alignment - Current**
- Ontario Line Tracks
- Elevated Guideway Pier
- Ancillary HONI Realignment Area\*
- Construction Staging and Laydown Area
- Existing Hydro One Electrical Transmission Line
- Station
- Operations, Maintenance and Storage Facility

**Notes**  
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\*This area contains existing HONI infrastructure, and represents a conservatively large area within which transmission lines will be relocated to accommodate the Ontario Line. The area of potential impact will be further refined and reduced to the extent possible as design progresses, and disturbed areas will be restored in consultation with the TRCA and City of Toronto.



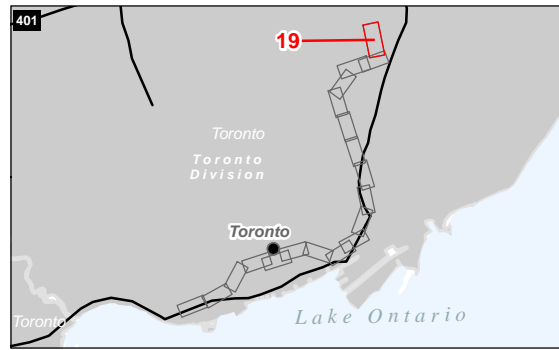
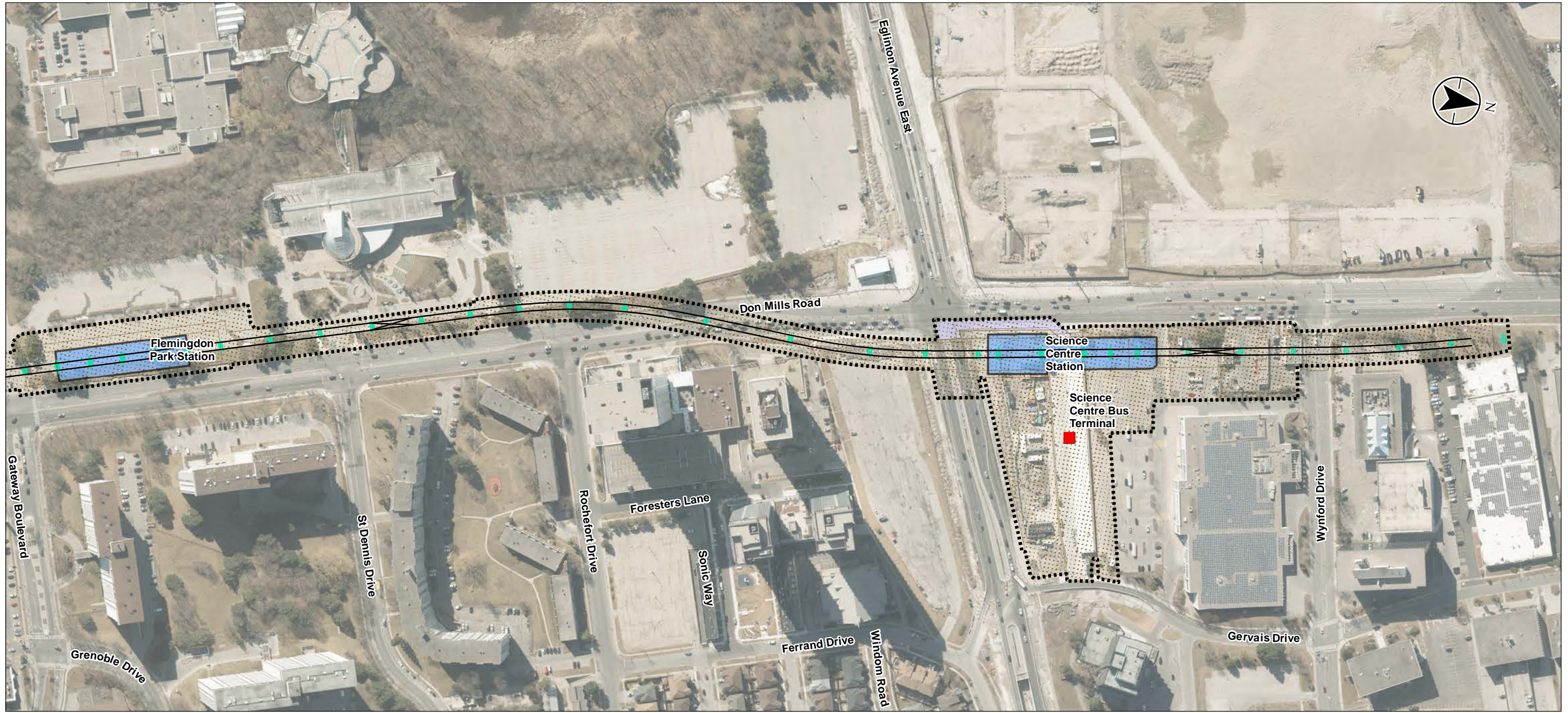
**General Note:**  
 The construction impacts within the EIAR project footprint will be refined as detailed design progresses.



Project Location: Toronto, ON Prepared by BCC on 2022-04-04

Client/Project: HDR CORPORATION ONTARIO LINE TA 160560009 REVA

Figure No.: **ES-18**  
 Title: **Project Footprint and Project Components**



- Legend**
- Project Footprint
  - Alignment - Current**
  - Ontario Line Tracks
  - Elevated Guideway Pier
  - Construction Staging and Laydown Area
  - Station
  - Pedestrian Tunnel
  - The future bus terminal at Science Centre Station will remain operational during the construction period

0 50 100 metres  
1:3,000 (At original document size of 11x17)

**General Note:**  
The construction impacts within the EIA project footprint will be refined as detailed design progresses.



*Project Location*  
Toronto, ON Prepared by BCC on 2022-04-04

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*Client/Project*  
HDR CORPORATION  
ONTARIO LINE TA 160560009 REVA

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*Figure No.*  
**ES-19**

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*Title*  
**Project Footprint and Project Components**

**Notes**  
1. Coordinate System: NAD27 MTM zone 10  
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## ES.4 Existing Conditions

This section provides a summary of the existing environmental conditions for the Project Footprint. The purpose of characterizing existing environmental conditions is to establish a baseline condition for the assessment of environmental impacts and the identification of environmental mitigation and monitoring measures. The identification of the existing environmental conditions involved collection of primary and secondary sourced data including consultation with technical agencies. Information on the following environmental components is provided in the sections below, and where applicable, is supplemented with supporting detailed technical reports:

Natural Environment .....	<b>Section 4.3 and Appendix A1</b>
Soil and Groundwater .....	<b>Section 4.4</b>
Cultural Heritage .....	<b>Section 4.5 and Appendix A2</b>
Archaeological Resources .....	<b>Section 4.6 and Appendix A3</b>
Socio-Economic and Land Use.....	<b>Section 4.7 and Appendix A4</b>
Air Quality .....	<b>Section 4.8 and Appendix A5</b>
Noise and Vibration .....	<b>Section 4.9 and Appendix A6</b>
Traffic and Transportation.....	<b>Section 4.10 and Appendix A7</b>
Utilities.....	<b>Section 4.11</b>

The Project Footprint represents the area of primary disturbance which may result from construction and operation of the Project. Discipline-specific study areas were developed for environmental disciplines to account for potential impacts beyond the Project Footprint. The study areas for each discipline are defined in **Table 4-1**.

### Natural Environment

The Natural Environment Study Area includes the Project Footprint and a 120-metre buffer, extended to 170-metres in the north where key environmental features are present. The minimum 120-metre buffer has been applied in accordance with the Natural Heritage Reference Manual for Natural Heritage Policies of the Provincial Policy Statement, Second Edition (Ministry of Natural Resources and Forestry 2010). The objectives of this assessment were to examine the following aspects of the natural environment:

- designated features and policy areas
- vegetation communities
- fish and fish habitat
- wildlife and wildlife habitat
- significant wildlife habitat
- species at risk

Further details on the existing conditions for Soil and Groundwater for the Project Footprint can be found in **Section 4.3** and **Appendix A1**.



## Soil and Groundwater

The Soil and Groundwater Study Area includes the Project Footprint and a 500-metre buffer for water wells. This buffer has been applied in accordance with the Hydrogeological Assessment Submissions Conservation Authority Guidelines for Development Applications (Toronto and Region Conservation Authority 2013), which recommends well data for private wells within 500 metres be used for impact assessment. The following aspects were examined:

- Geological setting, including physiography and topography, surficial geology, quaternary geology, and bedrock geology
- Hydrogeological setting, including regional groundwater flow
- Groundwater resources, including source water protection features and MECP water well records
- The potential for soil and groundwater contamination

Further details on the existing conditions for Soil and Groundwater for the Project Footprint can be found in **Section 4.4**.

## Built Heritage Resources and Cultural Heritage Landscapes

The Built Heritage Resources and Cultural Heritage Landscapes Study Area includes the Project Footprint, adjacent properties to account for potential indirect impacts, and properties within a zone of influence to account for potential structural impacts that may result from vibration.

A total of 272 resources and landscapes were identified based on:

- the City of Toronto Heritage Register to identify properties that have been listed or designated under Part IV of the *Ontario Heritage Act*
- the City of Toronto Heritage Register to confirm whether parts of the Study Area fall in a heritage conservation district that is designated under the *Ontario Heritage Act*
- a review of the online searchable databases on the Ontario Heritage Trust heritage property website
- the Canadian Register of Historic Places, as well as the Directory of Federal Heritage Designations and the list of National Historic Sites, maintained by Parks Canada
- the list of Provincial Heritage Properties of Provincial Significance, maintained by the Ministry of Heritage, Sport, Tourism, and Cultural Industries
- field reviews

Further details regarding built heritage resources and cultural heritage landscapes can be found in **Section 4.5** and **Appendix A2**.

## Archaeological Resources

Based on the Standards and Guidelines for Consultant Archaeologists (Ministry of Tourism and Culture 2011), only areas of direct construction impacts are subject to archaeological assessment. The Stage 1 Archaeological Assessment was completed to:

- provide information about the study area's geography, history, previous archaeological fieldwork, and current land conditions
- evaluate the study area's archaeological potential which will support recommendations for further archaeological assessment for all or parts of the property
- recommend appropriate strategies for further archaeological assessment, if required

The Stage 1 Archaeological Assessment determined that approximately 31 hectares of the Study Area possesses archaeological potential for which Stage 2 archaeological assessment is recommended. Additionally, the desktop review identified two registered archaeological sites located in the Ontario Line South Study Area with outstanding cultural heritage value or interest. These are Parliament site, and the Lime Kiln works site. Stage 4 mitigations are recommended for these sites.

Further details regarding archaeological resources can be found in **Section 4.6** and **Appendix A3**.

## Socio-Economic and Land Use Characteristics

The Socio-Economic and Land Use Study Area includes the Project Footprint, and a 500-metre buffer based on Project components and associated impacts, with greater detail provided closer to the Project Footprint. This buffer has been applied in socio-economic studies for approved transit project environmental assessments of similar scope. Socio-economic features and land use characteristics in the Ontario Line Study Area were identified and characterized through a desktop review of provincial and municipal documents and policies, online data sources such as the City of Toronto Open Data portal, and associated databases/mapping tools. The features and characteristics examined include:

- Land use designations and applicable Secondary Plans under the City of Toronto Official Plan;
- Physical neighbourhood composition, including existing land use and built form patterns, transit and transportation network, and public realm characteristics;
- Community amenities, including institutional uses, parks and recreational uses, community groups and their resources, and planned services and facilities;
- Neighbourhood demographics; and
- Future development.

Further details regarding socio-economic and land use characteristics are described in **Section 4.7** and **Appendix A4**.

## Air Quality

The Air Quality Study Area includes the Project Footprint and a 500-metre buffer. This buffer has been applied in accordance with the Ministry of Transportation's Environmental Guide for Assessing and Mitigating the Air Quality Impact and Greenhouse Gases of Provincial Transportation Projects (Ministry of Transportation 2020), which states that for major roads, a distance of 500 metres is expected to capture the maximum pollutant concentrations.

Existing air quality conditions included a review of land uses, meteorological conditions, and activities that general air contaminants of interest (such as road traffic emissions, emissions from diesel locomotives, and industrial emissions). Background ambient air quality concentrations were assessed using data from the nearby National Air Pollution Surveillance Network or MECP stations (ECCC 2020 and AECOM 2020j). Stations were selected near the Study Area to be representative of ambient concentrations. Background levels for contaminants of interest in the OLW Study Area are well below their applicable objectives, with the noted exception of benzene and benzo(a)pyrene.

Current and potential future sensitive (e.g., residential dwellings) and critical receptors (e.g., childcare centres) were also identified.

Further details regarding air quality can be found in **Section 4.8** and **Appendix A5**.

## Noise and Vibration

The study area for the noise and vibration impact assessment was determined based on the area around the Project Footprint in which Project impacts have the potential to be experienced. For the purposes of this assessment the study area is defined as 500 m from the Project Footprint.

A detailed summary of the existing noise and vibration conditions in each of the Projects three sections are presented in the Noise and Vibration Impact Assessment Report in **Appendix A6** and described in **Section 4.9**. The existing noise and vibration conditions presented in this report were characterized using measurement data previously collected at representative noise sensitive receptors near the Project and presented in the Ontario Line Noise & Vibration Environmental Conditions Report (AECOM 2020k) and additional monitoring data collected. Noise data was collected over multiple days to confirm that sufficient data was available to represent the baseline after being processed to remove noise samples that may have been influenced by high winds or precipitation which may have a chance of producing false noise data. Vibration impacts from the Project were assessed against the applicable criteria, considering the building type (e.g., residential, commercial/institutional, highly sensitive buildings such as TV studios/concert halls, heritage buildings) and the zone of influence of vibration from construction and operations.

## Traffic and Transportation

The Project Traffic and Transportation Study Area includes the Project Footprint and adjacent road segments and intersections which meet either of the following criteria:

- Provide connection to the Project Footprint and are thus potentially considered a part of the construction vehicles' routes; or
- Impacted directly by the Project activities within the Project Footprint.

A detailed summary of the existing traffic conditions throughout the Project area is presented in the Transportation and Traffic Analysis Report (HDR 2022) and relied upon the findings of the Traffic and Transportation Environmental Conditions Report (AECOM 2020). These findings are presented in **Appendix A7** and described in **Section 4.10**. Available mapping was reviewed to better understand the existing transportation conditions within the Traffic and Transportation Assessment Area. The latest available Turning Movement Counts at signalized intersections, signal timing plans, travel time data, and collision data were provided by the City of Toronto. Additional data was collected in December 2019, which included roadway geometry, up-to-date turning movement counts at key intersections in the Assessment Area.

## Utilities

Review of utilities was limited to Project Footprint. This approach captures potential direct impacts to private and public utilities as a result of the early works construction activities.

**Section 4.11** provides a preliminary list of the owners of utilities in the Project Footprint and the 1,115 conflicts with the Project. Additional utilities identified as the design progresses will be documented in the Final EIAR.

## ES.5 Potential Impacts, Mitigation Measures and Monitoring Activities

Section 5 includes information related to potential impacts, mitigation measures, and monitoring activities. The potential for impacts has been determined based on an understanding of the Project components, and how construction and operation of the Project will interact with existing environmental conditions. The impact assessment is based on conservative assumptions regarding potential impacts that could occur as a result of the Project. They are also based on existing environmental conditions, and information available at the time of the EIAR. The Project design has considered methods to avoid potential negative environmental impacts and where potential negative impacts cannot be avoided, mitigation measures have been recommended. Monitoring activities have also been identified wherever required.

Refer to **Table ES-2** for a complete list of potential impacts, mitigation measures, and monitoring activities as outlined in the EIAR.

Table ES-2. Potential Impacts, Mitigation Measures and Monitoring Activities

Environmental Component	Potential Impact	Mitigation Measure(s)	Monitoring Activities
<b>NATURAL ENVIRONMENT</b>			
<b>Designated Features and Policy Areas</b>			
<p><u>Policy Areas: OLW Study Area</u></p> <ul style="list-style-type: none"> <li>City of Toronto Natural Heritage System (lands in the study area located west of the Project footprint)</li> </ul> <p><u>Policy Areas: OLS Study Area</u></p> <ul style="list-style-type: none"> <li>City of Toronto Natural Heritage System (Lower Don River Valley)</li> <li>City of Toronto Ravine and Natural Feature Protection Area (Lower Don River Valley)</li> <li>TRCAs Terrestrial Natural Heritage System and Regulation Areas (Lower Don River Valley)</li> <li>Urban River Valley under the Greenbelt Plan (Lower Don River Valley)</li> </ul> <p><u>Designated Features: OLN Study Area</u></p> <ul style="list-style-type: none"> <li>The West Don River valley; candidate Regionally Significant Life Science Areas of Natural and Scientific Interest; and unevaluated wetlands</li> <li>The Don River Valley is considered to be valleyland feature under the Provincial Policy Statement.</li> </ul> <p><u>Policy Areas: OLN Study Area</u></p> <ul style="list-style-type: none"> <li>City of Toronto Natural Heritage System and E.T. Seton Park Environmentally Significant Area</li> <li>City of Toronto Ravine and Natural Feature Protection Areas (Don River valley)</li> <li>TRCAs Terrestrial Natural Heritage System and Regulation Areas (Don River valley)</li> <li>Urban River Valley under the Greenbelt Plan (Don River valley)</li> </ul>	<p><b>Construction</b></p> <p><u>OLW Study Area</u></p> <ul style="list-style-type: none"> <li>City of Toronto Natural Heritage System Lands are located west of the Project footprint and are separated from the Project footprint by Dufferin Street. Natural environment impacts are not anticipated to this feature.</li> </ul> <p><u>OLS and OLN Study Areas</u></p> <ul style="list-style-type: none"> <li>Removal of vegetation communities</li> <li>Disturbance, displacement or mortality of wildlife or habitat loss/degradation, including potential Significant Wildlife Habitat and SAR</li> <li>Soil or water contamination as a result of spills (e.g., grease and/or fuel) from equipment use</li> <li>Introduction or spread of invasive species</li> <li>Increased erosion and sedimentation</li> <li>Reduction in ecological function and integrity</li> </ul> <p><b>Operations</b></p> <p><u>OLW Study Area</u></p> <ul style="list-style-type: none"> <li>City of Toronto Natural Heritage System Lands are located west of the Project footprint and are separated from the Project footprint by Dufferin Street. Natural environment impacts are not anticipated to this feature.</li> </ul> <p><u>OLS and OLN Study Areas</u></p> <ul style="list-style-type: none"> <li>Localized losses of habitat which may support local wildlife populations and SAR</li> <li>Reduction in habitat quality resultant from increases in light, noise pollution and dust generation</li> <li>Potential reduction in habitat quality and ecosystem resilience related to edge habitat and invasive species proliferation</li> <li>Potential reduction in species movement throughout the corridor</li> </ul>	<p><b>Construction</b></p> <p><u>OLW Study Area</u></p> <ul style="list-style-type: none"> <li>As no impacts are anticipated to the City of Toronto Natural Heritage System (west of the Project footprint) during construction, no mitigation measures are recommended.</li> </ul> <p><u>OLS Study Area</u></p> <ul style="list-style-type: none"> <li>Refer to mitigation measures described for Vegetation Communities, Wildlife and Wildlife Habitat, Species at Risk and Aquatic Environment.</li> <li>Compensation for the removal of vegetation in accordance with Metrolinx Vegetation Guideline (2020b) will consider maintaining or enhancing connectivity along the Don River to the extent possible.</li> <li>Further consideration to reduce potential impacts on TRCAs Terrestrial Natural Heritage System to the extent possible will be undertaken during detailed design.</li> </ul> <p><u>OLN Study Area</u></p> <ul style="list-style-type: none"> <li>Vegetation removal and soil disturbance in designated natural areas will be avoided where possible and will be kept to a minimum. In support of this, a Tree Protection Plan and an Erosion and Sediment Control Plan will be developed and implemented prior to construction.</li> <li>Compensation for the removal of vegetation in designated natural areas will be in accordance with Metrolinx's Vegetation Guideline (2020b), which provides a compensation framework for Designated Natural Areas which mirrors the TRCA Guideline for Determining Ecosystem Compensation (TRCA 2018).</li> <li>Mitigation measures described for Vegetation Communities, Wildlife and Wildlife Habitat and Species at Risk also apply to designated natural areas.</li> </ul> <p><b>Operations</b></p> <p><u>OLW Study Area</u></p> <ul style="list-style-type: none"> <li>As no impacts are anticipated to the City of Toronto Natural Heritage System (west of the Project footprint) during operations, no mitigation measures are recommended.</li> </ul> <p><u>OLS and OLN Study Areas</u></p> <ul style="list-style-type: none"> <li>Compensatory habitat in the Don Valley and mitigation measures including on-going invasive species management are under discussion with agency stakeholders (City of Toronto and TRCA).</li> </ul>	<p><b>Construction</b></p> <p><u>OLW Study Area</u></p> <ul style="list-style-type: none"> <li>As no impacts are anticipated to the City of Toronto Natural Heritage System (west of the Project footprint) during construction, no monitoring activities are recommended.</li> </ul> <p><u>OLS and OLN Study Areas</u></p> <ul style="list-style-type: none"> <li>Refer to monitoring described for Vegetation Communities, Wildlife and Wildlife Habitat, Species at Risk and Aquatic Environment.</li> </ul> <p><b>Operations</b></p> <p><u>OLW Study Area</u></p> <ul style="list-style-type: none"> <li>As no impacts are anticipated to the City of Toronto Natural Heritage System (west of the Project footprint) during operations, no monitoring activities are recommended.</li> </ul> <p><u>OLS and OLN Study Areas</u></p> <ul style="list-style-type: none"> <li>Monitoring restoration areas and follow up management are under discussion with agency stakeholders (City of Toronto and TRCA).</li> </ul>

Environmental Component	Potential Impact	Mitigation Measure(s)	Monitoring Activities																																																			
<b>Vegetation Communities</b>																																																						
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Seed mixes will be used in conjunction with an appropriate non-invasive cover crop, as needed. Vegetation removal will also consider and mitigate potential impacts to sensitive species (e.g., migratory birds and SAR) and features (e.g., designated natural areas and significant wildlife habitat). Refer to mitigation measures described for Wildlife and Wildlife Habitat and Species at Risk.</li> <li>The following Ontario Provincial Standard Specifications will be considered when removing vegetation communities: PROV 180 (Management of Excess Materials), PROV 801 (Protection of Trees), PROV 803 (Construction Specification for Vegetation Cover), and PROV 804 and 805 (Construction Specifications for Temporary Erosion Control).</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>Vegetation removal will be reduced to the extent possible and limited to the Metrolinx right-of-way.</li> <li>Herbicide applications will be administered subject to the <i>Pesticides Act</i>.</li> </ul>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>Onsite inspection will be undertaken to confirm the implementation of the mitigation measures and identify corrective actions if required. 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<p>Vegetation communities – tree removal and compensation plans</p>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>City and private tree removal, injury, and protection</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>Potential impacts are not anticipated during operations</li> </ul>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>An Arborist Report by an I.S.A. Certified Arborist will be prepared with regard to the Metrolinx Vegetation Guidelines (2020b), Ontario <i>Forestry Act</i> R.S.O. 1990, the ESA and other regulations, municipal bylaws, and best management practices as applicable.</li> <li>The Arborist Report will include, but not be limited to the individual identification of trees in the study area, including those that require removal or preservation, or trees that may be injured as a result of Project activities. Trees to be identified in the study area will include those on Metrolinx property, trees on public and private lands, and boundary trees. The City of Toronto by-laws will dictate the minimum diameter at breast height that requires inventory and additional requirements for tree inventories and tree protection plans.</li> <li>Prior to the undertaking of tree removals, a Tree Removal Strategy/Tree Preservation Plan will be developed during detailed design to document tree protection and mitigation measures that follow the City of Toronto Tree Protection Policy and Specifications for Construction Near Trees Guidelines (2016) and/or City of Toronto by-laws, and adherence with best practices, standards and regulations on safety, environmental and wildlife protections.</li> <li>Compensation for tree removals will be undertaken in accordance with provisions outlined in the Metrolinx Vegetation Guideline (2020b) and principles of the TRCA Guideline for Determining Ecosystem Compensation (2018).</li> <li>Pruning of branches will be conducted through the implementation of proper arboricultural techniques.</li> <li>Tree Protection Zone fencing will be established to protect and prevent tree injuries. Tree Protection Zones will be clearly staked prior to construction using barriers in accordance with local by-law requirements.</li> <li>The Arborist Report will include information needed to establish compensation ratios and tree end use (including identification of high value trees) as per the Metrolinx Vegetation Guideline (2020b).</li> <li>If a tree requires removal or injury, compensation, and permitting/approvals (as required) will be undertaken in accordance with Metrolinx’s Vegetation Guideline (2020b). Applicable bylaws for tree removals outside of Metrolinx properties will be followed.</li> <li>Vegetation removal will also consider and mitigate potential impacts to sensitive species, e.g., migratory birds and SAR, and features, e.g., designated natural areas and significant wildlife habitat. Refer to mitigation measures described for Wildlife and Wildlife Habitat and Species at Risk.</li> <li>City of Toronto tree removal/injury permits shall be requested and obtained for trees regulated under Bylaw 813, 658 and 608.</li> </ul>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>Regular inspection in areas of vegetation removal will be undertaken, as required, during construction to confirm that fencing is intact, only specified trees are removed, and no damage is caused to the remaining trees and adjacent vegetation communities.</li> <li>Onsite inspection will be undertaken to confirm the implementation of the mitigation measures and identify corrective actions, if required. Corrective actions may include additional site maintenance and alteration of activities to reduce impacts.</li> <li>If required, vegetation compensation activities will be monitored in accordance with Metrolinx’s Vegetation Guideline (2020b) and conditions of permits and approvals as determined by property ownership, applicable governing by-laws/regulations, and location with respect to ecological functioning.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>As no tree removals are anticipated during operations, no monitoring activities are recommended.</li> </ul>



Environmental Component	Potential Impact	Mitigation Measure(s)	Monitoring Activities
		<ul style="list-style-type: none"> <li>• Compensation for trees in the Metrolinx ROW will follow the Metrolinx Vegetation Guideline (2020b). Trees that are located in a designated natural area will reflect the principles of the TRCA Guideline for Determining Ecosystem Compensation (2018).</li> <li>• Ontario Provincial Standard Specifications PROV 803 (Construction Specification for Vegetation Cover) and PROV 804 and 805 (Construction Specifications for Temporary Erosion Control) will be considered for tree removal.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>• As no tree removals are anticipated during operations, no mitigation measures are recommended.</li> </ul>	
Vegetation Communities – Integrated Vegetation Management (IVM)	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>• Footprint Impacts and potential for the establishment of invasive species and other incompatible species.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>• Potential impacts are not anticipated during operations.</li> </ul>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>• An Integrated Vegetation Management Plan will be developed and implemented that is in adherence with the Metrolinx Vegetation Guideline (2020b) and the Integrated Vegetation Management Program. The Guideline’s selection criteria will be used to assess the vegetation present as compatible or incompatible, and manage it, if necessary, in a way which meets safety needs in a timely manner, is sensitive to environmental conditions, and maximizes cost-effectiveness.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>• An Integrated Vegetation Management Plan will be developed and implemented that is in adherence with the Metrolinx Vegetation Guideline (2020b) and the Integrated Vegetation Management Program. The Guideline’s selection criteria will be used to assess the vegetation present as compatible or incompatible, and manage it, if necessary, in a way which meets safety needs in a timely manner, is sensitive to environmental conditions, and maximizes cost-effectiveness.</li> </ul>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>• The presence, density, and location of compatible and incompatible species will be monitored as per the frequency and methodology established in the Bi-Annual Monitoring Program within the Metrolinx Vegetation Guideline (2020b). The Bi-Annual Monitoring Program is made up of pre-treatment and post-treatment monitoring that will be carried out by field survey, by aerial survey, and by high-rail vehicle or train surveys conducted by qualified specialists.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>• Monitoring and management of trees/vegetation in the rail corridor right-of-way will be undertaken in accordance with the Integrated Vegetation Management Program within the Metrolinx Vegetation Guideline (2020b).</li> </ul>
Vegetation communities – tree removal strategy	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>• Potential for the spread of emerald ash borer, <i>Agrilus planipennis</i> (Fairmaire) associated with removal, handling and transport of ash trees.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>• Potential impacts are not anticipated during operations</li> </ul>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>• Removal of ash trees, or portions of ash trees, will be carried out in compliance with the Canada Food and Inspection Agency Directive D03-08: Phytosanitary Requirements to Prevent the Introduction into and Spread within Canada of the Emerald Ash Borer, <i>Agrilus planipennis</i> (Fairmaire) (2014), as amended from time to time. To comply with this Directive, ash trees requiring removal, including wood, bark or chips, will be restricted from being transported outside of the emerald ash borer regulated areas of Canada.</li> <li>• Take precautions to reduce the spread of invasive species by cleaning equipment prior to moving them into sites.</li> </ul> <p><b>Operations</b></p>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>• Onsite inspection will be undertaken to confirm the implementation of the mitigation measures and identify corrective actions, if required. Corrective actions may include additional site maintenance and alteration of activities to reduce impacts.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>• As no tree removal impacts are anticipated during operations, no monitoring activities are recommended.</li> </ul>

Environmental Component	Potential Impact	Mitigation Measure(s)	Monitoring Activities
		<ul style="list-style-type: none"> <li>As no tree removal impacts are anticipated during operations, no mitigation measures are recommended.</li> </ul>	
Vegetation communities – erosion and sedimentation	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>Increased erosion and sedimentation</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>Potential impacts are not anticipated during operations</li> </ul>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>Construction fencing and/or silt fencing, where appropriate, will be installed and maintained to clearly define the construction footprint and prevent accidental damage or intrusion to adjacent vegetation or ELC communities.</li> <li>An Erosion and Sediment Control Plan, in accordance with the Greater Golden Horseshoe’s Erosion and Sediment Control Guideline for Urban Construction (2006) and the Erosion and Sediment Control Guide for Urban Construction (TRCA 2019), will be prepared prior to and implemented during construction to reduce the risk of sedimentation to vegetation communities.</li> <li>Stockpiled materials or equipment will be stored in the construction footprint but shall be kept at least 30 metres away from any watercourse; signs will be put up on site to indicate the setback.</li> <li>Ontario Provincial Standard Specifications PROV 804 and 805 (Construction Specifications for Temporary Erosion Control) will be considered when implementing erosion and sediment controls.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>As no erosion and sedimentation impacts are anticipated during operations, no mitigation measures are recommended.</li> </ul>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>Onsite inspection will be undertaken to confirm the implementation of the mitigation measures and identify corrective actions, if required. All erosion and sediment control measures should be inspected weekly. All damaged erosion and sediment control measures will be repaired and/or replaced within 48 hours of the inspection. Corrective actions may include additional site maintenance and alteration of activities to reduce impacts.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>As no erosion and sedimentation impacts are anticipated during operations, no monitoring activities are recommended.</li> </ul>
Vegetation communities – environmental contamination and invasive species	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>Soil or water contamination as a result of spills (e.g., grease and/or fuel) from equipment use</li> <li>Introduction or spread of invasive species</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>Soil or water contamination as a result of spills (e.g., grease and/or fuel) from equipment use during maintenance activities</li> <li>Introduction or spread of invasive species</li> </ul>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>A Spill Prevention and Contingency Plan will be developed and adhered to. Spills will be immediately contained and cleaned up in accordance with provincial regulatory requirements and the contingency plan.</li> <li>Refuelling of equipment will occur at least 30 metres away from a watercourse, where possible; signs will be put up on site to indicate the setback.</li> <li>Refuelling shall be done in refuelling stations lined with appropriate material to prevent seepage and fuel discharge.</li> <li>Machinery, equipment and vehicles arriving on site should be in clean condition (e.g., free of fluid leaks, soils containing seeds of plant material from invasive species) and be inspected and washed in accordance with the Clean Equipment Protocol for Industry (Halloran et al. 2013) prior to arriving and leaving the site. This will reduce the risk of the spread of invasive species to other locations</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>A Spill Prevention and Contingency Plan will be developed and adhered to. Spills will be immediately contained and cleaned up in accordance with provincial regulatory requirements and the contingency plan.</li> </ul>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>Onsite inspection will be undertaken to confirm the implementation of the mitigation measures and identify corrective actions, if required. Corrective actions may include additional site maintenance and alteration of activities to reduce impacts.</li> <li>Precautions will be taken to reduce the risk of the spread of invasive species by implementing the Clean Equipment Protocol for Industry (Halloran et al. 2013) on equipment and machinery prior to arriving on a site.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>Onsite inspection will be undertaken to confirm the implementation of the mitigation measures and identify corrective actions, if required. Corrective actions may include additional site maintenance and alteration of activities to reduce impacts.</li> <li>Precautions will be taken to reduce the risk of the spread of invasive species by implementing the Clean Equipment Protocol for Industry (Halloran et al. 2013) on equipment and machinery prior to arriving on a site.</li> </ul>

Environmental Component	Potential Impact	Mitigation Measure(s)	Monitoring Activities
		<ul style="list-style-type: none"> <li>• Refuelling of equipment will occur at least 30 metres away from a watercourse, where possible.</li> <li>• Refuelling will be done in refuelling stations lined with appropriate material to prevent seepage and fuel discharge.</li> <li>• Machinery, equipment and vehicles arriving on site should be in clean condition (e.g., free of fluid leaks, soils containing seeds of plant material from invasive species) and be inspected and washed in accordance with the Clean Equipment Protocol for Industry (Halloran et al. 2013) prior to arriving and leaving the site. This will reduce the risk of the spread of invasive species to other locations.</li> </ul>	
<b>Wildlife and Wildlife Habitat</b>			
Wildlife and wildlife habitat – general	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>• Disturbance, displacement, or mortality of wildlife</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>• Disturbance, displacement, or mortality of wildlife during operational vegetation maintenance activities, if applicable</li> </ul>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>• If wildlife is encountered, measures will be implemented to avoid, as much as possible, destruction, injury, or interference with the species, and/or its habitat. For example, construction activities will cease, or be reduced, and wildlife will be encouraged to move off-site and away from the construction area on its own. A qualified biologist will be contacted to define the appropriate buffer required.</li> <li>• Prior to construction, investigation will be undertaken of the Project footprint for wildlife and wildlife habitat that may have established following the completion of previous surveys, as appropriate.</li> <li>• The NDMNRF will be contacted if wildlife species protected by the <i>Fish and Wildlife Conservation Act</i> are required to be relocated from the work area during construction.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>• If wildlife is encountered, measures will be implemented to avoid, as much as possible, destruction, injury, or interference with the species, and/or its habitat. For example, operational vegetation maintenance activities will cease, or be reduced, and wildlife will be encouraged to move off-site and away from the work area on its own. A qualified biologist will be contacted to define the appropriate buffer required from wildlife.</li> </ul>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>• Onsite inspection will be undertaken to confirm the implementation of the mitigation measures and identify corrective actions, if required. Corrective actions may include additional site maintenance and alteration of activities to reduce impacts.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>• Onsite inspection will be undertaken to confirm the implementation of the mitigation measures and identify corrective actions, if required. Corrective actions may include additional site maintenance and alteration of activities to reduce impacts</li> </ul>
Wildlife and wildlife habitat – general significant wildlife habitat	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>• Disturbance, displacement or mortality of wildlife or habitat loss for the following significant wildlife habitat:</li> </ul> <p><u>OLW Study Area</u></p> <ul style="list-style-type: none"> <li>○ Candidate bat maternity colonies</li> <li>○ Candidate habitat for the Species of Conservation Concern common nighthawk, eastern wood-pewee, peregrine falcon, and red-headed woodpecker</li> </ul> <p><u>OLS Study Area</u></p> <ul style="list-style-type: none"> <li>○ Confirmed habitat for Peregrine Falcon (Species of Conservation Concern) at the Sheraton Centre Toronto Hotel located at 123 Queen Street West.</li> </ul>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>• Prior to construction, investigation will be undertaken of the Project footprint for wildlife and wildlife habitat that may have established following the completion of previous surveys, as appropriate.</li> <li>• Mitigation measures specific to each Significant Wildlife Habitat are detailed in the wildlife and wildlife habitat sections below.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>• As no impacts are anticipated to general significant wildlife habitat during operations, no mitigation measures are recommended.</li> </ul>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>• Monitoring activities specific to each significant wildlife habitat are detailed in the wildlife and wildlife habitat sections below.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>• As no impacts are anticipated to general significant wildlife habitat during operations, no monitoring activities are recommended.</li> </ul>

Environmental Component	Potential Impact	Mitigation Measure(s)	Monitoring Activities
	<ul style="list-style-type: none"> <li>○ Confirmed habitat for Northern Map Turtle near the Lower Don River.</li> <li>○ Candidate habitat for the following Species of Conservation Concern: Common Nighthawk, Eastern Wood-pewee, Red-headed Woodpecker, Monarch, and Snapping Turtle.</li> </ul> <p><u>OLN Study Area</u></p> <ul style="list-style-type: none"> <li>○ Candidate amphibian movement corridor</li> <li>○ Candidate bat maternity colonies</li> <li>○ Candidate colonially – nesting bird breeding habitat (bank and cliff)</li> <li>○ Candidate landbird migratory stopover area</li> <li>○ Candidate reptile hibernacula</li> <li>○ Candidate turtle nesting areas</li> <li>○ Confirmed amphibian wetland breeding habitat</li> <li>○ Confirmed marsh breeding bird habitat</li> <li>○ Confirmed turtle wintering area</li> <li>○ Confirmed habitat for the Species of Conservation Concern eastern wood-pewee, monarch and snapping turtle</li> <li>○ Candidate habitat for the Species of Conservation Concern western chorus frog, black-crowned night heron, common nighthawk, great egret, peregrine falcon, red-headed woodpecker, wood thrush, monarch and northern map turtle.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>● Potential impacts are not anticipated during operations</li> </ul>		
<p>Wildlife and wildlife habitat – significant wildlife habitat – candidate bat maternity colonies (refer to SAR bats) – in the OLN Study Area</p>	<ul style="list-style-type: none"> <li>● Refer to SAR bats</li> </ul>	<ul style="list-style-type: none"> <li>● Refer to SAR bats</li> </ul>	<ul style="list-style-type: none"> <li>● Refer to SAR bats</li> </ul>
<p>Wildlife and wildlife habitat – significant wildlife habitat – Monarch (Species of Conservation Concern) – in the OLS and OLN Study Areas</p>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>● Disturbance or destruction of habitat used by monarchs</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>● Potential impacts are not anticipated during operations</li> </ul>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>● Identify opportunities to promote pollinator species and habitat in accordance with the Metrolinx Vegetation Guideline (2020b). This may include planting or seeding native flowering plants in temporarily disturbed areas.</li> <li>● Opportunities to plant milkweed or forage vegetation outside of and in the rail RoW will be undertaken, where possible, and in accordance with the Metrolinx Vegetation Guideline (2020b).</li> <li>● If vegetation clearing proceeds when monarch larvae may be present (April 1 to September 30), milkweed plants should be inspected for monarch larvae prior to their removal. If larvae are present, they may be moved to a location that is suitable and safe, under the direction of a qualified biologist. Monarch caterpillars may be moved to other milkweed plants; for other larval stages (i.e., eggs and chrysalis). Entire milkweed plants will be transplanted.</li> </ul>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>● Regular monitoring will be undertaken during construction to prevent unauthorized impacts to habitats used by Monarchs. This will include regular inspection to confirm that protection fencing around the habitat remains intact, and that there is no encroachment into the habitat.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>● As no impacts are anticipated to significant wildlife habitat for monarch during operations, no monitoring activities are recommended.</li> </ul>

Environmental Component	Potential Impact	Mitigation Measure(s)	Monitoring Activities
		<p><b>Operations</b></p> <ul style="list-style-type: none"> <li>As no impacts are anticipated to significant wildlife habitat for monarch during operations, no mitigation measures are recommended.</li> </ul>	
<p>Wildlife and wildlife habitat – significant wildlife habitat – common nighthawk (Species of Conservation Concern)</p>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>Removal of candidate nesting habitat for common nighthawk</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>Potential impacts are not anticipated during operations</li> </ul>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>Refer to mitigation measures described for migratory breeding birds and nests.</li> <li>Demolition of buildings should be scheduled outside the breeding bird season of April 1 to August 31. If this is not possible and buildings must be demolished during this period, the following will be completed:                             <ul style="list-style-type: none"> <li>The roofs will be checked for presence of gravel. If gravel is not present, then the building is unlikely to provide suitable nesting habitat for common nighthawk. If gravel is present, a search for eggs and nesting activity for common nighthawk on the roof will be conducted. If nests or nesting activity of common nighthawk are confirmed, the building cannot be demolished until it is confirmed by a qualified biologist that young have fully fledged and left the nest.</li> </ul> </li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>As no impacts are anticipated to significant wildlife habitat for common nighthawk during operations, no mitigation measures are recommended.</li> </ul>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>Regular monitoring will be undertaken to confirm that activities do not encroach into nesting areas or disturb active nesting sites.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>As no impacts are anticipated to significant wildlife habitat for common nighthawk during operations, no monitoring activities are recommended.</li> </ul>
<p>Wildlife and wildlife habitat – migratory breeding birds and nests, including Species of Conservation Concern (birds).</p>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>Disturbance or destruction of migratory bird nests, including candidate significant wildlife habitat for the following Species of Conservation Concern birds: <u>OLW and OLS Study Areas</u></li> <li>Common Nighthawk, Eastern Wood-pewee, Peregrine Falcon, Red-headed Woodpecker, and Wood Thrush</li> <li>Note: In the OLS Study Area, impacts to Peregrine Falcon habitat are not anticipated to the Sheraton Centre since the Ontario Line Subway tracks are tunneled underground adjacent to the building and there are no proposed above ground construction activities within approximately 100 metres from the building.</li> <li><u>OLN Study Area</u></li> <li>Black-crowned Night Heron, Common Nighthawk, Great Egret, Peregrine Falcon, Red-headed Woodpecker, and Wood Thrush</li> </ul> <p><b>Operations</b></p>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>All works must comply with the MBCA, including timing windows for the nesting period (April 1 to August 31).</li> <li>If activities are proposed to occur during the general nesting period, a breeding bird and nest survey will be undertaken prior to required activities. Nest searches by an experienced searcher are required and will be completed by a qualified biologist no more than 48 hours prior to vegetation removal.</li> <li>If a nest of a migratory bird is found outside this nesting period, (including a ground nest) it still receives protection.</li> <li>Bird SAR are also protected by the ESA and migratory bird SAR are protected by the federal <i>Species at Risk Act</i>. Mitigation measures for bird SAR are discussed under the Species at Risk heading.</li> <li>Comply with the City of Toronto's Toronto Green Standard for both light pollution and bird-friendly design and adopt the Leadership in Energy and Environmental Design requirements to reduce light pollution, in order to reduce bird collisions into project structures.</li> </ul> <p><b>Operations</b></p>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>Regular monitoring will be undertaken to confirm that activities do not encroach into nesting areas or disturb active nesting sites.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>Regular monitoring will be undertaken to confirm that activities do not encroach into nesting areas or disturb active nesting sites.</li> </ul>

Environmental Component	Potential Impact	Mitigation Measure(s)	Monitoring Activities
	<ul style="list-style-type: none"> <li>Disturbance or destruction of migratory bird nests during operational vegetation maintenance activities, if applicable</li> </ul>	<ul style="list-style-type: none"> <li>All works must comply with the MBCA, including timing windows for the nesting period (April 1 to August 31).</li> <li>If operation vegetation maintenance activities are proposed to occur during the general nesting period, a breeding bird and nest survey will be undertaken prior to required activities. Nest searches by an experienced searcher are required and will be completed by a qualified biologist no more than 48 hours prior to vegetation removal.</li> <li>If a nest of a migratory bird is found outside of this nesting period (including a ground nest), it still receives protection</li> </ul>	
<p>Wildlife and wildlife habitat – significant wildlife habitat – Turtles and Turtle Habitat, including Species of Conservation Concern – in the OLS and OLN Study Areas</p>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>Potential for impacts to turtles and/or turtle habitat including confirmed habitat for Northern Map Turtle and candidate habitat for Snapping Turtle near the Lower Don River</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>Potential for impacts to turtles and/or turtle habitat during operational vegetation maintenance activities, if applicable</li> </ul>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>Work in turtle habitat will be planned in consideration of turtle overwintering period which occurs from October 1 to April 30 in any given year. It is also possible that turtle surveys would need to be conducted prior to the work.</li> <li>If required, reptile exclusion fencing will be installed according to the Reptile and Amphibian Exclusion Fencing Best Practices (MNR 2013) and fencing should be inspected daily to ensure it is tight and no species are entangled. Post-construction habitat restoration will be implemented as required.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>Work in turtle habitat will be planned in consideration of turtle overwintering period which occurs from October 1 to April 30 in any given year. It is also possible that turtle surveys would need to be conducted prior to the work.</li> </ul>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>Onsite inspection will be undertaken to confirm the implementation of the mitigation measures and identify corrective actions, if required. Corrective actions may include additional site maintenance and alteration of activities to reduce impacts.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>Onsite inspection will be undertaken to confirm the implementation of the mitigation measures and identify corrective actions, if required. Corrective actions may include additional site maintenance and alteration of activities to reduce impacts.</li> </ul>
<p>Wildlife and wildlife habitat – significant wildlife habitat – snake hibernacula – in the OLN Study Area</p>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>Disturbance or destruction of reptile hibernaculum</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>Potential impacts are not anticipated during operations</li> </ul>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>Where Project activity occurs adjacent to suitable snake hibernacula, exclusionary fencing will be erected along the activity area to fully isolate the area of activity during the active snake season. In the event that exclusionary fencing cannot be installed, follow-up discussions with the MECP will be required to determine adequate alternative mitigation measure(s).</li> <li>For areas where the hibernacula feature requires removal to facilitate development, the exclusion fencing is to be installed during the active snake season and prior to any construction activities commencing to prevent snakes from entering the feature pre-removal. Any snakes encountered in the exclusion fencing will be relocated outside the fencing and in suitable habitat containing suitable vegetation cover/refuge by a qualified biologist in accordance with the required permit(s) in accordance with the MNR’s Reptile and Amphibian Exclusion Fencing (2013).</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>As no impacts are anticipated to snake hibernacula during operations, no mitigation measures are recommended.</li> </ul>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>Monitoring will be undertaken prior to construction to survey exclusionary fencing installation and regular monitoring during construction to survey for snakes potentially trapped in exclusionary areas.</li> <li>Continuous monitoring of feature removal will be undertaken during activity.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>As no impacts are anticipated to snake hibernacula during operations, no monitoring activities are recommended.</li> </ul>

Environmental Component	Potential Impact	Mitigation Measure(s)	Monitoring Activities
Wildlife and wildlife habitat – wildlife habitat connectivity	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>Decrease of habitat connectivity for wildlife</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>Potential impacts are not anticipated during operations</li> </ul>	<p><b>Construction</b></p> <p><u>OLW Study Area</u></p> <ul style="list-style-type: none"> <li>Refer to mitigation measures described for Vegetation Communities, Wildlife and Wildlife habitat.</li> <li>Opportunities to enhance the natural environment and provide a connection to the surrounding natural areas will be explored to the extent possible.</li> </ul> <p><u>OLS and OLN Study Areas</u></p> <ul style="list-style-type: none"> <li>Refer to mitigation measures described for Vegetation Communities, Wildlife and Wildlife Habitat, Species at Risk and the Aquatic Environment.</li> <li>Compensation for the removal of vegetation in accordance with Metrolinx’s Vegetation Guideline (2020b) will consider maintaining or enhancing connectivity along the Don River to the extent possible.</li> <li>Opportunities to enhance the natural environment and provide a connection to the surrounding natural areas will be explored, to the extent possible.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>As no impacts are anticipated to wildlife habitat connectivity during operations, no mitigation measures are recommended.</li> </ul>	<p><b>Construction</b></p> <p><u>OLW Study Area</u></p> <ul style="list-style-type: none"> <li>Refer to monitoring described for Vegetation Communities and Wildlife and Wildlife Habitat.</li> </ul> <p><u>OLS and OLN Study Areas</u></p> <ul style="list-style-type: none"> <li>Refer to monitoring described for Vegetation Communities, Wildlife and Wildlife Habitat, Species at Risk and the Aquatic Environment.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>As no impacts are anticipated to wildlife habitat connectivity during operations, no monitoring activities are recommended.</li> </ul>
<b>Species at Risk</b>			
SAR – general	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>Habitat loss, disturbance, and/or mortality to SAR</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>Habitat loss, disturbance, and/or mortality to SAR during operational maintenance activities, if applicable.</li> </ul>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>All requirements of the ESA and <i>Species at Risk Act</i> will be met. Species-specific mitigation measures will be implemented based on any recommended surveys undertaken prior to construction, and consultation with MECP.</li> <li>If SAR is present and conservation strategies have been developed by NDMNRF and MECP, Metrolinx will follow the commitments in the recovery strategy.</li> <li>Onsite personnel will be provided with information (e.g., factsheets) that addresses the existence of potential SAR on site, the identification of the SAR species, and the procedure(s) to follow if an individual of such a species is encountered or injured.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>In areas subject to maintenance activities during operations, (repair or replacement of structures, or removal of treed habitat), additional surveys may be required to determine the presence of SAR.</li> <li>All requirements of the ESA and SARA will be met. Species-specific mitigation measures will be implemented in consultation with the MECP.</li> </ul>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>Onsite inspection will be undertaken to confirm the implementation of the mitigation measures and identify corrective actions, if required. Corrective actions may include additional site maintenance and alteration of activities to reduce impacts.</li> <li>Species-specific monitoring activities will be implemented in consultation with the MECP</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>Onsite inspection will be undertaken to confirm the implementation of the mitigation measures and identify corrective actions, if required. Corrective actions may include additional site maintenance and alteration of activities to reduce impacts.</li> <li>Species-specific monitoring activities will be implemented in consultation with the MECP.</li> </ul>

Environmental Component	Potential Impact	Mitigation Measure(s)	Monitoring Activities
SAR – barn swallow and bank swallow	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>Habitat loss, disturbance, and/or mortality to barn swallow, and to bank swallow in the OLN Study Area</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>Habitat loss, disturbance, and/or mortality to barn swallow during operational vegetation maintenance activities, if applicable</li> </ul>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>Field surveys will be undertaken prior to construction to confirm the number of nests present at the known locations and whether the nests remain active.</li> <li>Where loss or disturbance cannot be avoided (e.g., due to work on bridges or banks), all requirements under the ESA will be met, including any registration, compensation, replacement structures, and/or permitting requirements.</li> <li>If construction activities are scheduled during the nesting season for barn swallow or bank swallow (April 1 to August 31), a nest search will be undertaken to confirm that no swallows are nesting on structures or banks that may be affected by construction activities on or near these areas. If possible, the area will be netted prior to nesting season to dissuade use of these areas for nesting.</li> <li>All requirements of the ESA will be met. Species-specific mitigation measures will be implemented, in consultation with the MECP.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>If operational maintenance activities are scheduled during the nesting season for barn swallow (April 1 to August 31), a nest search will be undertaken to confirm that no barn swallows are nesting on structures that may be affected by activities on or near these areas. If possible, the area will be netted prior to nesting season to dissuade use of these areas for nesting.</li> <li>All requirements of the ESA will be met. Species-specific mitigation measures will be implemented in consultation with the MECP.</li> </ul>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>Onsite inspection will be undertaken to confirm the implementation of the mitigation measures and identify corrective actions, if required. Corrective actions may include additional site maintenance and alteration of activities to reduce impacts.</li> <li>Species-specific monitoring activities will be implemented, in consultation with the MECP.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>Onsite inspection will be undertaken to confirm the implementation of the mitigation measures and identify corrective actions, if required. Corrective actions may include additional site maintenance and alteration of activities to reduce impacts.</li> <li>Species-specific monitoring activities will be implemented, in consultation with the MECP.</li> </ul>
SAR – chimney swift	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>Habitat loss, disturbance, and/or mortality to chimney swift</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>Potential impacts are not anticipated during operations</li> </ul>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>If repair, maintenance or demolition of buildings and structures with suitable roosting and nesting habitat (e.g., chimneys) is to take place, targeted surveys for chimney swift will be completed as per the Bird Studies Canada Chimney Swift Monitoring Protocol (2009) during the nesting season of April 15 to October 15.</li> <li>Repair, maintenance, or demolition of an identified structures that are used for roosting and nesting may constitute destruction of critical habitat and would be discussed in advance with the MECP and requirements of the ESA will be met.</li> <li>All requirements of the ESA will be met. Species-specific mitigation measures will be implemented, in consultation with the MECP.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>As no impacts are anticipated to chimney swifts during operations, no mitigation measures are recommended.</li> </ul>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>Onsite inspection will be undertaken to confirm the implementation of the mitigation measures and identify corrective actions, if required. Corrective actions may include additional site maintenance and alteration of activities to reduce impacts.</li> <li>Species-specific monitoring activities will be implemented, in consultation with the MECP.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>As no impacts are anticipated to chimney swifts during operations, no monitoring activities are recommended.</li> </ul>



Environmental Component	Potential Impact	Mitigation Measure(s)	Monitoring Activities
SAR – bats	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>Habitat loss, disturbance and/or mortality to SAR Bats</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>Potential impacts are not anticipated during operations.</li> </ul>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>Additional monitoring, mitigation, and compensation for removal of suitable treed or anthropogenic roosting habitat may be required, based on the results of additional surveys and consultation with the MECP.</li> <li>Disturbance to bat roosting habitat will be avoided during the active season for bats from April 1 to September 30, to the extent possible.</li> <li>If disturbance cannot be avoided, all requirements of the ESA will be met.</li> <li>Species-specific mitigation measures will be implemented, in consultation with the MECP.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>As no impacts are anticipated to SAR bats during operations, no mitigation measures are recommended.</li> </ul>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>Onsite inspection will be undertaken to confirm the implementation of the mitigation measures and identify corrective actions, if required. Corrective actions may include additional site maintenance and alteration of activities to reduce impacts.</li> <li>Species-specific monitoring activities will be implemented, in consultation with the MECP.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>As no impacts are anticipated to SAR bats during operations, no monitoring activities are recommended.</li> </ul>
SAR – butternut	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>Habitat loss, disturbance, and/or mortality of butternut</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>Potential impacts are not anticipated during operations</li> </ul>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>If any works are proposed in the critical root zone (i.e., 25 metre radius from stem) of a butternut, then mitigation, monitoring and compensation to address impacts to butternuts may be required based on the results of additional surveys (i.e., butternut health assessment and DNA testing to confirm purity) and consultation with the MECP.</li> <li>As part of the Arborist Report, trees in or adjacent to the Project study area that will be removed or injured as part of Project activities will be inventoried, including butternut and other SAR vegetation. SAR vegetation will be subject to permitting and approval requirements under Applicable Law, prior to the commencement of construction.</li> <li>Each butternut that may potentially be removed or impacted must be assessed by a qualified butternut health assessor, in accordance with MNR Butternut Assessment Guidelines (2014). The Assessor will prepare a butternut health assessment report and document the mitigation, monitoring and corrective actions implemented.</li> <li>All requirements of the ESA will be met. Species-specific mitigation measures will be implemented, in consultation with the MECP.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>As no impacts are anticipated to butternut during operations, no mitigation measures are recommended.</li> </ul>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>Onsite inspection will be undertaken to confirm the implementation of the mitigation measures and identify corrective actions, if required. Corrective actions may include additional site maintenance and alteration of activities to reduce impacts.</li> <li>Species-specific monitoring activities will be implemented, in consultation with the MECP.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>As no impacts are anticipated to butternut during operations, no monitoring activities are recommended.</li> </ul>

Environmental Component	Potential Impact	Mitigation Measure(s)	Monitoring Activities
<b>Aquatic Habitat</b>			
Aquatic Environment – Wetlands and Waterbodies	<p><b>Construction</b></p> <p><u>OLS Study Area</u></p> <ul style="list-style-type: none"> <li>Impacts to riparian vegetation, erosion and sedimentation to waterbodies from construction; risk of contamination to waterbodies as a result of spills.</li> </ul> <p><u>OLN Study Area</u></p> <ul style="list-style-type: none"> <li>Removal or impacts to wetland; aquatic and riparian vegetation; degradation of wetlands as result of dewatering and discharge activities; erosion and sedimentation to wetlands/waterbodies from construction; and risk of contamination to wetlands/waterbodies as a result of spills.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>Potential impacts are not anticipated during operations</li> </ul>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>Construction activities will maintain the buffers established during the design phase to reduce potential negative impacts to wetlands and waterbodies.</li> <li>Shorelines or banks disturbed by construction activities will be immediately stabilized by any activity associated with the project to prevent erosion and/or sedimentation, preferably through re-vegetation with native species suitable for the site.</li> <li>An Erosion and Sediment Control Plan, in accordance with the Greater Golden Horseshoe’s Erosion and Sediment Control Guideline for Urban Construction (2006) and the Erosion and Sediment Control Guide for Urban Construction (TRCA 2019), as amended from time to time, will be prepared prior to and implemented during construction to reduce the risk of sedimentation.</li> <li>A Spill Prevention and Response Plan will be developed before work commences so that procedures and policies are in place to reduce impacts to wetlands and watercourses during construction.</li> <li>In wetland areas where vernal pooling occurs, prior to dewatering isolated work areas, wildlife will be captured and relocated to suitable habitat outside of the work area.</li> <li>Vegetation removals will also consider and mitigate potential impacts to wetland communities. Until such a time, that an Ontario Wetland Evaluation System evaluation is completed and evaluated by NDMNRF, unevaluated wetlands will be considered as significant for the purposes of assessing impacts.</li> <li>Wetland communities potentially affected by the Project will be clearly staked out on site.</li> <li>If dewatering is proposed, then it is recommended to be undertaken during the winter when the potential impacts of changes in water levels are less significant in wetland communities. During detailed design, the need for a dewatering zone of influence assessment and dewatering monitoring plan should be evaluated. The dewatering monitoring plan, if required, will monitor for potential negative impacts on nearby wetlands and adjacent vegetation communities to confirm if they would be affected due to dewatering activities. An adaptive management plan will be prepared if negative impacts are observed.</li> <li>Prior to dewatering isolated work areas, fish will be captured and relocated to suitable habitat outside of the work area under a Licence to Collect Fish for Scientific Purposes from the NDMNRF.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>As no impacts are anticipated to wetlands and waterbodies during operations, no mitigation measures are recommended.</li> </ul>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>Onsite inspection will be undertaken to confirm the implementation of the mitigation measures and identify corrective actions, if required. Corrective actions may include alteration of activities to reduce impacts and enhance mitigation measures.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>As no impacts are anticipated to wetlands and waterbodies during operations, no monitoring activities are recommended.</li> </ul>

Environmental Component	Potential Impact	Mitigation Measure(s)	Monitoring Activities
<p>Aquatic Environment – Fish and Fish Habitat</p>	<p><b>Construction</b>  <u>OLS Study Area</u></p> <ul style="list-style-type: none"> <li>No in-water works, no direct impacts to fish and fish habitat</li> <li>Indirect - Dewatering activities and water discharge resulting in changes in water velocity or temperature, soil and erosion, release of contaminated and sediment-laden water, fish habitat structure and cover, food supply, nutrient concentration, access to habitat leading to the displacement or stranding of fish.</li> </ul> <p><u>OLN Study Area</u></p> <ul style="list-style-type: none"> <li>Potential for direct, in-water impacts to fish and fish habitat related to temporary crossing structures for both Don and West Don River bridges</li> <li>Dewatering activities and water discharge resulting in changes in water velocity or temperature; changes in soil and erosion; release of contaminated and sediment-laden water; changes in fish habitat structure and cover; changes in food supply, changes in nutrient concentration; changes in access to habitat leading to the displacement or stranding of fish.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>Potential impacts are not anticipated during operations</li> </ul>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>All requirements of the <i>Fisheries Act</i> will be met.</li> <li>In the event that in-water and/or near water construction works are required appropriate mitigation measures will be followed, as identified in Applicable Law and through consultation with the relevant authorities including Fisheries and Oceans Canada. In-water works will be planned to consider timing windows to protect fish, including their eggs, juveniles, spawning adults and/or the organisms upon which they feed.</li> <li>Follow Ontario Provincial Standard Specifications PROV 182 General Specification for Environmental Protection for Construction in and Around Waterbodies and on Waterbody Banks (APR 2021).</li> <li>Design water management system and dewatering operations to prevent erosion and/or release of sediment-laden or contaminated water to the waterbody or adjacent wetlands.</li> <li>Follow Ontario Provincial Standard Specifications PROV 517 Construction Specification for Dewatering (NOV 2016).</li> <li>Prior to dewatering isolated work areas, fish will be captured and relocated to suitable habitat outside of the work area under a Licence to Collect Fish for Scientific Purposes from the NDMNRF.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>As no impacts are anticipated to fish and fish habitat during operations, no mitigation measures are recommended.</li> </ul>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>Onsite inspection will be undertaken to confirm the implementation of the mitigation measures and identify corrective actions, if required. Corrective actions may include additional site maintenance and alteration of activities to reduce impacts.</li> <li>Monitoring for dewatering will be undertaken to confirm sediment-laden discharge, visible scour/erosion, and/or changes in temperature in any receiving watercourse.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>As no impacts are anticipated to fish and fish habitat during operations, no monitoring activities are recommended.</li> </ul>
<p><b>Stormwater Management and Drainage</b></p>			
<p>Floodplain</p>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>Potential to impact flooding conditions in the Don River Floodplain</li> <li>Potential for flooding impacts onsite during construction</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>Potential impacts are not anticipated during operations</li> </ul>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>Floodplain impact assessment will be conducted during detailed design following TRCA guidelines once details on the pier configuration and other detailed bridge design information are available. Design optimizations on abutment, pier, and valley way placement shall be considered to reduce hydraulic impacts.</li> <li>All temporary works including, but not limited to, the temporary bridges, should follow the Greater Golden Horseshoe's Erosion and Sediment Control Guideline for Urban Construction (2006) and the Erosion and Sediment Control Guide for Urban Construction (TRCA 2019), to reduce the chance of flooding during the construction.</li> <li>TRCA staff will be consulted during detailed design to avoid potential infrastructure conflicts and impacts to flood protection measures/initiatives in the Lower Don Bridge and Don Yard Hydrology and Surface Water Study Area with consideration of, but not limited to, the following:             <ul style="list-style-type: none"> <li>West Don Lands Flood Protection Landform (TRCA 2005);</li> <li>Broadview and Eastern Flood Protection Municipal Class Environmental Assessment (TRCA 2021);</li> <li>Flood protection measures and tie-in with the existing railway valley way at Don Roadway and Eastern Avenue underpass</li> </ul> </li> </ul>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>Develop and undertake a monitoring program of the West Don Flood Protection Landform, as required, in consultation with TRCA.</li> <li>Include a monitoring strategy in the Flood Contingency Plan to monitor surface water levels during construction activities.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>As no impacts are anticipated during operations, no monitoring activities are recommended.</li> </ul>

Environmental Component	Potential Impact	Mitigation Measure(s)	Monitoring Activities
		<p>as identified in the Don Mouth Naturalization and Port Lands Flood Protection Project Environmental Assessment (TRCA 2014b);</p> <ul style="list-style-type: none"> <li>○ New Broadview underpass with expanded flood protection tie-ins and drainage with the railway valley way as identified in the Port Lands and South of Eastern Transportation and Servicing Master Plan Class Environmental Assessment (Waterfront Toronto and City of Toronto 2016); and,</li> <li>○ Opening of bridge crossing on east side of Don River through railway valley way to accommodate Hybrid 3 as identified in the Gardiner Expressway and Lake Shore Boulevard East Reconfiguration Environmental Assessment (Waterfront Toronto and City of Toronto 2017).</li> </ul> <ul style="list-style-type: none"> <li>● In addition, all necessary studies such as fluvial geomorphic process studies, meander belt and erosion studies, and geotechnical and slope stability assessments will be completed.</li> <li>● Prior to construction, develop a Flood Contingency Plan with specific mitigation measures for any proposed works or temporary laydown and staging areas, as required. The Flood Contingency Plan may include risk mapping, and a monitoring strategy.</li> <li>● Include construction site on TRCA flood warning system to prepare site in advance of possible flood events.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>● As no impacts are anticipated during operations, no mitigation measures are recommended.</li> </ul>	
Surface Water / Stormwater and Drainage	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>● Change in stormwater quality and quantity, including:                             <ul style="list-style-type: none"> <li>○ Erosion of exposed soil and increased sediment loading which may impact receiving waterbodies and/or municipal stormwater drainage system; and,</li> <li>○ Increased surface water/stormwater runoff</li> </ul> </li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>● Potential impacts are not anticipated during operations</li> </ul>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>● Prior to construction, a Stormwater Management Plan that will outline stormwater discharges management associated with construction activities, and an Erosion and Sediment Control plan will be developed.</li> <li>● The overall stormwater quality and quantity control strategy will be developed in accordance with all relevant municipal, provincial, and federal requirements, as amended, and outlined in a Stormwater Management Report, including the City of Toronto Wet Weather Flow Management Guidelines. Stormwater management design will consider guidance provided by the MECP, formerly the Ministry of the Environment and Climate Change Stormwater Management Planning and Design Manual (2003) and MTO Drainage Management Manual (2008), TRCA Stormwater Management Criteria (2012), and the Low Impact Development Stormwater Management Planning and Design Guide (TRCA/Credit Valley Conservation 2010), as required.</li> <li>● The following stormwater management best management practices will be considered and implemented, as required:                             <ul style="list-style-type: none"> <li>○ Reduce clearing and amount of exposed soil;</li> <li>○ Install key sediment control before grading/land alterations begin;</li> <li>○ Sequence construction activities so that the soil is not exposed for long periods of times;</li> </ul> </li> </ul>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>● Monitoring activities will be implemented as outlined in the Stormwater Management Plan and/or Erosion and Sediment Control Plan and may include regular inspections and reporting on the performance of implemented erosion and sediment control measures, best management practices, and other monitoring activities, as required.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>● As no impacts are anticipated during operations, no monitoring activities are recommended.</li> </ul>

Environmental Component	Potential Impact	Mitigation Measure(s)	Monitoring Activities
		<ul style="list-style-type: none"> <li>○ Protect storm drain inlets to filter out debris; and,</li> <li>○ Stabilize all exposed soil areas as soon as land alterations have been completed.</li> <li>● The TRCAs Living City Policies will be followed during detailed design, including those policies related to outfall placement.</li> <li>● Continue to consult with the TRCA to align the Lower Don Bridge and Don Yard early works to the Lower Don Special Policy Area requirements, including the approach to flood proofing and flood modelling.</li> <li>● The TRCAs Stormwater Management Criteria will be followed, including those policies related to impervious areas.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>● As no impacts are anticipated during operations, no mitigation measures are recommended.</li> </ul>	
<b>SOIL AND GROUNDWATER</b>			
Soil Stability and Quality	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>● Construction activities will cause displacement of the soils and bedrock. This may result in ground movement and settlement (e.g., during tunneling, excavation/grading, and/or dewatering activities).</li> <li>● Dewatering activities can cause soil subsidence/settlement and impacts on surface/subsurface structures in the zone of influence.</li> <li>● Construction activities (e.g., excavation) could expose contaminated materials and/or result in the spreading of contaminated materials.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>● Potential impacts to soil stability and quality are not anticipated during operations.</li> </ul>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>● Develop a Soil and Excavated Material Management Plan for the handling, management, and disposal of all excavated material (i.e., soil, rock and solid waste, including contamination) that is generated or encountered during the work.</li> <li>● Prior to construction, soil and groundwater investigations will be considered along project alignment, including Phase II Environmental Site Assessments for property acquisitions.</li> <li>● Develop Contamination Management Plans for the handling and management of contamination discovered during construction, when required.</li> <li>● Complete pre-construction inspections of structures in the dewatering zone of influence, as required.</li> <li>● Excavation support systems will be employed, as required.</li> <li>● Conduct dewatering such that ground loss is controlled/reduced.</li> <li>● Use tunneling equipment designed to reduce the potential for frac-out, ground loss and the associated potential for settlement.</li> <li>● If required, prepare a frac-out contingency plan that is intended to reduce the potential for a frac-out associated with tunneling activities.</li> <li>● If required, conduct ground treatment such as jet grouting to reduce the risk of ground loss.</li> <li>● Requirements of O. Reg. 406/19: On-Site and Excess Soil Management will be met.</li> <li>● Any existing City lands proposed for future open space shall be returned to existing or better environmental condition. Third party lands proposed for future open space shall meet the requirements set out under O. Reg. 153/04 under the <i>Environmental Protection Act</i>.</li> </ul> <p><b>Operations</b></p>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>● The Soil and Excavated Material Management Plan will include monitoring and maintenance requirements.</li> <li>● If required, develop and conduct a settlement monitoring program to verify construction effects, identify adverse trends and identify the need for additional mitigation measures.</li> <li>● Soil sampling and analysis plans shall be prepared, as required by O. Reg. 406/19.</li> <li>● Soil will be tracked in registry as required by O. Reg. 406/19.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>● As no impacts are anticipated to soil stability and quality during operations, no monitoring activities are recommended.</li> </ul>

Environmental Component	Potential Impact	Mitigation Measure(s)	Monitoring Activities
		<ul style="list-style-type: none"> <li>As no impacts are anticipated to soil stability and quality during operations, no mitigation measures are recommended.</li> </ul>	
Groundwater Quantity	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>Construction dewatering may impact groundwater-dependent natural features (e.g., wetland at E.T. Seton Park) as a result of decreases in groundwater discharge to these features.</li> <li>Construction dewatering may impact private groundwater supply wells (if present) caused by a reduction in local groundwater levels.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>At this time, on-going dewatering is not anticipated.</li> </ul>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>Potential impacts to groundwater-dependent natural features and/or private groundwater supply wells (if present) can be mitigated with measures such as avoidance of dewatering requirements, minimizing dewatering, and/or utilizing groundwater cut-off techniques to physically exclude groundwater from flowing into excavations advanced for construction.</li> <li>Determine water taking quantities, quality, and resultant dewatering zone of influence as project planning progresses, for example through completion of a site-specific hydrogeological investigation, construction dewatering assessment and a plan to manage groundwater.</li> <li>The construction dewatering assessment will be completed as required to:                         <ul style="list-style-type: none"> <li>Provide an estimate of groundwater and/or surface water taking rates and quantities.</li> <li>Estimate a zone of influence for each dewatering area.</li> <li>Characterize groundwater and/or surface water quality.</li> <li>Recommend appropriate dewatering methodologies.</li> <li>Provide an assessment of potential impacts related to the dewatering.</li> </ul> </li> <li>Dewatering shall be assessed in accordance with the TRCA Technical Guidelines for the Development and Environmental Management Plans for Dewatering (TRCA 2013), O. Reg. 64/16 and 387/04, as amended under the <i>Ontario Water Resources Act</i>, as required.</li> <li>The plan to manage groundwater will be completed as required to:                         <ul style="list-style-type: none"> <li>Evaluate potential groundwater discharge options (i.e., sanitary and/or storm sewer, natural environment, off-site disposal, etc.).</li> <li>Identify effluent treatment requirements.</li> <li>Outline monitoring, mitigation, and contingency program (if required).</li> <li>Determine the potential need for regulatory approvals.</li> <li>Identify notification and reporting requirements.</li> </ul> </li> <li>Identification of site-specific mitigation measures and monitoring programs relating to potential groundwater impacts within the anticipated dewatering zone of influence will be determined prior to works commencement.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>As no impacts are anticipated to groundwater quantity during operations, no mitigation measures are recommended.</li> </ul>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>Regular site inspections and monitoring activities such as monitoring of water levels in adjacent groundwater and/or surface water features, if required, will be completed by qualified members of the construction team to ensure that mitigation measures are fulfilled and that all regulatory requirements are met.</li> <li>If long term dewatering is required, long term groundwater monitoring will be performed. If permit requirements require it, long term water quality sampling and testing will also be performed.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>As no impacts are anticipated groundwater quantity during operations, no monitoring activities are recommended.</li> </ul>

Environmental Component	Potential Impact	Mitigation Measure(s)	Monitoring Activities
Groundwater Quality	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>• Previous land use may have resulted in local contamination of groundwater or surface water which may be encountered during construction excavation and/or dewatering activities.</li> <li>• General construction activities such as vehicle and machinery operation have the potential to affect groundwater quality (including at sites designated as highly vulnerable aquifers, intake protection zones, and event based areas) through minor contaminant releases.</li> <li>• Improperly managed construction dewatering activities can result in accidental releases of contaminated groundwater to the environment and/or result in the migration of existing impacted groundwater.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>• Potential impacts to groundwater quality are not anticipated during operations.</li> </ul>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>• The existing groundwater conditions within each potential construction dewatering area will be characterized prior to construction activities, during a site-specific hydrogeological investigation, as required.</li> <li>• Conduct on-site treatment of dewatering effluent, if required, such that parameters in excess of the established discharge criteria are removed/reduced and discharge can proceed.</li> <li>• A Spill Prevention and Response Plan, outlining the steps required to prevent and contain any contaminant releases and/or to avoid impacts to groundwater/surface water is required to be developed prior to initiation of construction activities. This Spill Prevention and Response Plan should include a requirement for spill kits to be always maintained on-site during construction.</li> <li>• Pre-construction (baseline) groundwater quality testing should be performed at all construction dewatering locations before the outset of any discharge activities and compared to appropriate regulatory guidelines (i.e., Provincial Water Quality Objectives for discharge to the natural environment, storm and sanitary by-laws for discharge to municipal sewers). Appropriate water quality management (i.e., filtration systems and/or water treatment systems) will be required to be designed and implemented in the event that exceedances of regulatory guidelines or limits are detected in the influent groundwater quality. Discharge of dewatering effluent will be governed by the discharge approval(s) obtained for the Project, which could include one or a combination of Municipal Discharge Permits, Conservation Authority Approval, and/or MECP Environmental Compliance Approval.</li> <li>• Maintain machinery free of leaks to reduce the possibility of fluid release.</li> <li>• Store potential contaminants (e.g., oils, fuels, and chemicals) in designated areas using appropriate secondary containment, where necessary.</li> <li>• Educate workers regarding appropriate chemical use, handling, storage and transportation procedures, including spill response and reporting requirements.</li> <li>• Conduct a review of Source Protection Plan policies and implement the following measures, where required:             <ul style="list-style-type: none"> <li>○ A Salt Management Plan that incorporates best management practices where the storage and application of road salt is required.</li> <li>○ Best management practices where the handling and storage of dense non-aqueous phase liquids is required.</li> <li>○ Best management practices where the storage of organic solvent is required.</li> <li>○ Best management practices where the storage and handling of fuel is required.</li> </ul> </li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>• As no impacts are anticipated to groundwater quality during operations, no mitigation measures are recommended.</li> </ul>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>• Monitoring activities such as groundwater and dewatering effluent sample collection and measurement of groundwater parameters in the field will be completed, as required, by qualified members of the construction contractor, and in accordance with the discharge requirements of the approval and/or permit, as applicable.</li> <li>• Regular inspections of equipment for fuel/fluid leaks, dewatering equipment and containment tanks for leakage, and installed erosion and sediment control measures.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>• As no impacts are anticipated groundwater quality during operations, no monitoring activities are recommended.</li> </ul>

Environmental Component	Potential Impact	Mitigation Measure(s)	Monitoring Activities
<b>BUILT HERITAGE RESOURCES AND CULTURAL HERITAGE LANDSCAPES</b>			
Cultural Interpretive Signs and Silos/Hoppers along the South Liberty Trail (Ref # ES-001)	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>Demolition of all or part of the resource.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>Potential impacts to the resource are not anticipated during operations.</li> </ul>	<p><b>Construction</b></p> <p>Prior to property modifications, including but not limited to demolition, the following will be completed:</p> <ul style="list-style-type: none"> <li>Consult with the City</li> <li>Documentation and Salvage</li> <li>Interpretation/Commemoration Framework</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>As no impacts are anticipated to the resource during operations, no mitigation measures are recommended.</li> </ul>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>Monitoring activities during construction related to potential vibration impacts are outlined in <b>Section 5.8</b>.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>As no impacts are anticipated to the resource during operations, no monitoring activities are recommended.</li> </ul>
2-20 Atlantic Avenue (Ref # ES-002)	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>Demolition of all or part of the building.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>Potential impacts to the resource are not anticipated during operations.</li> </ul>	<p><b>Construction</b></p> <p>Prior to property modifications, including but not limited to demolition, the following will be completed:</p> <ul style="list-style-type: none"> <li>Consult with the City of Toronto</li> <li>Documentation and Salvage</li> <li>Interpretation/Commemoration Framework</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>As no impacts are anticipated to the resource during operations, no mitigation measures are recommended.</li> </ul>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>No monitoring activities are recommended during construction.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>As no impacts are anticipated to the resource during operations, no monitoring activities are recommended.</li> </ul>
153 Dufferin Avenue (Ref # OLW-007)	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>Demolition of all or part of the building.</li> <li>New physical element or alteration (impact to heritage attribute).</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>Potential impacts to the resource are not anticipated during operations.</li> </ul>	<p><b>Construction</b></p> <p>Prior to property modifications, including but not limited to demolition, the following will be completed:</p> <ul style="list-style-type: none"> <li>Consult with the City of Toronto</li> <li>Documentation and Salvage</li> <li>Sensitive and Compatible Design</li> <li>Interpretation/Commemoration Framework</li> <li>Retain in-situ the primary west elevation and north and south partial returns</li> <li>Dismantle and salvage of the north and south elevations of the 1-storey east addition and remove the balance of the 1-storey east addition</li> <li>Repair or reconstruction of masonry, metal cornice, and entablature of the retained elevations using dismantled and salvaged and new material to match</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>As no impacts are anticipated to the resource during operations, no mitigation measures are recommended.</li> </ul>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>Monitoring activities during construction related to potential vibration impacts are outlined in <b>Section 5.8</b>.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>As no impacts are anticipated to the resource during operations, no monitoring activities are recommended.</li> </ul>



Environmental Component	Potential Impact	Mitigation Measure(s)	Monitoring Activities
7-19 Fraser Avenue (Ref # OLW-008)	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>New physical element or alteration (impact to heritage attribute).</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>Potential impacts to the resource are not anticipated during operations.</li> </ul>	<p><b>Construction</b></p> <p>Prior to property modifications, including but not limited to demolition, the following will be completed:</p> <ul style="list-style-type: none"> <li>Consult with the City of Toronto</li> <li>Documentation and Salvage</li> <li>Sensitive and Compatible Design</li> <li>Interpretation/Commemoration Framework</li> <li>Whole building retention of 15 Fraser</li> <li>Retain in-situ the western extent of 7 Fraser and remove the balance of the building</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>As no impacts are anticipated to the resource during operations, no mitigation measures are recommended.</li> </ul>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>Monitoring activities during construction related to potential vibration impacts are outlined in <b>Section 5.8</b>.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>As no impacts are anticipated to the resource during operations, no monitoring activities are recommended.</li> </ul>
1 Atlantic Avenue (Ref # OLW-011)	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>Demolition of all or part of the building.</li> <li>New physical element or alteration (impact to heritage attribute).</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>Potential impacts to the resource are not anticipated during operations.</li> </ul>	<p><b>Construction</b></p> <p>Prior to property modifications, including but not limited to demolition, the following mitigation strategies will be completed:</p> <ul style="list-style-type: none"> <li>Commercial building                             <ul style="list-style-type: none"> <li>Consult with the City of Toronto</li> <li>Documentation and Salvage</li> <li>Interpretation/ Commemoration Framework</li> </ul> </li> <li>Chimney and accessory building                             <ul style="list-style-type: none"> <li>Continued avoidance of the chimney and accessory building is recommended.</li> <li>Mark a feature on the Detailed Design as “To be retained: <u>Implement protection measures prior to construction</u>”</li> <li>Install protection measures, such as box or fence hoarding, prior to construction</li> </ul> </li> </ul> <p>Given anticipated in-situ retention, additional mitigation measures include:</p> <ul style="list-style-type: none"> <li>Retain in-situ chimney and boiler house</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>As no impacts are anticipated to the resource during operations, no mitigation measures are recommended.</li> </ul>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>Monitoring activities during construction related to potential vibration impacts are outlined in <b>Section 5.8</b>.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>As no impacts are anticipated to the resource during operations, no monitoring activities are recommended.</li> </ul>
King-Spadina HCD (Ref # OLW-026)	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>Encroachment into the HCD causing a physical impact, including:                             <ul style="list-style-type: none"> <li>introduction of new elements to the HCD</li> <li>alterations to a contributing property, or</li> <li>or diminishment in integrity of the HCD due to the introduction of new elements</li> </ul> </li> </ul> <p><b>Operations</b></p>	<p><b>Construction</b></p> <p>Site-specific mitigation recommendations are provided per property. Generally, prior to property modifications, including but not limited to construction activities, the following mitigation strategies will be completed</p> <ul style="list-style-type: none"> <li>Consult with the City of Toronto</li> <li>Sensitive and Compatible design</li> <li>Record, repair and restore where possible, if elements of the HCD are impacted by the Project</li> </ul>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>Site-specific monitoring recommendations are provided per property. .</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>As no impacts are anticipated to the resource during operations, no monitoring activities are recommended.</li> </ul>

Environmental Component	Potential Impact	Mitigation Measure(s)	Monitoring Activities
	<ul style="list-style-type: none"> <li>Potential impacts to the resource are not anticipated during operations.</li> </ul>	<ul style="list-style-type: none"> <li>Alterations must be complimentary and subordinate to the cultural heritage value and heritage attributes of the HCD</li> <li>Review the <i>King-Spadina Heritage Conservation District Plan</i> and design the Project to be consistent with the HCD Plan</li> </ul> <p>In addition, review the <i>King-Spadina Heritage Conservation District Plan</i> design the Project to be consistent with the HCD Plan, including, but not limited to:</p> <ul style="list-style-type: none"> <li>Design the Project to align and be consistent with the Guidelines set out in the <i>King-Spadina Heritage Conservation District Plan</i>, in Section 4.3, Heritage Attributes, including:                         <ul style="list-style-type: none"> <li>Built Form</li> <li>Public Realm</li> <li>Character Sub-Areas</li> </ul> </li> <li>Design the Project to be consistent with the <i>Policies and Guidelines for Contributing Properties</i> set out in the <i>King Spadina Heritage Conservation District Plan</i> in Section 6.0 (Map of contributing properties on Page 55 of the HCD Plan), including:                         <ul style="list-style-type: none"> <li>Understanding, Conservation, Existing Part IV Designations, Combined Properties, Code Compliance, Demolition, Removal and Relocation, Maintenance, Restoration, Alteration, Massing, Roofs, Exterior Walls, Entrances, Porches and Balconies, Lighting, Signage</li> </ul> </li> <li>Design the Project to be consistent with the <i>Policies and Guidelines for Non-Contributing Properties</i> set out in the <i>King-Spadina Heritage Conservation District Plan</i> in Section 7.0, including but not limited to:                         <ul style="list-style-type: none"> <li>Understanding, Adjacency to Contributing Properties, Combined Properties, Demolition, Alterations and Additions, Massing, Articulation and Proportions, Exterior Walls, Roofs, Lighting, Signage, Parking and Service Areas</li> </ul> </li> <li>Design the Project to be consistent with the <i>Policies and Guidelines for Parks and Public Realm</i> set out in the <i>King-Spadina Heritage Conservation District Plan</i> in Section 9.0, including but not limited to:                         <ul style="list-style-type: none"> <li>Views, Network of Laneways, Utilities and Public Works</li> </ul> </li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>As no impacts are anticipated to the resource during operations, no mitigation measures are recommended.</li> </ul>	
60 Stewart Street (Ref # OLW-030)	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>Demolition of all or part of the building.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>Potential impacts to the resource are not anticipated during operations.</li> </ul>	<p><b>Construction</b></p> <p>Prior to property modifications, including but not limited to demolition, the following will be completed:</p> <ul style="list-style-type: none"> <li>Consult with the City of Toronto</li> <li>Documentation and Salvage</li> <li>Sensitive and Compatible Design</li> <li>Interpretation/Commemoration Framework</li> </ul>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>No monitoring activities are recommended during construction.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>As no impacts are anticipated to the resource during operations, no monitoring activities are recommended.</li> </ul>

Environmental Component	Potential Impact	Mitigation Measure(s)	Monitoring Activities
		<p><b>Operations</b></p> <ul style="list-style-type: none"> <li>As no impacts are anticipated to the resource during operations, no mitigation measures are recommended.</li> </ul>	
<p>663-665 King Street West and 69-71 Bathurst Street (Ref # OLW-031)</p>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>Demolition of all or part of the building.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>Potential impacts to the resource are not anticipated during operations.</li> </ul>	<p><b>Construction</b></p> <p>Prior to property modifications, including but not limited to demolition, the following will be completed:</p> <ul style="list-style-type: none"> <li>Consult with the City of Toronto</li> <li>Documentation and Salvage</li> <li>Interpretation/Commemoration Framework</li> </ul> <p>Given anticipated in-situ retention, additional mitigation measures include:</p> <ul style="list-style-type: none"> <li>Retain the north elevation and west return elevation in-situ</li> <li>Selective dismantle and salvage of the balance of the west elevation and the south and east elevations</li> <li>Remove existing window shutters, fire escapes, and wood stairs from all elevations; and elevator overrun from west elevation</li> <li>Reinstatement of the west and south elevations, and partial east elevation return using dismantled and salvaged and new materials to match, including the recreation of the original cornice that was previously removed</li> <li>Modification to facades at ground floor level, which includes converting the two existing windows on the north elevation into doors as well as the northern window in the west elevation; the existing door on the north elevation will be lowered to grade and converted into a window; on the west elevation, the existing arched entrance at the southern extent will be lowered to grade and converted into a fire fighter access point for the station</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>As no impacts are anticipated to the resource during operations, no mitigation measures are recommended.</li> </ul>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>Monitoring activities during construction related to potential vibration impacts are outlined in <b>Section 5.8</b>.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>As no impacts are anticipated to the resource during operations, no monitoring activities are recommended.</li> </ul>
<p>647-647A King Street West (Ref # OLW-032)</p>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>Demolition of all or part of the building.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>Potential impacts to the resource are not anticipated during operations.</li> </ul>	<p><b>Construction</b></p> <p>Prior to property modifications, including but not limited to demolition, the following will be completed:</p> <ul style="list-style-type: none"> <li>Consult with the City of Toronto</li> <li>Documentation and Salvage</li> <li>Sensitive and Compatible Design</li> <li>Interpretation/Commemoration Framework</li> </ul> <p>Given anticipated in-situ retention, additional mitigation measures include:</p> <ul style="list-style-type: none"> <li>Document the existing building at 60 Stewart Street</li> <li>Remove buildings and provide compatible replacement building</li> </ul> <p><b>Operations</b></p>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>No monitoring activities are recommended during construction.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>As no impacts are anticipated to the resource during operations, no monitoring activities are recommended.</li> </ul>

Environmental Component	Potential Impact	Mitigation Measure(s)	Monitoring Activities
		<ul style="list-style-type: none"> <li>As no impacts are anticipated to the resource during operations, no mitigation measures are recommended.</li> </ul>	
<p>668 King Street West (Ref # OLW-039)</p>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>Demolition of all or part of the building.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>Potential impacts to the resource are not anticipated during operations.</li> </ul>	<p><b>Construction</b></p> <p>Prior to property modifications, including but not limited to demolition, the following will be completed:</p> <ul style="list-style-type: none"> <li>Consult with the City of Toronto</li> <li>Documentation and Salvage</li> <li>Interpretation/Commemoration Framework</li> </ul> <p>Given anticipated in-situ retention, additional mitigation measures include:</p> <ul style="list-style-type: none"> <li>Selective dismantle and salvage of stone base and stone features around windows and doors from north, west and south elevations</li> <li>Panelization of the south and west elevations once stone features are dismantled and salvaged</li> <li>Dismantle and salvage the cornices and intact masonry from the north and east elevations</li> <li>Remove the existing brick parapet</li> <li>Reinstatement of west and south elevation and partial returns of the north and east elevations using panelized, dismantled and salvaged, and new materials</li> <li>Reconstruct parapet with new material to match existing</li> <li>Modifications to facades, which includes conversion of existing south elevation entrance to a window opening, remove the existing stair and infill with new or salvage stone to match existing; removal of stone base to accommodate a new entrance at the southernmost window of the west elevation; and integrate with new construction</li> <li>Provide new historically appropriate windows based on salvaged historic windows, doors, flashings, and bring reinstated elements to a state of good repair</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>As no impacts are anticipated to the resource during operations, no mitigation measures are recommended.</li> </ul>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>No monitoring activities are recommended during construction.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>As no impacts are anticipated to the resource during operations, no monitoring activities are recommended.</li> </ul>
<p>662 King Street West (Ref # OLW-040)</p>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>Demolition of all or part of the building.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>Potential impacts to the resource are not anticipated during operations.</li> </ul>	<p><b>Construction</b></p> <p>Prior to property modifications, including but not limited to demolition, the following will be completed:</p> <ul style="list-style-type: none"> <li>Consult with the City of Toronto</li> <li>Documentation and Salvage</li> <li>Interpretation/Commemoration Framework</li> </ul> <p>Given anticipated in-situ retention, additional mitigation measures include:</p> <ul style="list-style-type: none"> <li>Panelization of the south elevation and east and west returns</li> <li>Dismantle and salvage of the balance of the facades</li> </ul>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>No monitoring activities are recommended during construction.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>As no impacts are anticipated to the resource during operations, no monitoring activities are recommended.</li> </ul>

Environmental Component	Potential Impact	Mitigation Measure(s)	Monitoring Activities
		<ul style="list-style-type: none"> <li>Reinstate facades using panelized, dismantled and salvaged, and new materials with modifications for new use</li> <li>Provide new windows and doors consistent with the existing conditions</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>As no impacts are anticipated to the resource during operations, no mitigation measures are recommended.</li> </ul>	
Queen Street West HCD (Ref # OLW-065)	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>Encroachment into the HCD causing a physical impact, including:                             <ul style="list-style-type: none"> <li>introduction of new elements to the HCD</li> <li>alterations to a contributing property, or</li> <li>or diminishment in integrity of the HCD due to the introduction of new elements</li> </ul> </li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>Potential impacts to the resource are not anticipated during operations.</li> </ul>	<p><b>Construction</b></p> <p>Site-specific mitigation recommendations are provided per property. Generally, prior to property modifications, including but not limited to construction activities, the following mitigation strategies will be completed</p> <ul style="list-style-type: none"> <li>Consult with the City of Toronto</li> <li>Sensitive and Compatible design</li> <li>Record, repair and restore where possible, if elements of the HCD are impacted by the Project</li> <li>Alterations must be complimentary and subordinate to the cultural heritage value and heritage attributes of the HCD</li> <li>Review the <i>Queen Street West Heritage Conservation District Plan</i> and design Project to be consistent with the HCD Plan</li> </ul> <p>In addition, consult the <i>Queen Street West Heritage Conservation District Plan</i> design Project to be consistent with the HCD Plan, including but not limited to:</p> <ul style="list-style-type: none"> <li>Design the Project to align and be consistent with the Guidelines set out in the <i>Queen Street West Heritage Conservation District Plan</i>, in Section 5, Heritage Attributes and District Guidelines, including:                             <ul style="list-style-type: none"> <li>Prominent Architecture and Landmark Buildings</li> <li>Street Wall</li> <li>Street Wall Elements</li> <li>Building Heights</li> <li>Façade Patterns and Features</li> <li>Public Realm</li> <li>Circulation</li> </ul> </li> <li>The heritage attributes of properties that are “listed” or designated under Part IV of the <i>OHA</i>, as defined in their respective listing reports or designation by-laws, should be maintained and enhanced in any proposed alteration to the property (subsection 5.1).</li> <li>Design the Project to align with the Planning Considerations set out in the <i>Queen Street West Heritage Conservation District Plan</i>, in Section 7.1 and Section 8, including but not limited to:                             <ul style="list-style-type: none"> <li>The Streetscape- Design new streetscape features (including street furniture, paving, light standards) that recognizes the heritage character of Queen Street West. Create a positive impact that is compatible in design to the existing streetscape.</li> </ul> </li> </ul>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>Site-specific monitoring recommendations are provided per property. .</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>As no impacts are anticipated to the resource during operations, no monitoring activities are recommended.</li> </ul>

Environmental Component	Potential Impact	Mitigation Measure(s)	Monitoring Activities
		<ul style="list-style-type: none"> <li>○ Tree Strategy- Conserve and minimize impact to the existing trees.</li> <li>○ Parking- Existing on-street parking should be maintained.</li> <li>○ John Street- Consider the cultural importance of John Street as a visual axis that links with Queen Street West, as a vital public realm</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>● As no impacts are anticipated to the resource during operations, no mitigation measures are recommended.</li> </ul>	
<p>University Avenue, east and west side, Front Street north to Queen’s Park (Ref # OLV-136)</p>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>● New physical element or alteration (impacts to heritage attribute).</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>● Potential impacts to the resource are not anticipated during operations.</li> </ul>	<p><b>Construction</b></p> <p>OLW-136 is subject to a series of conditions associated with Minister’s Consent. Prior to property modifications, including but not limited to demolition, the following will be completed:</p> <ul style="list-style-type: none"> <li>● Archaeological assessments</li> <li>● Consult with the City of Toronto</li> <li>● Documentation and Restoration Plan</li> <li>● Removal, and Storage</li> </ul> <p>Given anticipated removal and storage of materials associated with the University Avenue Streetscape, additional mitigation measures include:</p> <ul style="list-style-type: none"> <li>● Dismantle and store streetscape elements within or proximate to work area for temporary storage during station construction</li> <li>● Reinstate streetscape elements to current location using stored materials</li> <li>● Reinstate streetscape using dismantled and stored material. Any new material that is required is to match existing</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>● As no impacts are anticipated to the resource during operations, no mitigation measures are recommended.</li> </ul>	<p><b>Construction</b></p> <p>Should changes to Project Plans or Proposed Mitigation Measures occur, or where Minister’s Consent conditions cannot be completed, Metrolinx will engage with the City of Toronto Heritage Planning then seek the MHSTCI’s advice prior to proceeding. Until all conditions associated with Minister’s Consent have been fully met, Metrolinx will provide an annual update to the Director, Programs and Services Branch, Heritage, Tourism and Culture Division of MHSTCI.</p> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>● As no impacts are anticipated to the resource during operations, no monitoring activities are recommended.</li> </ul>
<p>Cenotaph, North side of Queen Street West at University Avenue (Ref # OLV-137)</p>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>● Temporary relocation.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>● Potential impacts to the resource are not anticipated during operations.</li> </ul>	<p><b>Construction</b></p> <p>OLW-137 is subject to a series of conditions associated with Minister’s Consent. Prior to property modifications, including but not limited to demolition, the following will be completed:</p> <ul style="list-style-type: none"> <li>● Consult with the City of Toronto</li> <li>● Documentation, Relocation Plan, and Restoration Plan</li> <li>● Interpretation and Commemoration Plan</li> </ul> <p>Given anticipated in-situ retention, additional mitigation measures include:</p> <ul style="list-style-type: none"> <li>● Dismantle and store Memorial and streetscape elements within or proximate to work area for temporary storage during station construction</li> <li>● Reinstate Memorial to current location using stored materials</li> </ul>	<p><b>Construction</b></p> <p>Should changes to Project Plans or Proposed Mitigation Measures occur, or where Minister’s Consent conditions cannot be completed, Metrolinx will engage with the City of Toronto Heritage Planning then seek the MHSTCI’s advice prior to proceeding. Until all conditions associated with Minister’s Consent have been fully met, Metrolinx will provide an annual update to the Director, Programs and Services Branch, Heritage, Tourism and Culture Division of MHSTCI.</p> <p><b>Operations</b></p>

Environmental Component	Potential Impact	Mitigation Measure(s)	Monitoring Activities
		<ul style="list-style-type: none"> <li>Reinstate streetscape using dismantled and stored materials. Any new material that is required is to match existing</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>As no impacts are anticipated to the resource during operations, no mitigation measures are recommended.</li> </ul>	<ul style="list-style-type: none"> <li>As no impacts are anticipated to the resource during operations, no monitoring activities are recommended.</li> </ul>
455 Queen Street West (OLAW-002)	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>Demolition of all or part of the building.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>Potential impacts to the resource are not anticipated during operations.</li> </ul>	<p><b>Construction</b></p> <p>Prior to property modifications, including but not limited to demolition, the following will be completed:</p> <ul style="list-style-type: none"> <li>Consult with the City of Toronto</li> <li>Documentation and Salvage</li> <li>Interpretation/Commemoration Framework</li> <li>Replacement of all existing buildings with new South Station Entrance building</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>As no impacts are anticipated to the resource during operations, no mitigation measures are recommended.</li> </ul>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>No monitoring activities are recommended during construction.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>As no impacts are anticipated to the resource during operations, no monitoring activities are recommended.</li> </ul>
453 Queen Street West (Ref # OLAW-003)	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>Demolition of all or part of the building.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>Potential impacts to the resource are not anticipated during operations.</li> </ul>	<p><b>Construction</b></p> <p>Prior to property modifications, including but not limited to demolition, the following will be completed:</p> <ul style="list-style-type: none"> <li>Consult with the City of Toronto</li> <li>Documentation and Salvage</li> <li>Interpretation/Commemoration Framework</li> <li>Panelize second storey</li> <li>Replacement of all existing buildings with new South Station Entrance building</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>As no impacts are anticipated to the resource during operations, no mitigation measures are recommended.</li> </ul>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>No monitoring activities are recommended during construction.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>As no impacts are anticipated to the resource during operations, no monitoring activities are recommended.</li> </ul>
451 Queen Street West (Ref # OLAW-004)	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>Demolition of all or part of the building.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>Potential impacts to the resource are not anticipated during operations.</li> </ul>	<p><b>Construction</b></p> <p>Prior to property modifications, including but not limited to demolition, the following will be completed:</p> <ul style="list-style-type: none"> <li>Consult with the City of Toronto</li> <li>Documentation and Salvage</li> <li>Interpretation/Commemoration Framework</li> <li>Document existing buildings at 449, 451 and 453 Queen Street West</li> <li>Replacement of all existing buildings with new South Station Entrance building</li> </ul>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>No monitoring activities are recommended during construction.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>As no impacts are anticipated to the resource during operations, no monitoring activities are recommended.</li> </ul>

Environmental Component	Potential Impact	Mitigation Measure(s)	Monitoring Activities
		<p><b>Operations</b></p> <ul style="list-style-type: none"> <li>As no impacts are anticipated to the resource during operations, no mitigation measures are recommended.</li> </ul>	
449 Queen Street West (Ref # OLAW-005)	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>Demolition of all or part of the building.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>Potential impacts to the resource are not anticipated during operations.</li> </ul>	<p><b>Construction</b></p> <p>Prior to property modifications, including but not limited to demolition, the following will be completed:</p> <ul style="list-style-type: none"> <li>Consult with the City of Toronto</li> <li>Documentation and Salvage</li> <li>Interpretation/Commemoration Framework</li> <li>Replacement of all existing buildings with new South Station Entrance building</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>As no impacts are anticipated to the resource during operations, no mitigation measures are recommended.</li> </ul>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>No monitoring activities are recommended during construction.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>As no impacts are anticipated to the resource during operations, no monitoring activities are recommended.</li> </ul>
443 Queen Street West (Ref # OLAW-006)	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>Demolition of all or part of the building.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>Potential impacts to the resource are not anticipated during operations.</li> </ul>	<p><b>Construction</b></p> <p>Prior to property modifications, including but not limited to demolition, the following will be completed:</p> <ul style="list-style-type: none"> <li>Consult with the City of Toronto</li> <li>Documentation and Salvage</li> <li>Interpretation/Commemoration Framework</li> <li>Replacement of all existing buildings with new South Station Entrance building</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>As no impacts are anticipated to the resource during operations, no mitigation measures are recommended.</li> </ul>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>No monitoring activities are recommended during construction.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>As no impacts are anticipated to the resource during operations, no monitoring activities are recommended.</li> </ul>
165, 169 ½, 171, 171 ½, 173, 175, 175 ½, 177 Spadina Avenue and 378 Queen Street and 378 Queen Street West (Ref # OLAW-014)	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>Demolition of all or part of the building.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>Potential impacts to the resource are not anticipated during operations.</li> </ul>	<p><b>Construction</b></p> <p>Prior to property modifications, including but not limited to demolition, the following will be completed:</p> <ul style="list-style-type: none"> <li>Consult with the City of Toronto</li> <li>Documentation and Salvage</li> <li>Interpretation/Commemoration Framework</li> <li>Retain south elevation and southwest elevation in-situ, and panelize the west elevation</li> </ul> <p>Given anticipated in-situ retention, additional mitigation measures include:</p> <ul style="list-style-type: none"> <li>Retain south elevation and southwest elevation in-situ, and panelize the west elevation</li> <li>Dismantle and salvage north elevation east elevation return, intact original storefront elements, stone base on west elevation, portico, and metal cornice</li> </ul>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>Monitoring activities during construction related to potential vibration impacts are outlined in <b>Section 5.8</b>.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>As no impacts are anticipated to the resource during operations, no monitoring activities are recommended.</li> </ul>



Environmental Component	Potential Impact	Mitigation Measure(s)	Monitoring Activities
		<ul style="list-style-type: none"> <li>Modification of three existing window opening at the western extern of the south elevation to become the new station entrance</li> <li>Conversion of existing windows to ventilation louvres at the south elevation</li> <li>Reinstate north and west elevations, and partial east return using panelized, dismantled and salvaged, and new material to match</li> <li>Provide new historically appropriate windows and doors</li> <li>Provide new flashing and bring the reinstated elements to a state of good repair</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>As no impacts are anticipated to the resource during operations, no mitigation measures are recommended.</li> </ul>	
<p>205 Queen Street West (Ref # OLAW-018)</p>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>Demolition of all or part of the resource.</li> <li>Temporary relocation of north and east elevations with partial west return.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>Potential impacts to the resource are not anticipated during operations.</li> </ul>	<p><b>Construction</b></p> <p>Prior to property modifications, including but not limited to demolition, the following will be completed:</p> <ul style="list-style-type: none"> <li>Consult with the City of Toronto</li> <li>Documentation and Salvage</li> <li>Interpretation/Commemoration Framework</li> <li>Reinstate north and east elevations, and partial west return elevation using temporarily relocated, dismantled, and salvaged materials</li> <li>Provide new historically appropriate windows</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>As no impacts are anticipated to the resource during operations, no mitigation measures are recommended.</li> </ul>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>No monitoring activities are recommended during construction.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>As no impacts are anticipated to the resource during operations, no monitoring activities are recommended.</li> </ul>
<p>Public Space: Former location of first railway cross of the Don River (Ref # LDB-001)</p>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>Demolition of part of the resource.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>Potential impacts to the resource are not anticipated during operations.</li> </ul>	<p><b>Construction</b></p> <p>Prior to property modifications, including but not limited to demolition, the following will be completed:</p> <ul style="list-style-type: none"> <li>Consult with the City of Toronto</li> <li>Documentation and Salvage</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>As no impacts are anticipated to the resource during operations, no mitigation measures are recommended.</li> </ul>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>No monitoring activities are recommended during construction.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>As no impacts are anticipated to the resource during operations, no monitoring activities are recommended.</li> </ul>
<p>Heritage Toronto Plaque - within Corktown Common, 155 Bayview Avenue (Ref # LDB-004)</p>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>Encroachment.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>Potential impacts to the resource are not anticipated during operations.</li> </ul>	<p><b>Construction</b></p> <p>Prior to property modifications, the following will be completed:</p> <ul style="list-style-type: none"> <li>Consult with the City of Toronto</li> <li>Sensitive Design</li> </ul> <p><b>Operations</b></p>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>No monitoring activities are recommended during construction.</li> </ul> <p><b>Operations</b></p>

Environmental Component	Potential Impact	Mitigation Measure(s)	Monitoring Activities
		<ul style="list-style-type: none"> <li>As no impacts are anticipated to the resource during operations, no mitigation measures are recommended.</li> </ul>	<ul style="list-style-type: none"> <li>As no impacts are anticipated to the resource during operations, no monitoring activities are recommended.</li> </ul>
220 Langley Avenue (Ref # OLS-011)	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>Encroachment.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>Potential impacts to the resource are not anticipated during operations.</li> </ul>	<p><b>Construction</b></p> <p>Prior to property modifications, the following will be completed:</p> <ul style="list-style-type: none"> <li>Consult with the City of Toronto</li> <li>Sensitive Design</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>As no impacts are anticipated to the resource during operations, no mitigation measures are recommended.</li> </ul>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>Monitoring activities during construction related to potential vibration impacts are outlined in <b>Section 5.8</b>.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>As no impacts are anticipated to the resource during operations, no monitoring activities are recommended.</li> </ul>
Carlaw Avenue and Gerrard Street East Subways (Ref # OLS-014)	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>New physical element or alteration (impacts to heritage attribute).</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>Potential impacts to the resource are not anticipated during operations.</li> </ul>	<p><b>Construction</b></p> <p>Prior to property modifications, the following will be completed:</p> <ul style="list-style-type: none"> <li>Consult with the City of Toronto</li> <li>Documentation and Salvage</li> <li>Interpretation/Commemoration Framework</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>As no impacts are anticipated to the resource during operations, no mitigation measures are recommended.</li> </ul>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>Monitoring activities during construction related to potential vibration impacts are outlined in <b>Section 5.8</b>.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>As no impacts are anticipated to the resource during operations, no monitoring activities are recommended.</li> </ul>
400 Carlaw Avenue (Ref # OLS-015)	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>Demolition of all or part of the resource.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>Potential impacts to the resource are not anticipated during operations.</li> </ul>	<p><b>Construction</b></p> <p>Prior to property modifications, including but not limited to demolition, the following will be completed:</p> <ul style="list-style-type: none"> <li>Consult with the City of Toronto</li> <li>Documentation and Salvage</li> <li>Interpretation/Commemoration Framework</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>As no impacts are anticipated to the resource during operations, no mitigation measures are recommended.</li> </ul>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>Monitoring activities during construction related to potential vibration impacts are outlined in <b>Section 5.8</b>.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>As no impacts are anticipated to the resource during operations, no monitoring activities are recommended.</li> </ul>
Riverdale HCD (Ref # OLS-017)	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>Encroachment into the HCD causing a physical impact, including:                             <ul style="list-style-type: none"> <li>introduction of new elements to the HCD</li> <li>alterations to a contributing property, or</li> <li>or diminishment in integrity of the HCD due to the introduction of new elements</li> </ul> </li> </ul> <p><b>Operations</b></p>	<p><b>Construction</b></p> <p>Site-specific mitigation recommendations are provided per property. Generally, prior to property modifications, including but not limited to construction activities, the following mitigation strategies will be completed</p> <ul style="list-style-type: none"> <li>Consult with the City of Toronto</li> <li>Sensitive and Compatible design</li> <li>Record, repair and restore where possible, if elements of the HCD are impacted by the Project</li> <li>Alterations must be complimentary and subordinate to the cultural heritage value and heritage attributes of the HCD</li> </ul>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>Site-specific monitoring recommendations are provided per property. .</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>As no impacts are anticipated to the resource during operations, no monitoring activities are recommended.</li> </ul>

Environmental Component	Potential Impact	Mitigation Measure(s)	Monitoring Activities
	<ul style="list-style-type: none"> <li>Potential impacts to the resource are not anticipated during operations.</li> </ul>	<ul style="list-style-type: none"> <li>Review the <i>Riverdale Heritage Conservation District Plan – Phase 1</i> and design the Project to be consistent with the HCD Plan</li> </ul> <p>In addition, review the <i>Riverdale Heritage Conservation District Plan-Phase 1</i>, design Project to be consistent with the HCD Plan, including but not limited to:</p> <ul style="list-style-type: none"> <li>Design the Project to align and be consistent with the District Guidelines set out in the <i>Riverdale Heritage Conservation District Plan- Phase 1</i>, in Section 9, including, but not limited to:                             <ul style="list-style-type: none"> <li>If demolition, removal or significant alteration to any buildings or structures in the HCD is necessary for the Project, this action should be limited to only those buildings that have been identified in the HCD Plan as “non-contributing”. Demolition of contributing properties is strenuously avoided.</li> <li>Retain principal structures on contributing properties, including buildings along the east side of Tiverton Avenue - restore and conserve the heritage fabric.</li> <li>Alterations/new elements to the HCD must be complementary and subordinate to the cultural heritage value and heritage attributes of the HCD.</li> <li>Record, repair and restore where possible, elements of the HCD are impact by the Project</li> </ul> </li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>As no impacts are anticipated to the resource during operations, no mitigation measures are recommended.</li> </ul>	
<p>265, 269, 271 Front Street East and 25 Berkeley Street (First Parliament Site) (Ref # OLS-034)</p>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>Demolition and excavation of an archaeological site.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>Potential impacts to the resource are not anticipated during operations.</li> </ul>	<p><b>Construction</b></p> <p>OLS-034 is subject to a series of conditions associated with Minister’s Consent. Summarized these include:</p> <ul style="list-style-type: none"> <li>Archaeological assessments</li> <li>Interpretation and Commemoration Plan</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>As no impacts are anticipated to the resource during operations, no mitigation measures are recommended.</li> </ul>	<p><b>Construction</b></p> <p>Should changes to Project Plans or Proposed Mitigation Measures occur, or where Minister’s Consent conditions cannot be completed, Metrolinx will engage with the City of Toronto Heritage Planning then seek the MHSTCI’s advice prior to proceeding. Until all conditions associated with Minister’s Consent have been fully met, Metrolinx will provide an annual update to the Director, Programs and Services Branch, Heritage, Tourism and Culture Division of MHSTCI.</p> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>As no impacts are anticipated to the resource during operations, no monitoring activities are recommended.</li> </ul>
<p>St. Lawrence Neighbourhood HCD (Ref # OLS-035)</p>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>Encroachment into the HCD causing a physical impact, including:                             <ul style="list-style-type: none"> <li>introduction of new elements to the HCD</li> <li>alterations to a contributing property, or</li> <li>or diminishment in integrity of the HCD due to the introduction of new elements</li> </ul> </li> </ul>	<p><b>Construction</b></p> <p>Site-specific mitigation recommendations are provided per property. Continued avoidance of the properties is recommended.</p> <p>In addition, review the <i>St. Lawrence Neighbourhood Heritage Conservation District Plan</i> and design Project to be consistent with the HCD Plan, including but not limited to:</p>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>Site-specific monitoring recommendations are provided per property.</li> </ul> <p><b>Operations</b></p>

Environmental Component	Potential Impact	Mitigation Measure(s)	Monitoring Activities
	<p><b>Operations</b></p> <ul style="list-style-type: none"> <li>Potential impacts to the resource are not anticipated during operations.</li> </ul>	<ul style="list-style-type: none"> <li>Design the Project to align and be consistent with the District Guidelines set out in the <i>St. Lawrence Neighbourhood Heritage Conservation District Plan</i>, in Sections 5, Section 6, and Section 8, including, but not limited to:                             <ul style="list-style-type: none"> <li>Alterations to a contributing or non-contributing property must be physically and visually compatible with, subordinate to and distinguishable from the heritage attributes of the property</li> <li>Alterations to a contributing property may be permitted only where they minimize the loss or removal of heritage attributes</li> <li>Additions and alterations to a contributing property must be based on a firm understanding of the heritage attributes of the property that contributes to the cultural heritage value of the District as a whole</li> <li>Alterations/new elements must be complementary and subordinate to the cultural heritage value and heritage attributes of the HCD.</li> <li>New development must respect the cultural heritage values of the District while reflecting its own time</li> <li>New streetscape lighting should be undertaken in accordance with the Heritage Lighting Master Plan for Old Town Toronto</li> <li>Street furniture design to be consistent thought the District (use Streetscape Manual to design any new streetscape furniture)</li> <li>Design street signage to be consistent with the format of the HCD as a whole</li> <li>Complete detailed documentation of the property that includes the identification of salvageable materials and/or heritage attributes prior to alteration, in order to inform what building components should be retained and conserved and/or restored.</li> </ul> </li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>As no impacts are anticipated to the resource during operations, no mitigation measures are recommended.</li> </ul>	<ul style="list-style-type: none"> <li>As no impacts are anticipated to the resource during operations, no monitoring activities are recommended.</li> </ul>
<p>150 Sherbourne Street (including structure at 140 Sherbourne Street) (Ref # OLS-049)</p>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>New physical element or alteration (no impact to heritage attributes).</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>Potential impacts to the resource are not anticipated during operations.</li> </ul>	<p><b>Construction</b></p> <p>Prior to property modifications, including but not limited to construction activities, the following mitigation strategies will be completed:</p> <ul style="list-style-type: none"> <li>Consult the City of Toronto</li> <li>Design the Project to be consistent with the Policies and Guidelines for Contributing Properties set out in the <i>Garden District Heritage Conservation District Plan</i>. Section 6.0 for 140 Sherbourne Street and Section 8.2 Moss Park.</li> <li>Moss Park, that forms the terminus of Pembroke Street, should remain an open landscape (Section 8.2.1 of HCD Plan)</li> <li>Continued avoidance of the building is recommended.</li> </ul> <p><b>Operations</b></p>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>Monitoring activities during construction related to potential vibration impacts are outlined in <b>Section 5.8</b>.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>As no impacts are anticipated to the resource during operations, no monitoring activities are recommended.</li> </ul>

Environmental Component	Potential Impact	Mitigation Measure(s)	Monitoring Activities
		<ul style="list-style-type: none"> <li>As no impacts are anticipated to the resource during operations, no mitigation measures are recommended.</li> </ul>	
<p>Garden District HCD (Ref # OLS-063)</p>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>Encroachment into the HCD causing a physical impact, including:                             <ul style="list-style-type: none"> <li>introduction of new elements to the HCD</li> <li>alterations to a contributing property, or</li> <li>or diminishment in integrity of the HCD due to the introduction of new elements</li> </ul> </li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>Potential impacts to the resource are not anticipated during operations.</li> </ul>	<p><b>Construction</b></p> <p>Site-specific mitigation recommendations are provided per property. Generally, prior to property modifications, including but not limited to construction activities, the following mitigation strategies will be completed</p> <ul style="list-style-type: none"> <li>Consult with the City of Toronto</li> <li>Sensitive and Compatible design</li> <li>Record, repair and restore where possible, if elements of the HCD are impacted by the Project</li> <li>Alterations must be complimentary and subordinate to the cultural heritage value and heritage attributes of the HCD</li> </ul> <p>In addition, review the <i>Garden District Heritage Conservation District Plan</i> and design Project to be consistent with the HCD Plan, including but not limited to:</p> <ul style="list-style-type: none"> <li>Design the Project to align and be consistent with the District Guidelines set out in the <i>Garden District Heritage Conservation District Plan</i>, in Sections 6.0, 7.0 and 8.0, including, but not limited to:                             <ul style="list-style-type: none"> <li>Document and describe the cultural heritage attributes of a contributing property and the impact of any proposed alteration on those values and attributes</li> <li>Proposed alterations shall be complementary with and subordinate to the District’s cultural heritage value and heritage attributes</li> <li>Alterations shall not diminish or detract from the integrity of the District</li> <li>If demolition, removal or significant alteration to any buildings or structures in the HCD is necessary for the Project, this action should be limited to only those buildings that have been identified in the HCD Plan as “non-contributing”.</li> <li>New development on non-contributing properties shall complement the District’s cultural heritage value and heritage attributes while reflecting its own time.</li> <li>Alterations/new elements must be complementary and subordinate to the cultural heritage value and heritage attributes of the HCD.</li> </ul> </li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>As no impacts are anticipated to the resource during operations, no mitigation measures are recommended.</li> </ul>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>Site-specific monitoring recommendations are provided per property.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>As no impacts are anticipated to the resource during operations, no monitoring activities are recommended.</li> </ul>

Environmental Component	Potential Impact	Mitigation Measure(s)	Monitoring Activities
<p>176 Yonge Street/401 Bay Street (Ref # OLS-106)</p>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>New physical element or alteration (no impact to heritage attributes).</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>Potential impacts to the resource are not anticipated during operations.</li> </ul>	<p><b>Construction</b></p> <p>Prior to property modifications, including but not limited to alterations, the following mitigation strategies will be completed:</p> <ul style="list-style-type: none"> <li>Consult the City of Toronto</li> <li>Sensitive and Compatible Design</li> <li>Modification to existing alcove to accommodate a new wider set of stairs and elevator</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>As no impacts are anticipated to the resource during operations, no mitigation measures are recommended.</li> </ul>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>Monitoring activities during construction related to potential vibration impacts are outlined in <b>Section 5.8</b>.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>As no impacts are anticipated to the resource during operations, no monitoring activities are recommended.</li> </ul>
<p>130 Queen Street West, Osgoode Hall (Ref # OLS-113)</p>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>New physical element or alteration that changes the character or diminishes the integrity of the property's formal setting, including the grassed lawn with Y-shaped walkways and traditional plantings, decorative cast-iron fence, and gates.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>Potential impacts to the resource are not anticipated during operations.</li> </ul>	<p><b>Construction</b></p> <p>OLS-113 is subject to a series of conditions associated with Minister's Consent. Prior to property modifications, including but not limited to demolition, the following will be completed:</p> <ul style="list-style-type: none"> <li>Archaeological assessments</li> <li>Minimal visual intrusion and obstruction through design guidelines</li> <li>Documentation and Pre- and Post-Construction Conditions Assessment</li> <li>Landscape Management Plan</li> <li>Documentation and Restoration Plan</li> <li>Sensitive and collaborative removal and reinstatement</li> </ul> <p>In addition to mitigation measures associated with the conditions of Minister's Consent, prior to property modifications, including but not limited to demolition, the following should be completed:</p> <ul style="list-style-type: none"> <li>Consult with the City of Toronto</li> <li>Consult with the Law Society of Ontario</li> </ul> <p>Given anticipated in-situ retention, additional mitigation measures include:</p> <ul style="list-style-type: none"> <li>Retain brick pier in-situ</li> <li>Panelize a portion of fence and dismantle and store metal supports and stone base</li> <li>Reconfigure and reinstate fence and stone base using panelized, dismantled and stored, and new materials to match existing</li> <li>Rehabilitate landscape and bring reinstated elements into a state of good repair</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>As no impacts are anticipated to the resource during operations, no mitigation measures are recommended.</li> </ul>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>Monitoring activities during construction related to potential vibration impacts are outlined in <b>Section 5.8</b>.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>As no impacts are anticipated to the resource during operations, no monitoring activities are recommended.</li> </ul> <p>Should changes to Project Plans or Proposed Mitigation Measures occur, or where Minister's Consent conditions cannot be completed, Metrolinx will engage with the City of Toronto Heritage Planning then seek the MHSTCI's advice prior to proceeding. Until all conditions associated with Minister's Consent have been fully met, Metrolinx will provide an annual update to the Director, Programs and Services Branch, Heritage, Tourism and Culture Division of MHSTCI.</p>

Environmental Component	Potential Impact	Mitigation Measure(s)	Monitoring Activities
242 First Avenue (Ref # OLAS-004)	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>Demolition of all or part of the resource.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>Potential impacts to the resource are not anticipated during operations.</li> </ul>	<p><b>Construction</b></p> <p>Prior to property modifications, including but not limited to demolition, the following will be completed:</p> <ul style="list-style-type: none"> <li>Consult with the City of Toronto</li> <li>Documentation and Salvage</li> <li>Sensitive and Compatible Design</li> <li>Interpretation/Commemoration Framework</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>As no impacts are anticipated to the resource during operations, no mitigation measures are recommended.</li> </ul>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>No monitoring activities are recommended during construction.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>As no impacts are anticipated to the resource during operations, no monitoring activities are recommended.</li> </ul>
240 First Avenue (Ref # OLAS-005)	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>Demolition of all or part of the resource.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>Potential impacts to the resource are not anticipated during operations.</li> </ul>	<p><b>Construction</b></p> <p>Prior to property modifications, including but not limited to demolition, the following will be completed:</p> <ul style="list-style-type: none"> <li>Consult with the City of Toronto</li> <li>Documentation and Salvage</li> <li>Sensitive and Compatible Design</li> <li>Interpretation/Commemoration Framework</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>As no impacts are anticipated to the resource during operations, no mitigation measures are recommended.</li> </ul>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>No monitoring activities are recommended during construction.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>As no impacts are anticipated to the resource during operations, no monitoring activities are recommended.</li> </ul>
21 Redway Road (Ref # OLAN – 004)	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>Encroachment.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>Potential impacts to the resource are not anticipated during operations.</li> </ul>	<p><b>Construction</b></p> <p>Prior to property modifications, including but not limited to construction activities, the following mitigation strategies will be completed:</p> <ul style="list-style-type: none"> <li>Consult with the City of Toronto</li> <li>Continued avoidance of the buildings is recommended.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>As no impacts are anticipated to the resource during operations, no mitigation measures are recommended.</li> </ul>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>Monitoring activities during construction related to potential vibration impacts are outlined in <b>Section 5.8</b>.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>As no impacts are anticipated to the resource during operations, no monitoring activities are recommended.</li> </ul>
849 Don Mills Road (Ref # OLN-001)	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>Encroachment.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>Potential impacts to the resource are not anticipated during operations.</li> </ul>	<p><b>Construction</b></p> <p>Prior to property modifications, including but not limited to construction activities, the following mitigation strategies will be completed:</p> <ul style="list-style-type: none"> <li>Consult with the City of Toronto</li> <li>Continued avoidance of the buildings is recommended.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>As no impacts are anticipated to the resource during operations, no mitigation measures are recommended.</li> </ul>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>Monitoring activities during construction related to potential vibration impacts are outlined in <b>Section 5.8</b>.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>As no impacts are anticipated to the resource during operations, no monitoring activities are recommended.</li> </ul>

Environmental Component	Potential Impact	Mitigation Measure(s)	Monitoring Activities
770 Don Mills Road/Ontario Science Centre (Ref # OLN-005)	<p><b>Construction</b> Evaluation of the Ontario Science Centre in accordance with O. Reg. 9/06 and 10/06 is currently underway by Infrastructure Ontario and may result in changes to potential heritage attributes identified. Following evaluation, impacts to heritage attributes will be assessed to determine the need for MHSTCI Minister’s Consent, if any. Based on preliminary heritage attributes, the following impacts are anticipated:</p> <ul style="list-style-type: none"> <li>• New physical element or alteration that changes the existing parkland setting</li> <li>• New physical element or alteration that changes the existing north and south parking areas</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>• Potential impacts to the resource are not anticipated during operations.</li> </ul>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>• To be determined.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>• As no impacts are anticipated to the resource during operations, no mitigation measures are recommended.</li> </ul>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>• Monitoring activities during construction related to potential vibration impacts are outlined in <b>Section 5.8</b>.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>• As no impacts are anticipated to the resource during operations, no monitoring activities are recommended.</li> </ul>
968-1042; 947-1030 Pape Avenue (Ref # OLN-020)	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>• Demolition of all or part of the resource.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>• Potential impacts to the resource are not anticipated during operations.</li> </ul>	<p><b>Construction</b></p> <p>Prior to property modifications, including but not limited to demolition, the following will be completed:</p> <ul style="list-style-type: none"> <li>• Consult with the City of Toronto</li> <li>• Documentation and Salvage</li> <li>• Sensitive and Compatible Design</li> <li>• Interpretation/Commemoration Framework</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>• As no impacts are anticipated to the resource during operations, no mitigation measures are recommended.</li> </ul>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>• Monitoring activities during construction related to potential vibration impacts are outlined in <b>Section 5.8</b>.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>• As no impacts are anticipated to the resource during operations, no monitoring activities are recommended.</li> </ul>
746 Pape Avenue (Ref # OLN-021)	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>• Encroachment.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>• Potential impacts to the resource are not anticipated during operations.</li> </ul>	<p>Prior to property modifications the following mitigation strategies will be completed:</p> <ul style="list-style-type: none"> <li>• Consult with the City of Toronto</li> <li>• Sensitive Design</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>• As no impacts are anticipated to the resource during operations, no mitigation measures are recommended.</li> </ul>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>• Monitoring activities during construction related to potential vibration impacts are outlined in <b>Section 5.8</b>.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>• As no impacts are anticipated to the resource during operations, no monitoring activities are recommended.</li> </ul>
<b>ARCHAEOLOGY</b>			
<b>Archaeological Potential</b>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>• Potential for the disturbance of unassessed or documented archaeological resources.</li> </ul> <p><b>Operations</b></p>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>• Prior to construction, an Archaeological Risk Management Plan will be developed that will include, among other items: <ul style="list-style-type: none"> <li>○ The recommendations from Archaeological Reports</li> <li>○ Processes for Indigenous monitors and engagement with Indigenous Nations</li> </ul> </li> </ul>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>• Subject to findings of future Archaeological Assessments, to avoid impacts on archaeological resources during construction, monitoring may be required.</li> </ul>



Environmental Component	Potential Impact	Mitigation Measure(s)	Monitoring Activities
	<ul style="list-style-type: none"> <li>Potential impacts are not anticipated during operations.</li> </ul>	<ul style="list-style-type: none"> <li>Areas identified as retaining archaeological potential, as per the Stage 1 Archaeological Assessment Report (<b>Appendix A3</b>), must be subject to further archaeological assessment, as recommended and in advance of any ground disturbance.</li> <li>Any additional Archaeological Assessments (e.g., Stage 2, Stage 3 if recommended by the Stage 2) shall be completed as early as possible, and prior to the ground disturbing activities. This work shall be done in accordance with the MHSTCIs <i>Standards and Guidelines for Consultant Archaeologists</i> (Government of Ontario 2011) to identify any archaeological resources that may be present.</li> <li>Indigenous Nations will be invited to participate in any subsequent archaeological work. All future archaeological assessment findings will be shared with the Indigenous Nations that were engaged.</li> <li>If in-water work is required, a marine archaeological assessment will be completed.</li> <li>If detailed design moves the Project Footprint onto lands not previously assessed for archaeological potential, additional archaeological assessments may be required in order to conserve archaeological resources through documentation, protection, and/or avoidance from impacts.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>As no impacts are anticipated to archaeological potential during operations, no mitigation measures are recommended.</li> </ul>	<p><b>Operations</b></p> <ul style="list-style-type: none"> <li>As no impacts are anticipated to archaeological potential during operations, no monitoring activities are recommended.</li> </ul>
<p><b>Archaeological Resources</b></p>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>Potential recovery of archaeological resources during construction.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>Potential impacts are not anticipated during operations.</li> </ul>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>Prior to construction, an Archaeological Risk Management Plan will be developed that will include, among other items, protocols should previously undocumented archaeological resources be discovered</li> <li>Should previously undocumented archaeological resources be discovered, they may be a new archaeological site and therefore subject to Section 48(1) of the OHA. The proponent or person discovering the archaeological resources must cease alteration of the site immediately and engage a licensed consultant archaeologist to carry out archaeological fieldwork.</li> <li>The <i>Funeral, Burial and Cremation Services Act, 2002</i> requires that any person discovering human remains must notify the police or coroner and the Registrar of Cemeteries at the Ministry of Government and Consumer Services.</li> <li>Archaeological sites recommended for further archaeological fieldwork or protection remain subject to Section 48(1) of the OHA and may not be altered, or have artifacts removed from them, except by a person holding an archaeological license.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>As no impacts are anticipated to archaeological potential during operations, no mitigation measures are recommended.</li> </ul>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>Subject to findings of future Archaeological Assessments, to avoid impacts on archaeological resources during construction, monitoring may be required.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>As no impacts are anticipated to archaeological resources during operations, no monitoring activities are recommended.</li> </ul>

Environmental Component	Potential Impact	Mitigation Measure(s)	Monitoring Activities
<b>SOCIO-ECONOMIC AND LAND USE CHARACTERISTICS</b>			
<b>Property</b>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>Property acquisition – permanent and temporary.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>None identified.</li> </ul>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>Specific permanent property requirements, and temporary property requirements, such as those associated with construction staging and laydown, will be reduced to the extent feasible as planning progresses.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>None identified.</li> </ul>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>None identified.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>None identified.</li> </ul>
<b>Development Projects</b>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>Compatibility with nearby planned development projects will require review and coordination.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>None identified.</li> </ul>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>Complete review of proposed development applications, including those submitted since the preparation of this report, to reduce site impacts and determine feasible methods of design coordination where needed.</li> <li>Metrolinx will continue to coordinate with the City of Toronto where it has active development projects in or adjacent to the Project Footprint.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>None identified.</li> </ul>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>None identified.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>None identified.</li> </ul>
<b>All Land Uses and Adjacent Lands</b>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>Nuisance impacts from construction activities.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>Land uses adjacent to the aboveground segments of the alignment as well as station sites and the OMSF may experience nuisance impacts such as noise, vibration, dust, traffic, and light intrusion from infrastructure and operational activities.</li> </ul>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>Reduce potential impacts to recreational uses, parks and open spaces to the extent feasible.</li> <li>Mitigation measures related to potential air quality and noise and vibration nuisance impacts are outlined in <b>Sections 5.7 and 5.8</b>.</li> <li>Develop an Erosion and Sediment Control Plan in accordance with the Toronto and Region Conservation Authority’s Erosion and Sediment Control Guide for Urban Construction (2019), as amended from time to time, that addresses sediment release to adjacent properties and roadways.</li> <li>Develop a Communications Protocol which indicates how and when surrounding property owners and tenants will be informed of anticipated upcoming construction works, including work at night.</li> <li>Develop a strategy to reduce the impacts of light pollution, trespass, and glare.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>Mitigation measures related to potential air quality, noise and vibration, and traffic nuisance impacts are outlined in <b>Sections 5.7, 5.8, and 5.9</b>.</li> <li>Project infrastructure will be designed to reduce light trespass, glare, and pollution.</li> </ul>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>Regular monitoring (e.g., on-site inspection) of mitigation measures to verify effectiveness and inform adaptive management, as required.</li> <li>Monitoring related to potential air quality and noise and vibration nuisance impacts are outlined in <b>Sections 5.7 and 5.8</b>.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>Regular monitoring (e.g., on-site inspection) of mitigation measures to verify effectiveness and inform adaptive management, as required.</li> <li>Monitoring related to potential air quality and noise and vibration nuisance impacts are outlined in <b>Sections 5.7 and 5.8</b>.</li> <li>Monitoring related to traffic is outlined in <b>Section 5.9</b>.</li> </ul>

Environmental Component	Potential Impact	Mitigation Measure(s)	Monitoring Activities
	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>Land use and access disruption.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>Land use and access disruption.</li> </ul>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>Provide well connected, clearly delineated, and appropriately signed walkways and cycling route options, with clearly marked detours where required.</li> <li>Provide temporary lighting and wayfinding signs and cues to aid navigation around the construction site.</li> <li>Develop a construction staging plan focused on pedestrian flow and limiting disruption.</li> <li>Maintain access to on-street parking and parking facilities, where feasible. Where access to regular parking cannot be maintained, provide clear communication, alternative access and signage.</li> <li>Reduce potential impacts on and maintain access to recreational uses, parks and open spaces to the extent feasible.</li> <li>Where impacts to institutional uses or community groups and resources are anticipated, consult with the property owner to identify and develop appropriate mitigation measures.</li> <li>Metrolinx will inform the City of Toronto, communities, residents, business owners and institutions (e.g., school boards) directly impacted by construction. Specific mitigation measures will be developed once property impacts have been further refined and confirmed.</li> <li>Regular (existing) access will be maintained, where feasible. Where existing access cannot be maintained, alternative access and signage will be provided.</li> <li>Maintain access to businesses during working hours, where feasible. Where regular access cannot be maintained, provide alternative access and signage.</li> <li>Mitigation measures related to transportation are outlined in <b>Section 5.9</b>.</li> <li>Continue to consult with the City of Toronto and TRCA on impacts to parkland and natural areas and opportunities for parkland improvement as Project planning and design progress.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>Access to driveways and side streets will be restored to the greatest extent possible following construction, where changes are required. Where restoration cannot be completed and if required, Metrolinx will conduct further investigations and negotiate with the affected property owner.</li> <li>Provide lighting and wayfinding signs and cues to aid navigation around each station site.</li> <li>Restore parkland once construction is complete.</li> <li>Reconnect trails where possible once construction is complete or provide alternative routing.</li> <li>Mitigation measures related to transportation are outlined in <b>Section 5.9</b>.</li> </ul>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>Regular monitoring (e.g., on-site inspection) of temporary access paths, walkways, cycling routes and fencing to ensure effectiveness.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>Monitoring related to traffic mitigation measures are outlined in <b>Section 5.9</b>.</li> </ul>

Environmental Component	Potential Impact	Mitigation Measure(s)	Monitoring Activities
<b>Built Form and Visual Characteristics</b>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>Visual impacts from construction areas/activities.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>Visual impacts from public-facing structures and/or operations activities.</li> </ul>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>A screened enclosure for the development site will be provided.</li> <li>Consideration will be given to providing temporary landscaping along the borders of the construction site between site fencing/enclosure and walkways, where space allows, and where necessary.</li> <li>Comply with local applicable municipal by-laws and Ministry of Transportation practices for permanent and temporary construction activity outdoor lighting in areas near or adjacent to highways and roadways and incorporate industry best practices provided in ANSI/IES RP-8-18 – Recommended Practice for Design and Maintenance of Roadway and Parking Facility Lighting, as described in the contract documents.</li> <li>Work will be performed in such a way that adverse impacts of construction lighting are controlled or mitigated in such a way as to avoid unnecessary and obtrusive light with respect to adjoining residents, communities and/or businesses.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>Reduce the visual effects of project structures (e.g., elevated guideways, support structures, retaining walls) by considering their location, building materials, architectural design, and surrounding landscape treatments.</li> <li>Municipal and public engagement as Project planning and design progresses.</li> </ul>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>None identified.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>None identified.</li> </ul>
	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>None identified.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>The built form and public realm will change compared to existing conditions, especially around station sites, headhouses, and in areas where the tracks are elevated or at-grade.</li> </ul>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>None identified.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>Reduce the visual effects of bridges, retaining walls and noise barriers by selecting appropriate building materials and architectural design.</li> <li>New infrastructure will be constructed to a high visual standard that enhances the surrounding area.</li> <li>Consult with the City of Toronto regarding restoration of public realm areas impacted by construction activities.</li> <li>Ongoing coordination with the City of Toronto will be required to promote the integration of Moss Park Station, Riverside/Leslieville Station, and Gerrard Station with existing parkland and open spaces.</li> </ul>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>None identified.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>None identified.</li> </ul>
<b>AIR QUALITY</b>			
Air Quality	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>Potential air quality impacts could include effects from fuel combustion and particulate emissions.</li> </ul>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>A quantitative assessment will be conducted once sufficient detail on the construction planning is available. The quantitative assessment will be used to update the construction mitigation plan</li> </ul>	<p><b>Construction</b></p> <p>Metrolinx will develop and implement air quality monitoring as part of the Air Quality Management Plan to document how air quality monitoring has been conducted and compliance assessed to effectively prevent</p>

Environmental Component	Potential Impact	Mitigation Measure(s)	Monitoring Activities
	<ul style="list-style-type: none"> <li>Construction activities could expose contaminated soils/materials and/or result in the spreading of contaminated materials.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>Potential air quality impacts from operations at the OMSF and mobile maintenance crew could include effects from fuel combustion and maintenance activities, as well as from station vents exhausting air from tunnels.</li> </ul>	<p>and will be submitted to the MECP for review prior to the start of construction activities.</p> <ul style="list-style-type: none"> <li>Prior to commencement of construction, develop and implement a detailed Construction Air Quality Management Plan. A copy of the Air Quality Management Plan will be provided to the MECP. The Air Quality Management Plan will:             <ul style="list-style-type: none"> <li>Demonstrate compliance with the specific air quality criteria and limits per Ontario Ambient Air Quality Criteria, Canadian Ambient Air Quality Standards and O. Reg. 419/05 .</li> <li>Define the Project’s air quality impact zone and identify applicable sensitive receptors in this area.</li> <li>Assess the baseline air quality by continuous measurement of local ambient concentrations of PM<sub>2.5</sub> and PM<sub>10</sub> for more than one week, where large local sources of pollution, such as highways, directly affect the zone of influence of the Project.</li> <li>Estimate and document the predictable worst-case air quality impacts of the Project on sensitive receptors in the air quality impact zone, develop appropriate mitigation measures, demonstrate their effectiveness, and commit to their timely implementation.</li> <li>Include explicit commitment to the implementation of all applicable best practices identified in the document, Best Practices for the Reduction of Air Emissions from Construction and Demolition Activities (ECCC 2005), and the MECP’s Technical Bulletin Management Approaches for Industrial Fugitive Dust Sources (MECP 2017).</li> </ul> </li> <li>Develop a Communications Protocol and a Complaints Protocol to respond to issues that develop during construction.</li> <li>Schedule construction related activities to avoid overlapping construction activities where possible.</li> <li>Reduce the number of machines operating in any one area at any given point in time.</li> <li>Implement applicable mitigation measures identified in the Air Quality Management Plan. The Air Quality Management Plan will include applicable mitigation measures for each of the construction activities such as:             <ul style="list-style-type: none"> <li>Site Preparation, Excavation and Grading</li> <li>Demolition</li> <li>Material Storage</li> <li>Material Handling and Transfer</li> <li>Road Surfaces (in and around Construction Sites)</li> <li>On-site Fabrication Processes</li> <li>Tunneling - TBM or SEM</li> <li>Construction Vehicles and Equipment</li> </ul> </li> <li>Prior to commencement of construction, Metrolinx shall develop a Soil and Excavated Materials Management Plan for the handling, management, and disposal of all excavated material (i.e., soil, rock, and waste). The Plan will describe how to address the management of the excavated or imported materials, including contaminated materials. Metrolinx shall follow appropriate best management practices to manage, transport, or dispose of the contaminated materials.</li> </ul>	<p>unacceptable rates of air emissions in accordance with the following guidelines:</p> <ul style="list-style-type: none"> <li>The construction related air contaminants of primary concern are in the form of particulate matter, with the principal construction related fractions of PM<sub>2.5</sub> and PM<sub>10</sub> - particulate matter of less than 2.5 and 10 micron in diameter, respectively. Other contaminants of concern include crystalline silica and oxides of nitrogen. The list of contaminants will be expanded with any anticipated air pollutants that may be produced as a result of the work.</li> <li>The applicable criteria for air contaminants of concern are to be found in the various schedules of O. Reg. 419/05, the Ontario Ambient Air Quality Criteria, and the Canadian Ambient Air Quality Standards.</li> <li>Siting of the monitors should generally follow the guidelines provided in the MECP Operations Manual for Air Quality Monitoring in Ontario (2018).</li> <li>Establish “action level” thresholds for each monitored contaminant – measurements above a threshold will require remedial action including investigation for the cause of the exceedance and/or implementation of mitigation measures. Consider developing categories of “action levels” with increasing requirements for remedial actions at each level. Establish procedures for investigating the cause of measurements above thresholds or exceedances, implementing mitigation measures and reporting.</li> <li>For Project construction locations that are considered short-duration projects (i.e., less than 30 days), periodic opacity monitoring for particulate matter (see ECCC 2005) at the active construction zone boundary and at closest sensitive receptor may be sufficient.</li> <li>For long duration Project construction locations where sensitive receptors are identified 5 to 10 m from the active construction zone, continuous monitoring of PM<sub>10</sub> and PM<sub>2.5</sub> is recommended at locations upwind and downwind of the active construction zone, where possible. Monitoring should also be conducted at selected sensitive receptors where there are persistent complaints. Monitoring will commence for more than one week prior to the start of any construction activities to establish pre-construction levels and continue through the active phase of the construction project. Application of “action level” triggers for implementation of appropriate mitigation activities for construction activities as identified in the Air Quality Management Plan. As the active construction zone moves or</li> </ul>

Environmental Component	Potential Impact	Mitigation Measure(s)	Monitoring Activities
		<ul style="list-style-type: none"> <li>Visual and olfactory inspections will be conducted during excavation or for incoming loads to screen for odour, visible staining, or debris per the MECP’s Management of Excess Soils: A Guide for Best Management Practices (MECP 2019b). If contaminated soil or materials are suspected, Metrolinx shall conduct further investigation and soil analysis to confirm if contamination is present and what contaminants are present. Metrolinx will take appropriate preventive actions or suspend activities to reduce potential adverse impacts, including odour or air emissions, from contaminated materials.</li> <li>Where applicable, consultation with the MECP Central Region Office will be conducted to discuss the requirements in dealing with contamination issues and ambient monitoring requirements.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>Metrolinx will apply for air approval for the OMSF and station operations and air emission sources as applicable. Emissions will be assessed and modelled following MECP guidance and must comply with applicable O. Reg. 419/05 standards (with the exception of emissions from equipment or activities exempted by O. Reg. 524/98 Environmental Compliance Approvals – Exemptions from Section 9 of the Act).</li> <li>A detailed Operations Air Quality Management Plan will be developed and implemented to document the controls and methods that will be implemented during project operations at the OMSF, stations, and tunnels to limit the generation and dispersion of airborne particulate matter and air contaminants associated with the project operations.</li> <li>Where practicable, the following mitigation measures will be implemented to reduce air contaminant emissions intensity (amount of pollutant emitted per passenger kilometre travelled):                         <ul style="list-style-type: none"> <li>Selecting a less polluting form of energy or fuel (i.e., electricity or hydrogen rather than diesel fuel) for equipment used at the OMSF.</li> <li>Selecting equipment (such as backup generators) with engines and propulsion systems that meet higher emission standards (i.e., Tier 4 rather than a lower tier).</li> <li>Maintaining engines and emission control equipment to manufacturers’ specifications.</li> <li>Selecting vehicles that have lower emissions for the mobile maintenance crew</li> </ul> </li> </ul>	<p>changes, the locations of the monitoring equipment will follow to maintain its relevance.</p> <ul style="list-style-type: none"> <li>Monitoring setup will include meteorological station (for measuring wind speed and direction) and datalogger/modem for downloading data, power/battery source, and capability to send alarm notifications at “action level” thresholds, as applicable.</li> <li>Where laboratory work is required, consult the Standards Council of Canada or the Canadian Association for Laboratory Accreditation for a list of accredited Ontario analytical laboratories to perform specific air/soil analyses.</li> <li>Calibration of the instruments will be included as part of the monitoring program.</li> <li>The monitoring program will include the preparation of Weekly Air Quality Monitoring Reports for documenting air quality monitoring results, monitoring activities, assessment of compliance and effectiveness of mitigation activities. The Weekly Air Quality Monitoring Reports will be submitted to Metrolinx within a timeline approved by Metrolinx.</li> <li>In addition, relevant construction monitoring activities from the guidelines Best Practices for the Reduction of Air Emissions from Construction and Demolition Activities (ECCC 2005) will be implemented during construction.</li> <li>Additional ambient air monitoring may be required if contaminated soils are encountered during construction activities. The list of contaminants and monitoring requirements will be assessed at that time based on the results of investigation and soil/material analysis.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>On-site inspections will be undertaken to confirm the implementation of the mitigation measures and identify corrective actions if required.</li> <li>The expected impacts from operations will be effectively mitigated provided that mitigation measures established in the Air Quality Management Plan are followed. No operational ambient air quality monitoring is proposed.</li> </ul>
<b>NOISE AND VIBRATION</b>			
Construction Noise	<p>Environmental noise may cause annoyance, disturb sleep, and disturb other activities.</p> <p>The severity of the noise impacts resulting from construction projects varies, depending on:</p>	<p><u>Construction Equipment Noise Emissions:</u></p> <p>Equipment should be acquired based on MECP NPC-115 and NPC-118 to ensure acceptable construction equipment noise levels are maintained for the project.</p>	<p>A Construction Noise Management Plan should be developed that will incorporate the following recommendations for noise monitoring and addressing noise complaints:</p>

Environmental Component	Potential Impact	Mitigation Measure(s)	Monitoring Activities
	<ul style="list-style-type: none"> <li>Scale, location and complexity of the project</li> <li>Construction methods, processes and equipment deployed</li> <li>Duration and time of construction near noise receptors (days and time of construction)</li> <li>Number and proximity of noise-sensitive sites to construction area(s)</li> </ul>	<p><u>Receptor-Based Assessment:</u></p> <p>Impacted areas that need mitigation are highlighted on Figures F-1-1 through F-1-22 in <b>Appendix A6</b>. The following recommendations for construction are proposed:</p> <ul style="list-style-type: none"> <li>Noise barriers with a minimum height of 5 m in place of construction hoarding are recommended as primary means of control. The noise barrier hoarding should have a minimum surface density (mass per unit of face area) of 20 kg/m<sup>2</sup> (4 lb/ft<sup>2</sup>) or an acoustic performance of STC 32 (per CSA-Z107.9-00) and be free of gaps and cracks.</li> <li>Enclosed conveyors and drives are recommended for moving spoils from tunnels to storage areas at the construction sites.</li> <li>Ventilation fans with silencers for tunnels during TBM operations, such that the noise emanating from them at the nearest receptors will be no higher than the construction noise limit.</li> <li>Generators with acoustic enclosure and silencers for TBM operations, such that the noise emanating from them at the nearest receptors will be no higher than the construction noise limit.</li> <li>Quieter hydrovac trucks for soil conditioning at the entry shaft for tunneling operations, such that the noise emanating from them at the nearest receptors will be no higher than the construction noise limit.</li> </ul> <p>With the additional operational constraints and physical mitigations identified above, daytime levels should be within the construction noise limits at receptor locations. However, seven construction locations are predicted to exceed nighttime limits without further mitigation (refer to Table 4-9 in <b>Appendix A6</b>). Thus, additional operational constraints may be required, to conduct work during nighttime hours.</p> <p>A detailed Construction Noise Assessment and Management Plan should be completed based on the actual location of the equipment and manufacturer's sound levels to identify the specific mitigation required for each location and to ensure that the noise limits are met for the Project construction.</p> <p>Construction noise impact mitigation measures to be considered include but are not limited to the following:</p> <ul style="list-style-type: none"> <li>Perform construction during daytime hours where feasible. If nighttime construction is necessary, the activities with the highest noise levels should be conducted during daytime periods where feasible.</li> <li>If construction will occur outside of normal daytime hours, inform local residents before construction of type of construction and expected duration outside of daytime hours.</li> <li>Use equipment compliant with NPC-115 and NPC-118 as well as selecting the quieter option when multiple options are available.</li> <li>Limit the number of heavy trucks on site to the minimum required.</li> <li>Stage construction vehicles away from noise sensitive locations, if feasible.</li> </ul>	<ul style="list-style-type: none"> <li>Noise levels will be monitored where the impact assessment indicates that noise limits may be exceeded, to identify if any additional mitigation is required and verify mitigation measures(s) effectiveness.</li> <li>Continuous noise monitoring should be completed at each geographically distinct active construction site associated with the Project, which have been identified in Figures F-2-1 through F-2-22 in <b>Appendix A6</b>. Monitor(s) are to be located strategically to capture the worst-case construction related noise levels at receiver locations based on planned construction activities, their locations, and the number, geographic distribution and proximity of noise sensitive receivers.</li> <li>Monitoring at locations where there are persistent complaints, as required.</li> </ul> <p>A Communication and Complaint Protocol should be established for the Project.</p> <p>Additional example monitoring suggestions are included in Appendix L of <b>Appendix A6</b>.</p>

Environmental Component	Potential Impact	Mitigation Measure(s)	Monitoring Activities
		<ul style="list-style-type: none"> <li>• Keep equipment in good working order and operate with effective muffling devices.</li> <li>• Undertake noise monitoring and regular reporting throughout the construction phase. Where noise level limits are exceeded, additional noise mitigation measures shall be implemented.</li> <li>• Use localized movable noise barriers/screens for specific equipment and operations.</li> <li>• Reduce simultaneous operation of equipment where feasible.</li> <li>• Implement a no idling policy on site (unless necessary for equipment operation).</li> <li>• Develop a communications protocol which includes timely resolution of complaints.</li> <li>• Additional mitigation measures not listed above may be considered.</li> </ul>	
<p>Operation Noise</p>	<p>Environmental noise may cause disturbance and/or annoyance.</p> <p>Airborne noise will result from the operations of the project and may be a concern for noise-sensitive areas.</p>	<p>Train movements in the OLN are predicted to show compliance with applicable criteria without additional mitigation, based on the assessment of existing design information. For train movements in at-grade sections in the OLW and OLS, noise barriers of varying heights are anticipated to reduce noise below applicable criteria (refer to Appendix Q in <b>Appendix A6</b>).</p> <p>The following stationary sources also require noise mitigation/verification:</p> <ul style="list-style-type: none"> <li>• Potential impact from operational noise from stations, emergency exits and emergency services ventilation design to be reassessed as the design details are finalized. Preliminary dynamic insertion loss requirements for fire ventilation intake and discharge silencers at Stations are shown in Table 5-11 of <b>Appendix A6</b>. Space planning for intake and discharge openings should also allow for silencers up to 7.5 m in length to achieve the acoustic requirements.</li> <li>• As part of the future detailed design of the stations, comfort ventilation systems (e.g., makeup air handling units, fans, etc.) should be selected so that they meet operational noise limits at the nearest receptors. To achieve this, and in coordination with TTC station design guidance, this ventilation equipment should be selected such that it does not generate more than 60 dBA at 1m. Table 5-10 in <b>Appendix A6</b> shows the receptor setback distances from station comfort ventilation noise sources as 1 m.</li> <li>• Portal jet fans to be fitted with mitigation as required to meet NPC-300 criteria.</li> <li>• Outdoor audio paging system will be required to meet MECP NPC-300 noise limits at adjacent receptors, and the system will be designed to do so by limiting speaker volume and positioning speakers away from adjacent residences.</li> <li>• Transformers and generators, when sufficiently detailed, will also be required to meet MECP NPC-300 noise limits at adjacent receptors. Applicable mitigation (enclosures, silencers) will be provided to meet these limits for transformers and generators.</li> </ul>	<p>Detailed operational monitoring procedures are recommended and will be defined further in the design process. The following procedures are preliminary recommendations and will be refined as design progresses:</p> <ul style="list-style-type: none"> <li>• Station, emergency exit and emergency services noise levels for fire ventilation and comfort ventilation should be monitored at the nearest points of reception. Further, the 60 dBA at 1 m limit should be confirmed for comfort ventilation.                         <ul style="list-style-type: none"> <li>○ OMSF noise should be monitored at the receptors noted in Table 5-13 in <b>Appendix A6</b>.</li> <li>○ Operational noise from train movements on tracks to be monitored for representative receptors and for at least the first 5 years of operation.</li> </ul> </li> </ul> <p>The monitored locations should be approximately equally distributed along the Project Footprint and vary from year to year. Priority should be placed on locations near special trackwork or tight-radius curves.</p> <p>Additional example monitoring suggestions are included in Appendix L of <b>Appendix A6</b>.</p>



Environmental Component	Potential Impact	Mitigation Measure(s)	Monitoring Activities
		<ul style="list-style-type: none"> <li>• The OMSF was assessed based on assumptions and operations discussed in this report. Mitigation to be included in the OMSF design includes:                             <ul style="list-style-type: none"> <li>○ Operation with OMSF doors closed (a central cooling system may be required in the garage area) or construction of a sound attenuating vestibule around the door openings.</li> <li>○ Power substation portable emergency generators to be fitted with mitigation as required to meet NPC-300 criteria.</li> <li>○ As OMSF design progresses, verify assumptions, equipment operating scenarios and maximum sound power levels in Section 5.4.5 in <b>Appendix A6</b>.</li> </ul> </li> </ul>	
<p>Construction Vibration</p>	<p>Vibration may cause damage to buildings, utilities and other structures.</p> <p>Exposure to vibration may result in public annoyance and complaints.</p> <p>Vibration from tunneling can cause annoyance, interfere with human activities and vibration-sensitive equipment operation.</p>	<p>The following measures should be considered to mitigate vibration impacts from the Project construction:</p> <ul style="list-style-type: none"> <li>• The owners of properties within the Zone of Influence (refer to Appendix H in <b>Appendix A6</b>) should be notified at least a week (preferably earlier) before commencing any nearby construction activities.</li> <li>• Mitigation options such as maintaining the minimum setback distance for construction equipment or considering construction equipment with low vibration levels is recommended. Some examples include but are not limited to:</li> <li>• A non-vibratory roller is recommended for operation in proximity to building structures. A vibratory roller may only be used at least 11 m (Heritage) or 8 m (other structure) away from the structure, or if the vibration level is tested through sample vibration measurements to confirm a suitable setback distance.</li> <li>• Caisson drilling shall be monitored, and the auguring speed should be controlled in accordance with the monitored vibration level.</li> <li>• Excavators may only be used at least 6.5 m (Heritage) or 4.5 m (other structure) away from the structure, or if the vibration level is tested through sample vibration measurements to confirm an alternate suitable setback distance. Use of alternative smaller equipment such as a backhoe is recommended.</li> <li>• Heavily-loaded trucks and equipment should be routed away from residential streets and vibration-sensitive sites.</li> <li>• The sequence of construction phases such as demolition, earth-moving, and ground-impacting operations should be managed so as not to occur in the same time period and avoiding nighttime activity.</li> <li>• For tunneling with TBM, the cutting force can be reduced by a speed reduction. The supporting force should be adjusted according to the monitored vibration velocity (see Section 6.4.3.2 in <b>Appendix A6</b>) to ensure that vibration velocity is below the limits.</li> <li>• Additional construction vibration mitigation practices are summarized in Appendix K of <b>Appendix A6</b>. It is recommended that the contractor conduct test vibration measurements to check conditions at specific setback distances if they plan to have construction activities at or closer than the setback distances.</li> </ul>	<p>The following procedures are recommended for vibration monitoring:</p> <ul style="list-style-type: none"> <li>• Vibration monitoring will be undertaken at locations within the zone of influence to ensure compliance with applicable criteria (Table 6-5 in <b>Appendix A6</b>) and to identify the need for additional mitigation if required.</li> <li>• Monitoring will be undertaken to verify mitigation measures(s) effectiveness.                             <ul style="list-style-type: none"> <li>○ Monitoring for perceptible vibration should be monitored in terms of root mean square (RMS, mm/s).</li> <li>○ Monitoring for structural damage should be monitored in terms of peak particle velocity (PPV, mm/s).</li> </ul> </li> <li>• Pre-construction and post construction building inspection of the potentially impacted buildings adjacent to construction sites are to be conducted.</li> <li>• Continuous vibration monitoring along the construction site property lines closest to these aforementioned structures will be initiated as warranted.</li> <li>• Monitoring at locations where there are persistent complaints will be undertaken, if required.</li> </ul> <p>A Communications and Complaints Protocol to address construction vibration complaints should be established for the Project.</p> <p>Additional example monitoring suggestions are included in Appendix L of <b>Appendix A6</b>.</p>

Environmental Component	Potential Impact	Mitigation Measure(s)	Monitoring Activities
		<ul style="list-style-type: none"> <li>Sample tests should be performed for all significant vibration-generating equipment anticipated to operate within the Zone of Influence to confirm that vibration levels are compliant with the allowable limits. The measured vibration levels can be used to estimate setback distances and/or the operational condition at a certain distance at which the construction equipment should be allowed to operate. This testing would not discharge the contractor from their responsibility to continuously monitor vibration levels at sensitive receptors and adhere to the specified vibration limits.</li> </ul> <p><b>Pre-Construction Activities:</b></p> <ul style="list-style-type: none"> <li>Preconstruction consultation should be conducted with the property owners for underground structures in the identified ZOI (See Figure H-1-1 to H-1-22 in <b>Appendix A6</b>) for cosmetic damage, in accordance with Municipal By-law No.514-2008.</li> <li>Pre-construction measurements of background vibration and pre-construction inspections (i.e., identify existing cracks in walls, floors, and exterior cladding of the first two storeys above grade and interior finishes of all storeys below grade) is recommended.</li> </ul> <p>A vibration mitigation plan and a vibration monitoring program should be prepared.</p> <p>Identified sensitive receptor locations (i.e., St. Michael’s Hospital, Bell Media Headquarters, Four Seasons Centre for the Performing Arts) should be assessed in detail by conducting vibration measurements from mock-up construction activities prior to commencement of construction (see Section 6.3.1 in <b>Appendix A6</b>). The measured vibration should be analysed in 1/3-octave bands over the frequency range 8 to 80 Hz and assessed with the criteria provided in Table 6-5 in <b>Appendix A6</b>. The criteria limits for the vibration-sensitive equipment are also included in Appendix O of <b>Appendix A6</b>.</p> <p>The purpose of conducting these measurements is to verify and refine the predictions for these vibration-sensitive locations and ensure that construction activities will meet the vibration criteria at these locations.</p>	
Operations Vibration	Vibration may cause cosmetic damage or impact human comfort.	<p>For the Downtown section of the alignment, mitigation is required to control Ground-borne Vibration and Ground-borne Noise. Mitigation options are identified in this report to meet applicable criteria, including high-resilience fasteners, Light Mass Spring system, and Floating Slab Track system. Alternative mitigations can be considered provided they meet applicable vibration limits</p> <p>For the tunnel, mitigation is required along the entire downtown tunnel to control Ground-borne Noise in building interiors. Floating Slab Track, is recommended at three (3) locations (or alternative mitigation that achieves the same vibration isolation):</p> <ul style="list-style-type: none"> <li>Bell Media at 299 Queen St. West</li> <li>Four Seasons Centre for the Performing Arts at 145 Queen Street West</li> <li>St. Michael’s Hospital at 36 Queen Street East</li> </ul>	<p>Detailed operational monitoring procedures are recommended and will be defined further in the design process as the design is finalized. The following procedures are preliminary recommendations and will be refined as design progresses:</p> <ul style="list-style-type: none"> <li>Operational vibration from train movements on tracks to be monitored for representative receptors and for at least the first 5 years of operation.</li> </ul> <p>The monitored locations should be approximately equally distributed along the Project footprint and vary from year to year. Priority should be placed on locations near special track work or tight-radius curves.</p> <p>Additional example monitoring suggestions are included in Appendix L of <b>Appendix A6</b>.</p>

Environmental Component	Potential Impact	Mitigation Measure(s)	Monitoring Activities
		<p>Due to the flexible character of Floating Slab Track, transition track sections of at least half a train length are required at both ends of the Floating Slab Track to avoid changes in the depth of track as trains travel from regular track to the more flexible Floating Slab Track.</p> <p>The Light Mass Spring system is recommended (or alternative mitigation that achieves the same vibration isolation) to be implemented for the entire Pape section of the alignment and Floating Slab Track is recommended at the following two locations::</p> <ul style="list-style-type: none"> <li>• Double crossover near 810 Pape Avenue</li> <li>• Minton Place Portal near 154 Hopedale Avenue</li> </ul> <p>An alternative mitigation method that achieves the same vibration isolation may also be used.</p> <p>No mitigation is required for the elevated track sections.</p>	
<b>TRAFFIC AND TRANSPORTATION</b>			
Pedestrians	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>• Construction is expected to result in temporary impacts such as: <ul style="list-style-type: none"> <li>○ Narrowed pedestrian paths;</li> <li>○ Partial or full closure of sidewalks;</li> <li>○ Protected detours around work areas and closed sidewalks</li> </ul> </li> </ul> <p><u>OLW Study Area</u></p> <ul style="list-style-type: none"> <li>• Closure of south crosswalk at Albert/James intersection;</li> <li>• Removal of unofficial pedestrian connections such as the parking lots in Liberty Village north of the railway corridor.</li> <li>• Temporary sidewalk closures will be required at the following locations as a result of Station and tunnel construction: <ul style="list-style-type: none"> <li>○ Bulwer Street (south side) east of Spadina Avenue;</li> <li>○ Simcoe Street (west side) between Queen Street and the laneway terminating on Simcoe Street;</li> </ul> </li> <li>• The construction of Liberty New Street will result in a new sidewalk between Dufferin and Strachan on both sides of the street. It is expected that pedestrians waiting to cross from the north side of the intersection will spill back into the adjacent plaza areas in periods of high demand.</li> <li>• The existing unused pedestrian tunnel that runs underneath Exhibition Station will be reopened, brought up to AODA compliance and extended by 40 m north-west, terminated just east of Atlantic Avenue.</li> <li>• New temporary pedestrian bridge at Exhibition Station will be constructed during Early Works and completed in August 2023, connecting the existing north headhouse, the reconditioned south headhouse and future headhouse at the northern end of the tunnel extension.</li> </ul> <p><u>OLS Study Area</u></p>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>• To accommodate pedestrians during construction, protection for a minimum sidewalk width of 2.1 metres is required to meet the needs of accessible sidewalk users as per City of Toronto Standards. At a limited number of locations temporary sidewalk widths are reduced to 1.8 metres. At certain “pinch points” sidewalk widths may be reduced to 1.5 metres for short durations (up to one week).</li> <li>• In areas where sidewalk widths below 2.1 metres are provided in existing conditions, a minimum width consistent with the current sidewalk width will be provided. At a limited number of locations temporary sidewalk widths are reduced to 1.8 m. At certain “pinch points” sidewalk widths may be reduced to 1.5 m for short durations (up to one week).</li> <li>• <i>Accessibility for Ontarians with Disabilities Act</i> compliant curb ramps will be provided in locations where the pedestrian detour path moves from the boulevard onto a protected path on the street.</li> <li>• Signage and wayfinding are recommended to be installed to provide advance warning for pedestrian detours and ease of navigation and movement.</li> <li>• Signage and wayfinding are recommended to be installed to provide advance warning for pedestrian detours and ease of navigation and movement.</li> <li>• Mitigation measures will include public information campaigns to reduce the number of pedestrians and shuttle buses. Additional mitigation measures will be evaluated if non-compliance with sidewalk closures is observed.</li> <li>• Metrolinx will work with TTC and event organizers to mitigate pedestrian impacts during construction.</li> </ul> <p><u>OLW Study Area</u></p> <ul style="list-style-type: none"> <li>• Traffic control persons will be stationed at midblock sidewalk terminations, i.e., on Bulwer Street east of Spadina Avenue to</li> </ul>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>• Regular monitoring of the condition and location of wayfinding pedestrian signage will be required.</li> </ul> <p><u>OLW Study Area</u></p> <ul style="list-style-type: none"> <li>• Regular monitoring of the condition and location of pedestrian wayfinding signage will be required.</li> <li>• Monitoring may be required for the temporary bus stops on the west side of Pape Avenue.</li> </ul> <p><u>OLS Study Area</u></p> <ul style="list-style-type: none"> <li>• Monitoring may be required for crowding at Queen Station due to the sidewalk closure on the south side of Queen Street to identify the potential to reinstate the existing sidewalk width wherever possible during construction.</li> </ul> <p><u>OLW Study Area</u></p> <ul style="list-style-type: none"> <li>• Monitoring is recommended at the temporary bus stops on the west side of Pape Avenue.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>• No monitoring activities are anticipated during operations.</li> </ul>

Environmental Component	Potential Impact	Mitigation Measure(s)	Monitoring Activities
	<ul style="list-style-type: none"> <li>• Closure of Queen Street west of Victoria Street for duration of Queen Station construction.</li> <li>• Removal of mid-block pedestrian signal on Queen Street between Yonge Street and Bay Street;</li> <li>• Closure of sidewalks are expected to be required along several local streets:               <ul style="list-style-type: none"> <li>○ Pape Avenue (south of Langley Avenue)</li> <li>○ James Street (east side) between Queen Street and Albert Street;</li> <li>○ Closure of sidewalk access to James Street and Queen Street east businesses adjacent to the sidewalk closures, requiring detouring through the accesses internal to the buildings; and,</li> <li>○ King Street (south side) between Berkeley Street and 30 m west of Parliament Street.</li> </ul> </li> <li>• In addition, sidewalk closures are expected for utility relocations just north of the Gerrard portal on Langley Avenue, Riverdale Avenue, Pape Avenue and Carlaw Avenue.</li> <li>• The middle portion of the south sidewalk on Queen Street between Yonge Street and Victoria Street will be closed for a shorter duration (approximately 6 months) compared to the closure west of Victoria Street which will be closed for the full duration of the Queen Station construction. The reopening of the centre portion of the sidewalk will allow pedestrians to detour through the courtyard on the south-west corner of Queen Street / Victoria Street. The current ramp connecting the courtyard to the Victoria Street sidewalk will be occupied by a work area, and a new ramp will be constructed along the detour path.</li> <li>• There will be temporary sidewalk closures for works at Leslieville and Gerrard Stations. At Riverside/Leslieville Station one sidewalk will be maintained. Pedestrians will be redirected to existing nearby signalized crosswalks. Sidewalk closures will occur on side streets near the station headhouses, i.e., on Strange Street and De Grassi Street. Pedestrian connectivity will be maintained.</li> <li>• In addition, to the above long-duration sidewalk closures there will be weekend and occasional nighttime full roadway closures at Riverside/Leslieville Station which require closure of both sidewalks.</li> <li>• At Gerrard Station, sidewalk closures on Carlaw Avenue in the immediate vicinity of the station headhouses are proposed. These sidewalks do not serve any pedestrian destinations during construction. A temporary traffic signal will be installed at the driveway of 469 Carlaw Avenue, as it will be the main driveway at the Gerrard Station and TBM site. The temporary traffic signal will feature signalized crosswalks to maintain pedestrian connectivity.</li> <li>• A weeklong full closure of the intersection of Gerrard Street and Carlaw Avenue will also be required for construction of</li> </ul>	<p>mitigate pedestrian crossing safety concerns, and at construction vehicle access points that conflict with the existing or temporary sidewalk.</p> <ul style="list-style-type: none"> <li>• Remove or relocate sidewalk furniture to accommodate pedestrian volumes and queueing at intersection corners. The location of any barriers or street furniture will be considered in the design of Exhibition Station to ensure adequate queueing space and flow are maintained.</li> <li>• Ventilation grates will be placed out of the pedestrian paths, flush with the sidewalks, with an available clearway of 3.0 metres and 2.8 metres between the grate edge and the property line at Osgoode Station.</li> </ul> <p><u>OLS Study Area</u></p> <ul style="list-style-type: none"> <li>• Relocate the westbound surface transit stop at King Street and Berkeley Street to reduce pedestrian volumes at this intersection and reduce walking distance between surface transit stop and future station entrances.</li> <li>• Mitigation measures will include public information campaigns to minimize the number of pedestrians and shuttle buses. Additional mitigation measures will be evaluated if non-compliance with sidewalk closures is observed.</li> <li>• The temporary traffic signal will mitigate traffic operations and safety concerns at the Gerrard TBM site.</li> <li>• The pedestrian clearway under Queen Street grade separation will be widened to comply with City of Toronto and TTC design standards. This increase is expected to improve pedestrian LOS.</li> <li>• Accesses internal to the buildings will be maintained for the businesses adjacent to the Queen Street East and James Street sidewalk closures.</li> <li>• Ventilation grates will be placed out of the pedestrian paths, flush with the sidewalks, with an available clearway of 3.0 metres and 2.8 metres between the grate edge and the property line at Queen Station.</li> </ul> <p><u>OLN Study Area</u></p> <ul style="list-style-type: none"> <li>• Sidewalk realignment will occur at Science Centre Station and Flemingdon Park Station, improving pedestrian circulation.</li> </ul> <p><b>Operations</b></p> <p><u>OLW Study Area</u></p> <ul style="list-style-type: none"> <li>• Signalize the intersections of Liberty New Street with Jefferson Avenue, Atlantic Avenue, and Dufferin Street to mitigate future pedestrian congestion during special events.</li> <li>• Signage and advance notification are recommended to notify station users of any detours. Transit passengers may have to use the traffic signal at Pape Avenue / Lipton Avenue to cross and access potential temporary bus stop on the west side of Pape Avenue.</li> </ul>	

Environmental Component	Potential Impact	Mitigation Measure(s)	Monitoring Activities
	<p>Gerrard Station. For a portion of this closure all sidewalks will be closed as well.</p> <ul style="list-style-type: none"> <li>• The ventilation grates to be installed on the east sides of James Street for Queen Station may result in reduced pedestrian comfort on the facilities when crossing the grates.</li> <li>• The ventilation grates to be installed on the east side of University Avenue for Osgoode Station may result in reduced pedestrian comfort on the facilities when crossing the grates. A ventilation tower will be installed within the existing sidewalk at the intersection of James Street and Queen Street West.</li> <li>• The ventilation grates to be installed on the east side of University Avenue for Osgoode Station may result in reduced pedestrian comfort on the facilities when crossing the grates.</li> <li>• The PATH connection between 1 Queen Street and 2 Queen Street will be converted to a fare-paid area for Queen Station, blocking off free passage.</li> </ul> <p><u>OLN Study Area</u></p> <ul style="list-style-type: none"> <li>• During construction of Science Centre Station, pedestrian demand is anticipated to increase at the sidewalk level due to operation of Eglinton Crosstown LRT</li> <li>• Full closure of Beth Nealson will result in closure of both sidewalks at that location. Mitigation measures are still being evaluated.</li> <li>• Pedestrian connection between Overlea Boulevard and Banigan Drive will be moved from Thorncliffe Park Drive to the future Banigan Drive Connector.</li> <li>• Permanent impacts to pedestrians at Thorncliffe Station include the realignment of the sidewalk along the north side of Overlea Boulevard, due to conflicts with the future elevated guideway structure. Realignment will occur to the south sidewalk on Overlea Boulevard due to the implementation of bicycle lanes and reconfiguration of intersections between Millwood Road and Thorncliffe Park Drive. A new multi-use trail will be implemented on the west side of Don Mills Road within the Project limits. Any newly constructed or reconstructed sidewalks will meet the City of Toronto’s minimum design width requirements.</li> <li>• The new connection between Banigan Drive and Overlea Boulevard will be maintained after the completion of the OMSF construction, providing an additional permanent connection for pedestrians.</li> <li>• Sidewalk closures are expected to be required along several local streets:             <ul style="list-style-type: none"> <li>○ Minton Place (north of Hopedale Avenue)</li> <li>○ Hopedale Avenue (east of Minton Place)</li> <li>○ Gertrude Place/Muriel Avenue (intersection)</li> <li>○ Lipton Avenue</li> </ul> </li> </ul>		

Environmental Component	Potential Impact	Mitigation Measure(s)	Monitoring Activities
	<ul style="list-style-type: none"> <li>At the TTC's existing Pape subway station and bus loop there will be temporary modifications to access and egress locations.</li> <li>The construction of Pape Station will result in permanent changes to pedestrian circulation patterns near the stations due to modification of the bus loop. The bus loop will be closed for regular service except for WheelTrans, requiring some transit rider transferring between Ontario Line and TTC's surface or subway service will have to exit Pape Station headhouse and walk to the bus stop. A signalized crosswalk is located near Pape Station to facilitate safe pedestrian crossing opportunities.</li> <li>The construction of the Emergency Egress Building on Bain Avenue and the Sammon Avenue Crossover will not result in permanent impacts to pedestrians.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>The increased pedestrian demands generated in the vicinity of Ontario Line stations may coincide with increased delays and worsened pedestrian levels of service for existing pedestrian trips that are not taking the Ontario Line.</li> <li>Pedestrian level of service impacts are expected at crosswalks and intersection corners due to the increased pedestrian demand associated with the fully built-out stations.</li> </ul>		
Cyclists	<p><b>Construction</b></p> <p><u>OLW Study Area</u></p> <ul style="list-style-type: none"> <li>Closure of curb lanes is expected along sections of King Street, and Bathurst Street, resulting in cyclists travelling in the centre lane.</li> <li>Bike lanes may be realigned with appropriate delineation, such as pavement markings, bicycle curbs and flexible delineator posts (where currently provided).</li> <li>Bike lane widths will be reduced to 5 m on Simcoe Street (northbound) in the vicinity of the Station work zones.</li> </ul> <p><u>OLS Study Area</u></p> <ul style="list-style-type: none"> <li>Closure of curb lanes is expected along sections of Queen Street, University Avenue, Victoria Street, and Parliament Street, resulting in cyclists travelling in the centre lane.</li> <li>Bike lane widths will be reduced to 2.0 m on University Avenue (northbound).</li> <li>At Queen Station, all east-west traffic on Queen Street will be closed between Bay Street and Victoria Street for approximately 4.5 years, which will result in added travel time and delays.</li> <li>Impacts of construction on cyclists will be due to closing westbound and eastbound curb lanes on Queen Street and the westbound curb lane on Gerrard Street. In</li> </ul>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>At locations where the lanes are closed and/or have streetcar tracks, advance warning signs are recommended for cyclists to consider rerouting. A 1 metre wide clearance from the streetcar track bed is proposed to allow space for cyclists.</li> <li>Bike lanes may be realigned with appropriate delineation, such as pavement markings and flexible delineator posts (where currently provided). Generally, existing widths of bike lanes will be maintained.</li> <li>Metrolinx will work with TTC and event organizers to mitigate cyclist impacts during construction.</li> </ul> <p><u>OLW Study Area</u></p> <ul style="list-style-type: none"> <li>Minimizing the duration of the full closure may be possible by installing a temporary road deck across Queen Street to accommodate one lane per direction after an initial full closure for construction of SOE and early excavation activities.</li> <li>Cyclists will have to walk their bikes on sidewalks at the full closure of Queen Street. Longer range trips will be encouraged to detour onto Adelaide Street or Richmond Street. Advance warning signs are recommended to notify cyclists of the closure.</li> <li>Bike share stations on Stewart Street, which are located within sidewalk closures, will be temporarily relocated.</li> </ul>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>No monitoring is required during construction.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>No monitoring activities are required during operations.</li> </ul>

Environmental Component	Potential Impact	Mitigation Measure(s)	Monitoring Activities
	<p>consequence cyclists will have to ride in the inside traffic lane.</p> <ul style="list-style-type: none"> <li>There is a safety concern regarding cyclists riding on traffic lanes with streetcar tracks. However, a minimum clearance between streetcar tracks and temporary concrete barriers of 1 metre will be maintained.</li> <li>Full roadway closures on Queen Street, Carlaw Avenue and Gerrard Street noted above will also impact cyclists.</li> <li>Bike share stations on James Street and Stewart Street will conflict with Queen Station and King Bathurst Station work areas.</li> </ul> <p><u>OLN Study Area</u></p> <ul style="list-style-type: none"> <li>Cyclists will also be impacted for works in the vicinity of bike trails in the Don Valley and south of the Science Centre. Trails will remain open, but there will be temporary intersections of trails with construction access roads. In addition, short-duration full closures of trails during erection of bridge superstructure elements are anticipated.</li> </ul> <p><u>OLW Study Area</u></p> <ul style="list-style-type: none"> <li>Impacts to cyclists during construction have not been confirmed yet.</li> </ul> <p><b>Operations</b></p> <p><u>OLS Study Area</u></p> <ul style="list-style-type: none"> <li>The new cycling connection on the west side of York Street between Queen Street and Adelaide Street, introduced as part of the Queen Station construction transit detour, will require regular maintenance.</li> </ul>	<p><u>OLS Study Area</u></p> <ul style="list-style-type: none"> <li>The proposed reconfiguration of York Street for the Route 501 streetcar diversion around the full Queen Street closure includes a dedicated southbound curbside bicycle lane south of Richmond Street, and a sharrow lane between Queen Street and Richmond Street.</li> <li>Bike share stations on James Street, which are located within sidewalk closures, will be temporarily relocated.</li> <li>Safety concerns are mitigated by providing a 1 m object-free zone adjacent to streetcar tracks.</li> <li>Public information strategies will be developed to mitigate full roadway closures on Queen Street, Carlaw Avenue and Gerrard Street.</li> </ul> <p><u>OLN Study Area</u></p> <ul style="list-style-type: none"> <li>Widening of trails is proposed where access roads will be co-located with trails.</li> <li>Implementation of trail widening will also impact trail operation, but trails will remain open to trail users.</li> <li>Bikeways and/or cycle tracks are proposed for Overlea Boulevard and on Don Mills Road (between Don Mills Road and Gateway Boulevard).</li> </ul> <p><u>OLW Study Area</u></p> <ul style="list-style-type: none"> <li>Mitigation and monitoring to be determined once impacts are confirmed.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>No mitigation measures are required during operations.</li> </ul>	
Transit	<p><b>Construction</b></p> <p><u>OLW Study Area</u></p> <ul style="list-style-type: none"> <li>TTC routing through Exhibition Place will potentially be impacted along Manitoba Drive to facilitate construction of the south station entrance building and public realm improvements.</li> <li>The following transit impacts are anticipated as a result of preparatory activities for the Ontario Line: <ul style="list-style-type: none"> <li>Increased delays for transit vehicles due to lane reductions shifting traffic to the remaining shared lanes.</li> </ul> </li> <li>The curb lanes on the east leg of King Street in the vicinity of Bathurst Street will be closed in both directions, and the northbound curb lane on Bathurst Street will be closed. Transit stops will be relocated during construction where required and passengers will need to walk to the relocated transit stops.</li> <li>The curb lane will also be closed on the west leg of the eastbound approach at Queen Street and Spadina Avenue. Streetcars will be unable to stop immediately at the</li> </ul>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>Consultation with TTC is recommended to establish a suitable mitigation strategy that will include public notification in advance of any potential service disruptions or modifications.</li> <li>Metrolinx will work with TTC and event organizers to mitigate transit impacts during construction.</li> <li>Station plazas will be included in the station design where appropriate and feasible.</li> </ul> <p><u>OLW Study Area</u></p> <ul style="list-style-type: none"> <li>Relocate transit stops at the intersections of King Street with Bathurst Street, and Queen Street with Spadina Avenue to accommodate work areas and the full closure of Queen Street.</li> <li>Optimize the intersections of King Street with Bathurst Street, and Queen Street with University Avenue and Sherbourne Street to mitigate the impacts of nearby Station works and the resulting lane closures.</li> <li>Provide temporary bus replacement service for Route 501 Queen during the construction of the southbound streetcar tracks on York Street.</li> </ul>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>No monitoring is required during construction, beyond TTC's regular operational performance monitoring.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>No monitoring is required during operations, beyond TTC's regular operational performance monitoring.</li> </ul>

Environmental Component	Potential Impact	Mitigation Measure(s)	Monitoring Activities
	<p>intersection. The eastbound streetcar stop will be relocated westerly.</p> <ul style="list-style-type: none"> <li>Construction of the streetcar detour will impact Queen Street and King Street (lane closures). The impacts between Adelaide Street and King Street will be due to a laydown area and track welding plant.</li> <li>Due to projected increases in transit ridership, worsening of the transit level of service at surface transit stops is expected at the following intersections: <ul style="list-style-type: none"> <li>King Street and Bathurst Street</li> <li>Queen Street and Spadina Avenue</li> </ul> </li> <li>The westbound bus bay on Liberty New Street at Exhibition Station, between Atlantic Avenue and Jefferson Avenue, is expected not to have sufficient bus frequencies to accommodate the forecasted passenger demand during event peak hours, which would result in an accumulation of queued boarding passengers in the waiting area throughout the peak hour.</li> </ul> <p><u>OLS Study Area</u></p> <ul style="list-style-type: none"> <li>The following transit impacts are anticipated as a result of preparatory activities for the Ontario Line: <ul style="list-style-type: none"> <li>Temporary bus replacement service for the Route 501 streetcar during the streetcar detour track works on York Street;</li> <li>Streetcar detours and transit stop relocations during the full closures of Queen Street between Bay Street and Victoria Street. Detours will follow the York Street streetcar detour route via Richmond Street (westbound), Adelaide Street (eastbound) and Church Street;</li> <li>Closure of the Victoria Street streetcar during the full southbound closure of Victoria Street; and</li> </ul> </li> <li>At Osgoode Station, potential delays to transit due to traffic queues are anticipated. The westbound transit stop at the intersection of Queen Street with University Avenue will be relocated to the east of the work area.</li> <li>Construction impacts at Queen Station will result in the closure of all east-west traffic on Queen Street and the closure of streetcar stops on Queen Street between Bay Street and Victoria Street.</li> <li>Two-way conversion of Albert Street during the full closure of James Street. The conversion will reduce the roadway width allocated to westbound traffic and on-street parking, resulting in a shared westbound left and right-turn lane at the intersection of Bay Street and Albert Street. This will also require TTC wheel-trans vehicles to have to reverse to reach the accessible stop location near the Eaton Centre.</li> <li>Lane configurations and traffic operations on York Street will be modified to accommodate a dedicated streetcar lane southbound between Queen and Adelaide as part of the Queen streetcar detour route.</li> </ul>	<ul style="list-style-type: none"> <li>To mitigate impacts to transit users and improve transit levels of service, increasing the surface transit stop areas through either the removal or relocation of sidewalk furniture and increasing surface transit frequency/capacity should be considered, where feasible.</li> <li>Increased bus frequencies at Exhibition Station should be considered during special event periods when Bank of Montreal Field and Budweiser Stage venues finish events at the same time to accommodate the additional transit demand.</li> </ul> <p><u>OLS Study Area</u></p> <ul style="list-style-type: none"> <li>Streetcars on Queen Street will be detoured onto York Street, Adelaide Street, Richmond Street and Church Street.</li> <li>Traffic control persons will be stationed at the intersection to assist wheel-trans vehicles during the business hours of the Eaton Centre. The intersection of Albert Street and James Street will be modified to facilitate movements of wheel-trans vehicles.</li> <li>Construct southbound streetcar tracks and convert York Street to two-way traffic between Queen Street and Adelaide Street to accommodate streetcar detours throughout the construction of Queen Station.</li> <li>Relocate transit stops at the intersections of King Street with Bathurst Street, Queen Street with Spadina Avenue, Queen Street with University Avenue, and along Queen Street between York Street and Church Street to accommodate work areas and the full closure of Queen Street.</li> <li>Optimized signal timings will be required along York Street to account for the permanent change in configuration and travel patterns.</li> <li>TTC buses may be proposed to stop on the curb lane on Pape Avenue north of Lipton.</li> </ul> <p><u>OLN Study Area</u></p> <ul style="list-style-type: none"> <li>Mitigation measures are still being evaluated as part of the design development.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>To mitigate impacts to transit users and improve transit level of service, increasing the surface transit stop area through either the removal or relocation of sidewalk furniture and increasing surface transit frequency/capacity should be considered, where feasible.</li> <li>Increased bus frequencies should be considered during special event periods when Bank of Montreal Field and Budweiser Stage venues finish events to accommodate the additional transit demand.</li> </ul>	



Environmental Component	Potential Impact	Mitigation Measure(s)	Monitoring Activities
	<ul style="list-style-type: none"> <li>• There is potential for more traffic to stop on the westbound centre lane at the intersection of Queen Street with Sherbourne Street because of the far-side curbside lane closure, resulting in increased delays and travel times.</li> <li>• It is anticipated that more vehicular traffic will stop on the eastbound centre lane at the intersection of King Street with Berkeley Street, as the eastbound far-side curb lane closure will be implemented upstream of the intersection.</li> <li>• Sidewalks will be closed on the south side of King Street, between Berkeley Street and the eastbound transit stop at the intersection of King Street with Parliament Street. The sidewalk closure on the south side of King Street may require pedestrians to detour along the north side of King Street or other east-west connections to reach their transit stop.</li> <li>• For construction of the proposed interchange stations at Queen and Osgoode, there will be scheduled weekend subway train service shutdowns when works will impact the existing TTC Line 1 platform and concourse levels. Existing TTC subway passengers may also experience delays during weekdays due to reduced widths of the passageways and the PATH network and when some fare gates are shut down to facilitate work zones on either side of the paid and non-paid fare zones. All access points will be maintained at both stations with the exception of the existing NE stairs at Osgoode Station connecting to the east sidewalk of University Avenue, which will be closed during construction and permanently replaced with a joint NE station entrance building for TTC and OL.</li> <li>• Due to projected increases in transit ridership, worsening of the transit level of service at surface transit stops is expected at the following intersections:             <ul style="list-style-type: none"> <li>○ Queen Street and Yonge Street</li> <li>○ Queen Street and University Avenue</li> <li>○ King Street and Parliament Street</li> <li>○ Front Street and Berkeley Street</li> </ul> </li> <li>• Permanent impacts for York Street as part of the York Street streetcar works include:             <ul style="list-style-type: none"> <li>○ New southbound streetcar tracks;</li> <li>○ Reduction to two northbound traffic lanes;</li> <li>○ Elimination of on-street parking between Adelaide Street and Richmond Street; and,</li> <li>○ A southbound sharrow between Queen Street and Richmond Street and a bike lane between Richmond Street and Adelaide Street.</li> </ul> </li> <li>• The southbound streetcar tracks will accommodate the diversion of Route 501 during the full closure of Queen Street and will allow for increased flexibility and resiliency on the streetcar network after the construction of Queen Station has completed.</li> <li>• Construction at Gerrard Station will impact routes 72 and 325 on Carlaw Avenue and Carlaw Avenue and the</li> </ul>		

Environmental Component	Potential Impact	Mitigation Measure(s)	Monitoring Activities
	<p>immediate vicinity only for one week. The northbound bus stop located just north of Gerrard Street will be relocated to south of Gerrard Street. Replacement bus service will be required during the closure period. The Gerrard streetcar (routes 306 and 506) will be discontinued during the weeklong full closure of Gerrard Street. Removal of the streetcar overhead catenary system (OCS) is expected to be required.</p> <ul style="list-style-type: none"> <li>• Construction at Riverside/Leslieville Station will impact streetcar routes 501, 503, and 301 on Queen Street East.</li> <li>• Lane closures are expected to cause additional delays due to reduced roadway capacity. Full roadway closures will result in temporary discontinuation of streetcar operation and bus detours around the closure area.</li> <li>• Permanent impacts to Gerrard Station and Riverside/Leslieville Station include increased TTC ridership due to OL transfers. This could potentially lead to longer dwell times but will not impact the transit routes.</li> <li>• Bus stops at the intersection of Pape Avenue and Cosburn Avenue (route, 25A and B, 81, 325, 325S and 925) are expected to be relocated where Pape Avenue is reduced to 1 traffic lane per direction.</li> <li>• During Support of Excavation (SOE) construction and excavation within the Cosburn Avenue right-of-way, traffic lanes will be closed. Buses will have to detour until a temporary road deck has been installed.</li> <li>• The bus loop at TTC's existing Pape subway station will be impacted due to construction, as noted above. The number and location of bus bays are expected to be modified. The roadway connectivity of the bus loop is still being evaluated.</li> <li>• Bus route detours and relocation of bus stops will be required for utility relocations just north of the Gerrard portal on Riverdale Avenue and Carlaw Avenue.</li> </ul> <p><u>OLN Study Area</u></p> <ul style="list-style-type: none"> <li>• Construction of Science Centre Station will temporarily impact the existing bus loop at Don Mills Road and Eglinton Avenue. Coordination with TTC is recommended to minimize operational impacts and installation of signage to advise transit users of any changes.</li> <li>• Sidewalk realignment will occur at Science Centre Station and Flemingdon Park Station.</li> <li>• Construction of the MSF will result in re-routing of route 88A due to the closure of Beth Neelson Drive for 1.5 years from Pat Moore Drive to South of Tremco access.</li> <li>• Permanent impacts to Thorncliffe Station include:             <ul style="list-style-type: none"> <li>○ Realignment of the sidewalk along the north side of Overlea Boulevard</li> <li>○ Realignment of the south sidewalk on Overlea Boulevard</li> </ul> </li> </ul>		

Environmental Component	Potential Impact	Mitigation Measure(s)	Monitoring Activities
	<ul style="list-style-type: none"> <li>○ The provision of a bus loop and increase in bus traffic on Thorncliffe Park Drive and at the intersection with Overlea Boulevard.</li> <li>• Existing transit services will be maintained throughout this segment. However, traffic lane reductions may result in transit delays.</li> <li>• Permanent transit impacts at Pape Station include the future bus loop layout. Locations are to be determined.</li> <li>• The construction of the Emergency Egress Building on Bain Avenue, the Sammon Avenue Crossover, and Minton Portal will not result in permanent impacts to transit.</li> <li>• A new road connection constructed between Banigan Drive and Overlea Boulevard will be maintained after the completion of the OMSF construction.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>• Permanent impacts to transit resulting in increased transit ridership and worsened transit levels of service and passenger queuing conditions due to higher ridership.</li> <li>• Sidewalks and transit stops will be designed to current City of Toronto and TTC standards, reduced widths may be required due to existing constraints.</li> </ul> <p><u>OLW Study Area</u></p> <ul style="list-style-type: none"> <li>• Once Liberty New Street is constructed between Dufferin Street and Strachan Avenue, the TTC will re-route bus route 29, 929, 29A, and 63 to serve Exhibition Station.</li> </ul>		
Automobiles	<p><b>Construction</b></p> <p><u>OLW Study Area</u></p> <p><i>Traffic</i></p> <ul style="list-style-type: none"> <li>• Due to construction, there will be lane closures at King Bathurst, Queen Spadina, Osgoode, and Queen Station,</li> </ul> <p>The following street impacts will occur as a result of Station and tunnel construction:</p> <p><i>King Bathurst Station</i></p> <ul style="list-style-type: none"> <li>• Closure of the curb lanes on the east leg of the King Street / Bathurst Street intersection for both directions.</li> <li>• Closure of the northbound curb lane on Bathurst Street from Stewart Street to north of King Street.</li> <li>• Lane width reduction and on-street parking removal on the north side of Stewart Street, east of Bathurst Street.</li> </ul> <p><i>Queen Spadina Station</i></p> <ul style="list-style-type: none"> <li>• Closure of the eastbound approach curb lane at Queen Street / Spadina Avenue.</li> </ul>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>• Traffic and advance notification signage are recommended to be installed for full closures of arterial roadways, and advance public notice is recommended to advise road users of alternative routes.</li> <li>• Traffic operations should be monitored after opening day and signal timing optimization or installation of new signals should be applied based on actual field conditions to accommodate the future traffic demands and patterns.</li> <li>• Metrolinx will work with TTC and event organizers to mitigate traffic impacts during construction.</li> </ul> <p><u>OLW Study Area</u></p> <p><i>Traffic</i></p> <ul style="list-style-type: none"> <li>• Optimize signal timings in Downtown Toronto along key east-west corridors to accommodate the combined impacts of City of Toronto works (including the Gardiner Expressway Rehabilitation project) and Ontario Line station construction works.</li> <li>• At Exhibition Station, haul routes are proposed for truck operations and were selected to reduce impacts to local residential areas. Trucks would be permitted to travel through turns (northbound left at King/Strachan, and westbound left at King/Atlantic), which are</li> </ul>	<p><b>Construction</b></p> <p><u>OLW Study Area</u></p> <ul style="list-style-type: none"> <li>• Monitor traffic impacts during construction to ensure robust access to and from Station 40 and St. Michael's Hospital.</li> <li>• The intersection of Bay Street and Albert Street will be monitored to identify whether the southbound left phase needs to be activated.</li> </ul> <p><b>Operation</b></p> <ul style="list-style-type: none"> <li>• Traffic operations should be monitored after opening day and signal timing optimization or installation of new signals should be applied based on actual field conditions to accommodate the future traffic demands and patterns.</li> </ul> <p>Monitoring of the northbound left at King Street and Strachan Avenue is required to ensure that sufficient operations are maintained with the addition of construction vehicles.</p>

Environmental Component	Potential Impact	Mitigation Measure(s)	Monitoring Activities
	<p><i>Osgoode Station</i></p> <ul style="list-style-type: none"> <li>Northbound curb lane closure on University Avenue between Queen Street and Armoury Street.</li> <li>Mid-block centre lane closure on University Avenue north of Queen Street.</li> <li>Southbound lane closure on Simcoe Street between Queen Street and Richmond Street.</li> <li>Weekend full closures of laneways in the vicinity of station work zones are permitted during construction of SOE walls.</li> <li>The combined station construction works are expected to increase delays and travel times on the network.</li> <li>Traffic is forecast to operate at capacity or near capacity with significant delays and queuing during one or both peak hours at the following intersections: <ul style="list-style-type: none"> <li>Dufferin Street and Liberty Street</li> <li>King Street and Atlantic Street</li> <li>King Street and Dufferin Street</li> <li>Strachan Avenue and Fleet Street</li> <li>King Street and Bathurst Street</li> <li>Queen Street and Simcoe Street</li> <li>Dufferin Street and Liberty Street</li> <li>Queen Street and University Avenue</li> <li>Queen Street and Spadina Avenue</li> </ul> </li> <li>Temporary lane and full road closures will occur at Gerrard Station and Riverside/Leslieville Station. Side roads at Riverside/Leslieville Station, i.e., Strange Street and De Grassi Street, may be reduced in width or occasionally fully closed.</li> <li>Due to TBM operation, up to six hundred (600) construction vehicles are expected to access the Gerrard Portal site per day.</li> <li>Delivery of large structural steel elements for the Gerrard Station truss structure are expected to result in nighttime traffic impacts along the haul route due to the size of the vehicle.</li> </ul> <p><i>Parking</i></p> <ul style="list-style-type: none"> <li>The following parking prohibitions are anticipated as a result of Station and tunnel construction works: <ul style="list-style-type: none"> <li>Stewart Street (north side) east of Bathurst Street;</li> <li>Bathurst Street (east side) south of Stewart Street;</li> <li>Queen Street (south side) west of Spadina Avenue (due to lane closure and relocated transit stop);</li> <li>Spadina Avenue (east side) north of Queen Street to Bulwer Street;</li> <li>Simcoe Street (west side) south of Queen Street to Richmond Street;</li> </ul> </li> <li>Off-street parking will be impacted at Green P parking lots located within the work areas at 271 Front Street East.</li> </ul>	<p>currently prohibited during peak periods Monday through Friday. Additional haul routes that abide by existing municipal bylaws are recommended for trucks to navigate through Liberty Village to help disperse the impact of truck activity.</p> <p><i>Parking</i></p> <ul style="list-style-type: none"> <li>The lost parking at 271 Front Street East will be accommodated through nearby on-street (Queen Street, Shuter Street) parking, and off-street parking (e.g., Green P parking at Sherbourne Street and Richmond Street).</li> </ul> <p><i>Emergency Vehicles and Deliveries</i></p> <ul style="list-style-type: none"> <li>Access to 650 King Street West will be maintained through the existing driveway of 648 King Street West. Access to the driveway on Stewart Street immediately east of the proposed Station building will be maintained.</li> </ul> <p><u>OLS Study Area</u></p> <p><i>Traffic</i></p> <ul style="list-style-type: none"> <li>Convert Albert Street to two-way traffic between Bay Street and James Street to provide access throughout the full closure of James Street.</li> <li>Update the traffic signal and traffic signs at the intersection of Bay Street with Albert Street for the conversion to two-way traffic. The need for providing a protected southbound left-turn phase will be evaluated if queuing is observed.</li> <li>Station traffic control persons at the intersection of James Street with Albert Street to mitigate conflicts between vehicles and pedestrians, and modify the south-west corner of the intersection to accommodate vehicular turnaround maneuvers.</li> <li>While the queue storage exceedance is considered minor at Queen Street and Sherbourne Street and no mitigation is required, extending the westbound left turn lane to 55 metres at Front Street and Parliament Street may be considered by the City of Toronto.</li> <li>A temporary traffic signal will be provided on Carlaw Avenue to the north of Gerrard Street, as this location will be the main construction access/egress for the Gerrard Portal site.</li> <li>Signal optimization will be required along York Street as well as updated signage and pavement marking to accommodate the change. No monitoring of automobile operations will be required.</li> <li>It is recommended to monitor the operations at the intersection of Bay Street with Albert Street after the conversion of Albert Street to two-way traffic to identify the need for activation of the southbound left protected phase. Monitoring of the northbound left turn at King Street and Strachan Avenue is required to ensure that sufficient operations are maintained with the addition of construction vehicles.</li> </ul> <p><i>Parking</i></p> <ul style="list-style-type: none"> <li>The lost parking at 54 Parliament Street will be accommodated through nearby on-street (Queen Street, Shuter Street) parking,</li> </ul>	

Environmental Component	Potential Impact	Mitigation Measure(s)	Monitoring Activities
	<ul style="list-style-type: none"> <li>Temporary and permanent loss of parking is expected on Strange Street and De Grassi Street in the vicinity of the station headhouses.</li> </ul> <p><i>Emergency Vehicles</i></p> <ul style="list-style-type: none"> <li>At the intersection of King Street with Bathurst Street, access to the east-west alleyway approximately 35 metres north of King Street on the east side of Bathurst Street and the laneway itself will be closed during construction for staging and laydown area.</li> </ul> <p><u>OLS Study Area</u></p> <p><i>Traffic</i></p> <ul style="list-style-type: none"> <li>Due to construction, there will be lane closures at Moss Park, and Corktown Station. A long-term (4.5 years) full closure of Queen Street between Bay Street and Victoria Street will occur as a result of the Queen Station construction.</li> <li>The following street impacts will occur as a result of construction of the Streetcar Detour along York Street:             <ul style="list-style-type: none"> <li>Temporary southbound lane closure / full closure and a northbound lane closure on York Street between Queen Street and King Street.</li> <li>Full closure of the following York Street intersections for works within the intersections: Queen Street, Richmond Street and Adelaide Street. Only one intersection will be closed at any given point in time, and intersection closures will be coordinated with Ontario Line Advance Works contracts and other City/TTC construction projects.</li> <li>Closure of Pearl Street at the intersection with York Street may be required.</li> </ul> </li> <li>Left turn queues are anticipated to exceed available storage at Front Street and Parliament Street (westbound) and Queen Street and Sherbourne Street (northbound and southbound).</li> <li>The number of traffic lanes on York Street will be reduced between Adelaide Street and Richmond Street.</li> <li>The James Street curb realignment (narrowing of the roadway) near Queen Street will not have permanent impacts to the existing one-lane operations.</li> <li>Lane closures and width reductions on Bain Avenue and Pape Avenue will impact traffic operations.</li> <li>Lane and road closures will be required for utility relocations just north of the Gerrard portal on Langley Avenue, Riverdale Avenue, Pape Avenue and Carlaw Avenue.</li> <li>Full closure of the traffic lanes on Cosburn Avenue just west of Pape Avenue will be required for excavations within the roadway.</li> </ul>	<p>and off-street parking (e.g., Green P parking at Sherbourne Street and Richmond Street).</p> <p><u>OLN Study Area</u></p> <ul style="list-style-type: none"> <li>A new Banigan Road extension, which will connect with Overlea Boulevard in the vicinity of the intersection with Leaside Park Drive, will be provided.</li> <li>Full closure of Beth Neilson Drive will require an access plan for the duration of construction to mitigate impacts to access for emergency/service vehicles and deliveries.</li> <li>Replacement of residential on-street permit parking, are still being evaluated</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>Signalization is proposed at the intersections of Liberty New Street with Atlantic Avenue and Jefferson Avenue to prevent significant spillbacks and delays at Atlantic Avenue and to ensure coordination and improved flow between the two intersections. Mitigation to improve traffic operations at these intersections, depending on the level of impact, may include:             <ul style="list-style-type: none"> <li>Optimize cycle lengths and phasing; and</li> <li>Increase cycle lengths.</li> </ul> </li> </ul>	

Environmental Component	Potential Impact	Mitigation Measure(s)	Monitoring Activities
	<p><i>Parking</i></p> <ul style="list-style-type: none"> <li>• The following parking prohibitions are anticipated as a result of Station and tunnel construction works:                             <ul style="list-style-type: none"> <li>○ University Avenue (east and west side) north of Queen Street to Armoury Street;</li> <li>○ Albert Street (north side) east of Bay Street to James Street;</li> <li>○ James Street (west and east side) between Queen and Albert Streets; and,</li> <li>○ Queen Street (north side) west of Sherbourne Street.</li> </ul> </li> <li>• The accessible loading zone on the south side of Albert Street will be maintained but shifted slightly to the east. A handicapped parking space will be closed on James Street.</li> <li>• On-street parking will also be removed on York Street between King Street and Richmond Street.</li> <li>• Taxicab standing on James Street and Albert Street will be closed.</li> <li>• Off-street parking will be impacted at Green P parking lots located within the work areas at Corktown Station, specifically 54 Parliament Street. Additionally, there is a potential reduction in the number of parking spaces available at Moss Park Arena. The existing head-on parking spaces will be maintained, however, parallel parking along the south wall of the building may need to be prohibited to maintain vehicle circulation, which would result in a loss of roughly a third of the available parking spaces.</li> <li>• 22 parking spaces on James Street and 10 parking spaces on Albert Street will be removed due to a proposed curb realignment to accommodate station ventilation on the sidewalk. Parking spaces on York Street between Richmond Street and Adelaide Street will be removed due to the conversion of York Street to two-way operation.</li> <li>• There will be permanent loss of some on-street parking spaces on De Grassi Street near the Riverside/Leslieville Station north building, and potentially on Strange Street as well near the south building.</li> <li>• On-street parking spaces will be closed due to the utility relocations just north of the Gerrard portal on Langley Avenue, Riverdale Avenue, Pape Avenue and Carlaw Avenue.</li> </ul> <p><i>Emergency Vehicles</i></p> <ul style="list-style-type: none"> <li>• Emergency vehicle routing impacts are expected as a result of the full closure of Queen Street between James Street and Victoria Street. Response times and typical routes will be similar for Paramedic Services Station 40, Fire Station 332, and Fire Station 333. The travel time to St. Michael's Hospital, from just west of the Queen Street</li> </ul>		

Environmental Component	Potential Impact	Mitigation Measure(s)	Monitoring Activities
	<p>closure (i.e., west of Bay Street), will be impacted, with an increased distance from 0.4 km to 0.8 km and a travel time increase from 2 minutes to 3 minutes.</p> <ul style="list-style-type: none"> <li>Emergency services routes will also be impacted by intersection closures for construction of the streetcar detour along York Street.</li> </ul> <p><u>OLN Study Area</u></p> <p><i>Traffic</i></p> <ul style="list-style-type: none"> <li>Lane closures on Millwood Road, Overlea Boulevard, Don Mills Road, Gowan Avenue, Gamble Avenue, Lipton Avenue, Minton Place, Hopedale Avenue, and Eglinton Avenue will temporarily impact traffic operations.</li> <li>Weekend full closures will be required on Millwood Road (at Overlea Boulevard), Don Mills Road (south of Eglinton Avenue) and Eglinton Avenue (east of Don Mills Road) for erection of bridge superstructure.</li> <li>A full road closure of Beth Neelson Drive is required for 1.5 years, from Pat Moore Drive to South of Tremco Access, which will impact traffic operations.</li> <li>There will be northbound off-peak lane closures on the Don Valley Parkway for works at the Minton Portal, such as slope stabilization. Weekend full closures of the Don Valley Parkway will be required for erection of the bridge superstructure.</li> <li>The connection between Banigan Drive and Thorncliffe Park Drive will be closed.</li> <li>Permanent impacts to Thorncliffe Station include additional bus traffic on Thorncliffe Park Drive and the intersection with Overlea Boulevard. In addition to the transit impacts, additional bus traffic will impact traffic operations.</li> <li>Lane width reductions are anticipated on local roads including Gowan Avenue, Gamble Avenue, Gertrude Place, and Lipton Avenue.</li> <li>The construction of the Emergency Egress Building on Bain Avenue, the Sammon Avenue Crossover, and Minton Portal will not result in permanent impacts to traffic operations.</li> </ul> <p>The following street impacts will occur as a result of Station and tunnel construction:</p> <p><i>Queen Station</i></p> <ul style="list-style-type: none"> <li>Full street closure on Queen Street between Bay Street and Victoria Street (excluding the intersection of Queen Street with Yonge Street).</li> <li>Closure of the southbound curb lane on Victoria Street near Queen Street.</li> <li>Full closure of James Street while Queen Street is fully closed, resulting in blocked inbound access to the area behind Eaton Centre.</li> <li>Two-way conversion of Albert Street during the full closure of James Street. The conversion will reduce the roadway</li> </ul>		

Environmental Component	Potential Impact	Mitigation Measure(s)	Monitoring Activities
	<p>width allocated to westbound traffic, resulting in a shared westbound left and right-turn lane at the intersection of Bay Street and Albert Street.</p> <p><i>Moss Park Station</i></p> <ul style="list-style-type: none"> <li>• Closure of the westbound curb lane between Sherbourne Street and George Street. The westbound Queen Street curb lane on the approach to the intersection with Sherbourne Street will terminate as a dedicated right turn lane.</li> </ul> <p><i>Corktown Station</i></p> <ul style="list-style-type: none"> <li>• Closure of southbound curb lane on Parliament Street between King Street and Front Street.</li> <li>• Closure of eastbound curb lane on King Street between Berkeley Street and Parliament Street.</li> </ul> <p><i>Cherry Street Emergency Egress Building (EEB)</i></p> <ul style="list-style-type: none"> <li>• The westbound curb lane on Lake Shore Boulevard will be closed during off-peak periods just west of Cherry Street.</li> </ul> <p><i>Parking</i></p> <ul style="list-style-type: none"> <li>• Parking lots of the Science Centre will be impacted by construction of the Flemingdon Park Station and of the guideway (piers and superstructure).</li> <li>• There will be a permanent reduction of the number of parking spaces at the Science Centre.</li> <li>• Public Green P parking lots at Pape Station will be closed during construction.</li> <li>• On-street parking on Gowan Avenue, Gamble Avenue, Gertrude Place, Pape Avenue, Hopedale Avenue and Minton Place will be impacted due to lanes closures.</li> </ul> <p><i>Emergency Vehicles</i></p> <ul style="list-style-type: none"> <li>• Lane closures on Pape Avenue will impact access for emergency/services vehicles and deliveries, particularly due to potentially increased delays. Alternative access to properties may be required, where traffic lanes of Pape Avenue are realigned to facilitate excavation at the Sammon crossover.</li> </ul> <p><b>Operations</b></p> <p><u>OLW Study Area</u></p> <ul style="list-style-type: none"> <li>• Traffic signals along Liberty New Street, as well as the roadway itself, will have Operations and Maintenance implications, which will be the responsibility of the City of Toronto.</li> </ul> <p><u>OLN Study Area</u></p> <ul style="list-style-type: none"> <li>• A new road connection between Banigan Drive and Overlea Boulevard, located east of Leaside Park Drive, will</li> </ul>		



Environmental Component	Potential Impact	Mitigation Measure(s)	Monitoring Activities
	be maintained after the completion of the OMSF construction, providing a permanent link for automobiles.		
<b>UTILITIES</b>			
Private and Public Utilities	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>It is anticipated that there will be temporary impacts to existing utilities during construction, with potential relocations and associated disruptions to be determined.</li> <li>Potential impacts to utilities are under review and will be confirmed as project planning progresses.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>Potential impacts to utilities are not anticipated during operations.</li> </ul>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>In-depth utility investigations will be undertaken as planning progresses to confirm impacts. Any potential conflicts and associated relocation requirements or mitigation measures will be identified in consultation with utility providers.</li> <li>Appropriate mitigation measures including next steps related to consultation with utility companies and stakeholders, and phasing plans, will be determined once the impacts are confirmed.</li> <li>The City of Toronto and Toronto Hydro will be consulted, as required, regarding potential impacts to municipal infrastructure and servicing to ensure that applicable City standards, guidelines, and criteria are met.</li> <li>Mitigation measures related to traffic disruption and detours are outlined in <b>Section 5.9</b> of the EIAR.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>As no impacts are anticipated to utilities during operations, no mitigation measures are recommended.</li> </ul>	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>During construction, utilities that will be protected in place may require monitoring, as determined by the requirements of each utility provider.</li> </ul> <p><b>Operations</b></p> <ul style="list-style-type: none"> <li>As no impacts are anticipated to utilities during operations, no monitoring activities are recommended.</li> </ul>

## ES.6 Consultation Process

The consultation program followed by Metrolinx for the EIAR is described in **Section 6** of this Report and all consultation materials are included in **Appendix B**.

In accordance with the Ontario Line Regulation, this section summarizes the consultation activities carried out with members of the public, community stakeholders and groups, technical stakeholders, Elected Officials, Indigenous Nations, and other interested parties, including a summary of feedback and comments received. It includes a record of consultation and summary of correspondence between October 18, 2020, and December 13, 2021, excluding Early Works-specific consultation.

Prior to publication of the Draft EIAR, public engagement opportunities included posting updates to the Engage webpage and holding virtual open houses which include live Q&A sessions about the Ontario Line Project.

Public input received falls into the following general themes: Project timelines, costs and operations; Property impacts; Environmental and community impacts; Consultation process; and Alignment and facilities. One hundred and thirty community stakeholders and groups, and twenty-four technical stakeholders, have been engaged between October 18, 2020, and December 13, 2021. Numerous meetings and briefings have also been undertaken with elected officials.

In 2018, Metrolinx made a commitment to building positive and meaningful relationships with Indigenous Peoples in alignment with its strategic objectives. The IRO, established in 2019, has a mandate to build and grow relationships with Indigenous Nations, organizations, businesses, and customer-residents. Indigenous Nations that have been provided information on the Ontario Line Project to-date are:

- Haudenosaunee Confederacy Chiefs Council;
- Huron-Wendat Nation;
- Kawartha Nishnawbe First Nation;
- Métis Nation of Ontario;
- Mississaugas of the Credit First Nation;
- Six Nations of the Grand River;
- Williams Treaties First Nations:
  - Alderville First Nation;
  - Beausoleil First Nation;
  - Chippewas of Georgina Island;
  - Chippewas of Rama First Nation;
  - Curve Lake First Nation;
  - Hiawatha First Nation; and

- Mississaugas of Scugog Island First Nation.

## ES.7 Permits and Approvals

**Section 7** includes a list of permits that may be required for the Project. Further permit and approval requirements will be confirmed as detailed design progresses. These potential permitting requirements are summarized below.

- Federal – Federal permits and approvals have been identified as potentially required, which include, but are not limited to, the following:
  - It is not anticipated that the Project will require an approval under the *Canadian Navigable Waters Act, 2019*; however, it will be reviewed prior to construction.
  - Temporary in-water works are required in the Lower Don River and permanent alterations to Walmsley Brook are required, and as such a Fisheries and Oceans Canada Request for Review under the *Fisheries Act, 1985* will be submitted.
- Provincial – A number of provincial permits and approvals have been identified as potentially required, which include, but are not limited to, the following:
  - Approvals under the *Environmental Protection Act* related to dewatering, emissions, and encountered contamination.
  - Metrolinx will comply with the conditions of the Permit CR-D-002-19 issued on August 7, 2020 under the *Endangered Species Act, 2007* for Species at Risk that may be affected by the Project.
  - Approvals under the *Ontario Heritage Act* related to archaeology and cultural heritage.
  - Approvals under the *Ontario Water Resources Act* related to water takings and discharge.
- Conservation Authority – Metrolinx will consult with Toronto and Region Conservation Authority with respect to construction activities in regulated areas for the Project in relation to Ontario Regulation 166/06: Toronto and Region Conservation Authority Regulation of Development, Interference with Wetlands and Alterations to Shorelines and Watercourses.
- Municipal – A range of municipal permits and approvals may be required for the Project, particularly pertaining to municipally owned lands and infrastructure. Metrolinx as a Crown Agency of the Province of Ontario is exempt from certain municipal processes and requirements. In these instances, Metrolinx will engage with the City of Toronto to incorporate municipal requirements as a best practice, where practical, and may obtain associated permits and approvals. Metrolinx will continue to communicate and engage with the City of Toronto during detailed design and construction planning to address municipal concerns.

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- Appendix C. Ontario Line Profile Drawings

## Abbreviations

BHR	Built Heritage Resources
BIA	Business Improvement Area
CHL	Cultural Heritage Landscapes
CPU	Certificates of Property Use
dB	Decibel
dBA	Decibel, A-weighted
EEB	Emergency Egress Building
EIAR	Environmental Impact Assessment Report
ELC	Ecological Land Classification
ESA	<i>Endangered Species Act</i>
GGH	Greater Golden Horseshoe
GTHA	Greater Toronto and Hamilton Area
HCD	Heritage Conservation District
IRO	Indigenous Relations Office
LRT	Light Rail Transit
MBCA	<i>Migratory Bird Convention Act</i>
MECP	Ministry of the Environment, Conservation and Parks
MHSTCI	Ministry of Heritage, Sport, Tourism and Culture Industries
MMAH	Ministry of Municipal Affairs and Housing
MNRF	Ministry of Natural Resources and Forestry
MTO	Ministry of Transportation
NDMNR	Ministry of Northern Development, Mines, Natural Resources and Forestry
OCS	Overhead Catenary System

OHA	<i>Ontario Heritage Act</i>
OLN	Ontario Line North
OLS	Ontario Line South
OLW	Ontario Line West
OMSF	Operations, Maintenance, and Storage Facility
O. Reg	Ontario Regulation
PPS	Provincial Policy Statement
RoW	Right-of-Way
RSC	Records of Site Condition
SAR	Species at Risk
SEM	Sequential Excavation Method
SOE	Support of Excavation
TBM	Tunnel Boring Machine
TDSB	Toronto District School Board
TLC	Toronto Lands Corporation
TRCA	Toronto and Region Conservation Authority
TTC	Toronto Transit Commission

# 1 Introduction

## 1.1 Purpose of the Ontario Line Project

The Ontario Line is one of the largest subway expansions in Toronto's history. It has been designed to ease congestion on existing transit lines throughout the city and bring transit to underserved neighbourhoods. It will improve access to transit, increase access to economic activity, and support the relationship between transit and city building. It will support a complete travel experience by improving travel time and reliability, improving comfort and safety, and providing a more resilient and integrated transportation network. Lastly, the Ontario Line will support the development of sustainable and healthy communities by moving people with less energy and reduced emissions, improving quality of life and public health, and unlocking jobs and economic development.

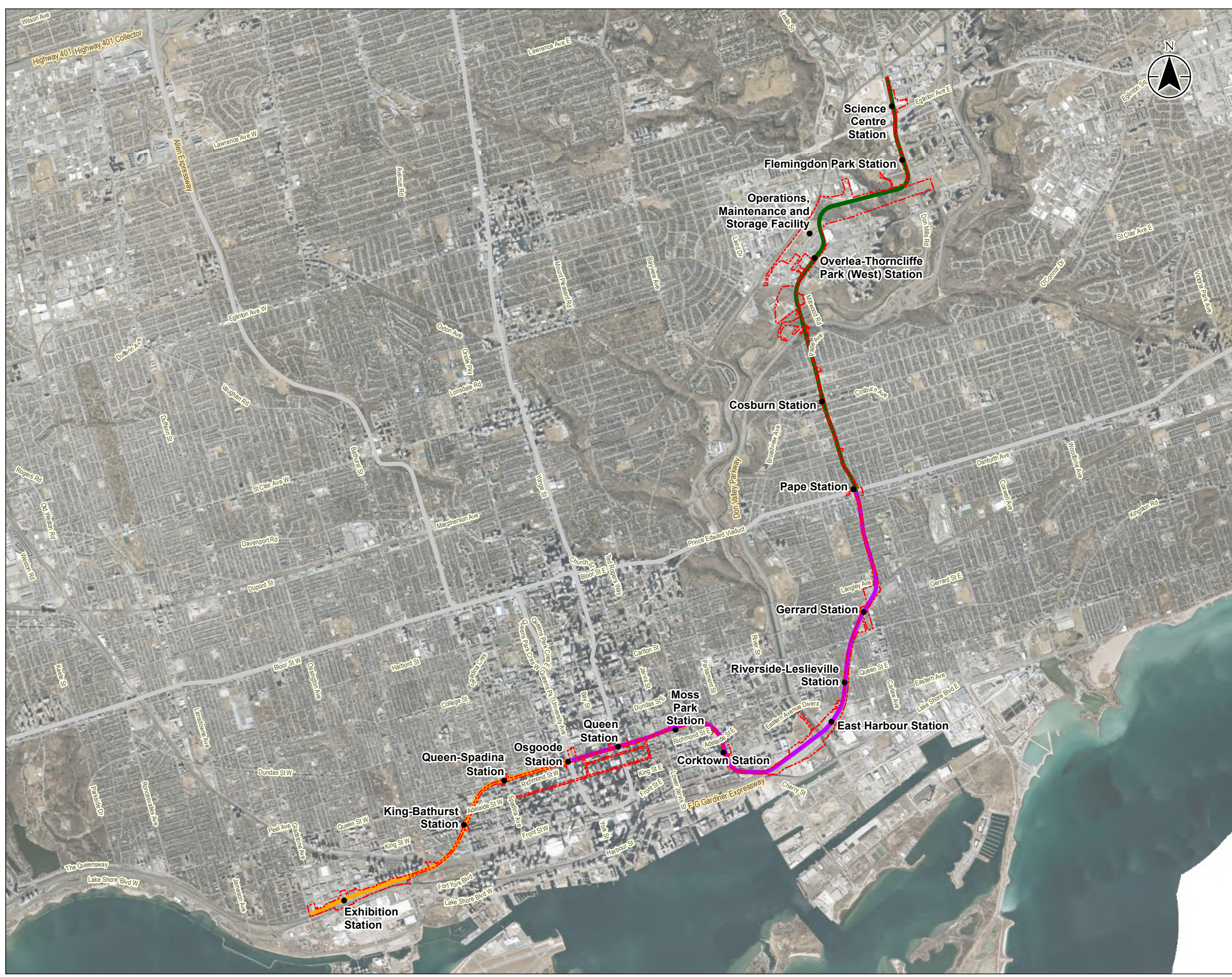
The above-mentioned benefits of the proposed Ontario Line support Metrolinx's 2041 Regional Transportation Plan (Metrolinx 2018) by connecting people with more frequent and reliable transit.

## 1.2 Project Overview

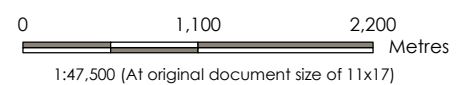
Metrolinx, an agency of the Province of Ontario, is proceeding with the planning and development of the Ontario Line (the Project), extending from Exhibition/Ontario Place to the Ontario Science Centre in the City of Toronto (shown on **Figure 1-1**).

The Project is a new approximately 15.6-kilometre subway line with connections to Line 1 (Yonge-University) subway service at Osgoode and Queen Stations, Line 2 (Bloor-Danforth) subway service at Pape Station, and Line 5 (Eglinton Crosstown) Light Rail Transit (LRT) service at the future Science Centre Station. Fifteen stations are proposed, with additional connections to three GO Transit lines (Lakeshore East, Lakeshore West and Stouffville), and the Queen, King, Bathurst, Spadina, Harbourfront, and Gerrard/Carlton streetcar routes. The Project will reduce crowding on Line 1 and provide connections to new high-order rapid transit neighbourhoods. The Project will be constructed in a dedicated right-of-way (RoW) with a combination of elevated (i.e., above existing rail corridor/roadway), tunnelled (i.e., underground), and at-grade (i.e., at the same elevation as the existing rail corridor) segments at various locations.

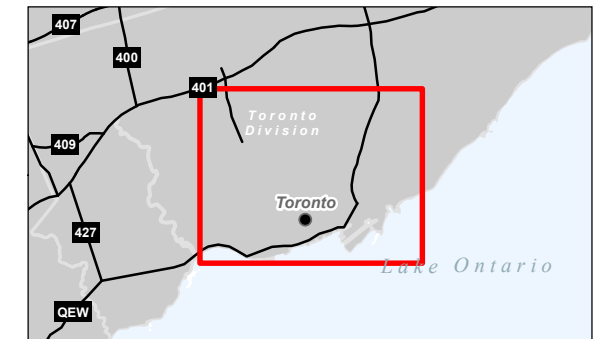
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- Legend**
- Project Footprint
  - Station Location
  - Ontario Line West
  - Ontario Line South
  - Ontario Line North
  - Existing Subway



- Notes**
1. Coordinate System: NAD27 MTM zone 10
  2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2020.
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Client/Project  
 HDR CORPORATION  
 ONTARIO LINE TA

Figure No.  
**1-1**

Title  
**Project Overview**

## 1.3 Project Footprint

The Project Footprint was established based on a conceptual design for the Project, which will be refined and updated as Project planning progresses through detailed design. The conceptual design is intended to identify the potential location of Project components as well as temporary lands that may be required during construction.

The Project Footprint includes the total area anticipated to be potentially affected by the proposed construction activities and operations of the Project. The extent of proposed physical works from construction and operation includes, but is not limited to, temporary laydown and staging areas, potential road detours, new bridges, tunnelling and associated openings (including vent shafts and emergency egress buildings), new stations and platforms, portals, retaining walls and barriers, railway track alignments/realignments, the operations, maintenance and storage facility (OMSF), new power supply and transformers, and utility relocations.

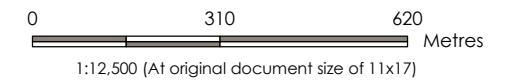
The dividing lines between sections of the Project Footprint are as follows:

- The Ontario Line West (OLW) section extends from Exhibition/Ontario Place to Osgoode Station (shown on **Figure 1-2**)
- The Ontario Line South (OLS) section extends from east of Osgoode Station to west of Pape Station (shown on **Figure 1-3**)
- The Ontario Line North (OLN) section extends from Pape Station to the Ontario Science Centre and includes the OMSF (see **Figure 1-4**).

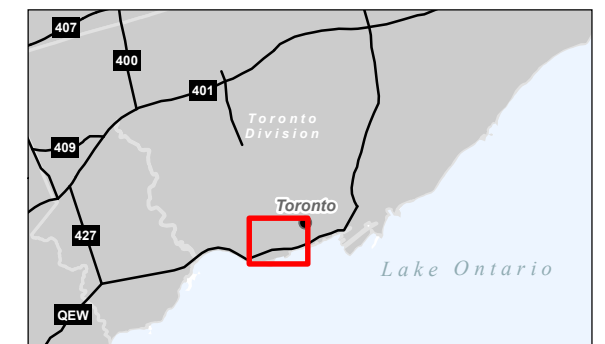
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- Legend**
- Project Footprint
  - Station Location
  - Ontario Line West
  - Existing Subway



- Notes**
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Figure No.

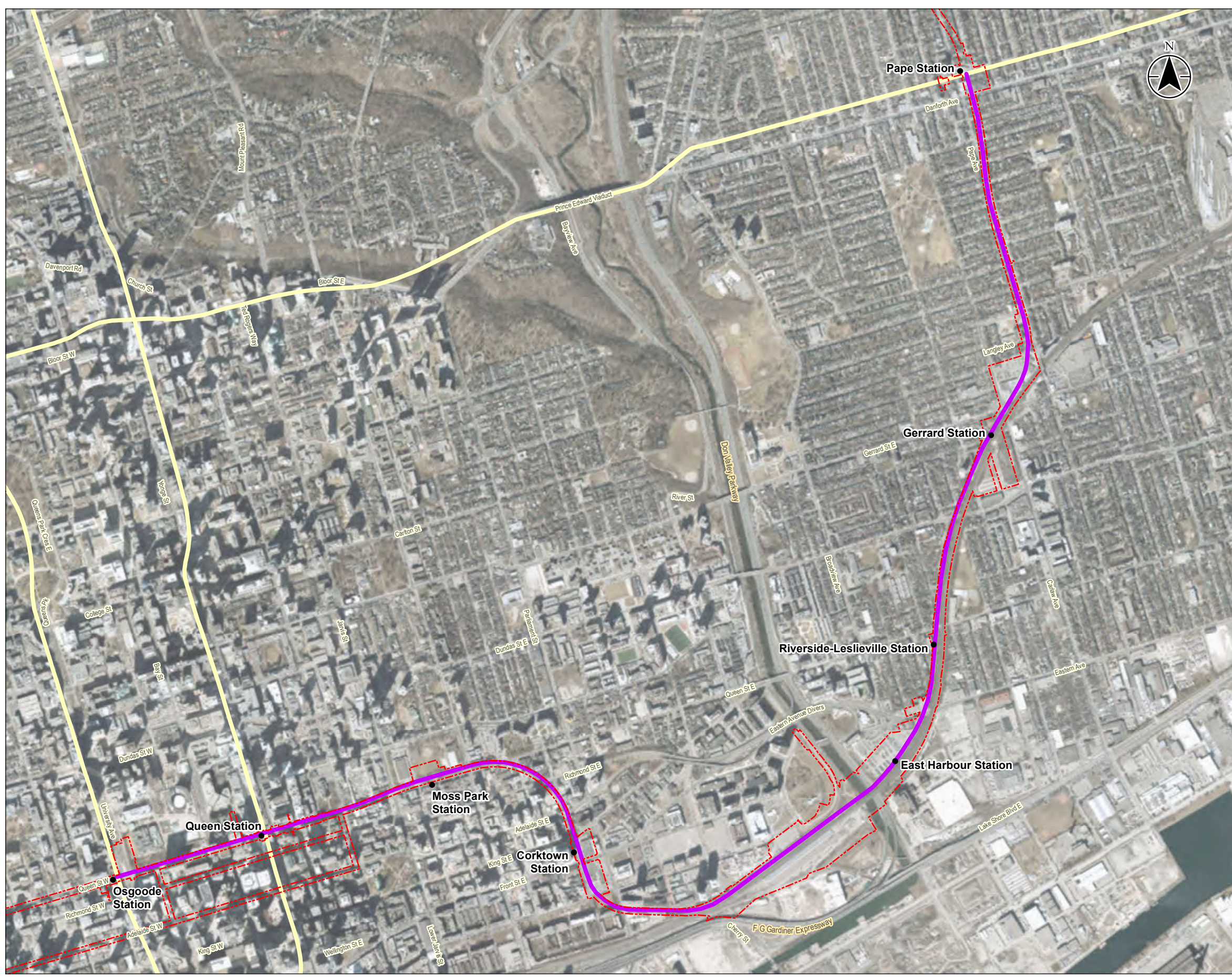
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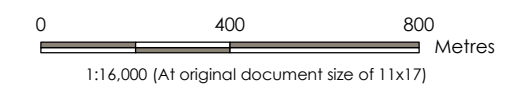
**Ontario Line West Section**



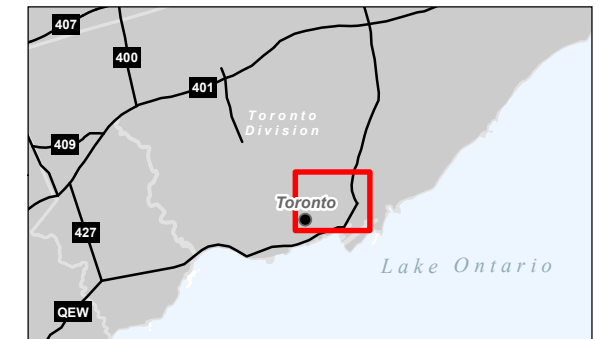
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- Legend
- Project Footprint
  - Station Location
  - Ontario Line South
  - Existing Subway



- 1:16,000 (At original document size of 11x17)
- Notes
1. Coordinate System: NAD27 MTM zone 10
  2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2020.
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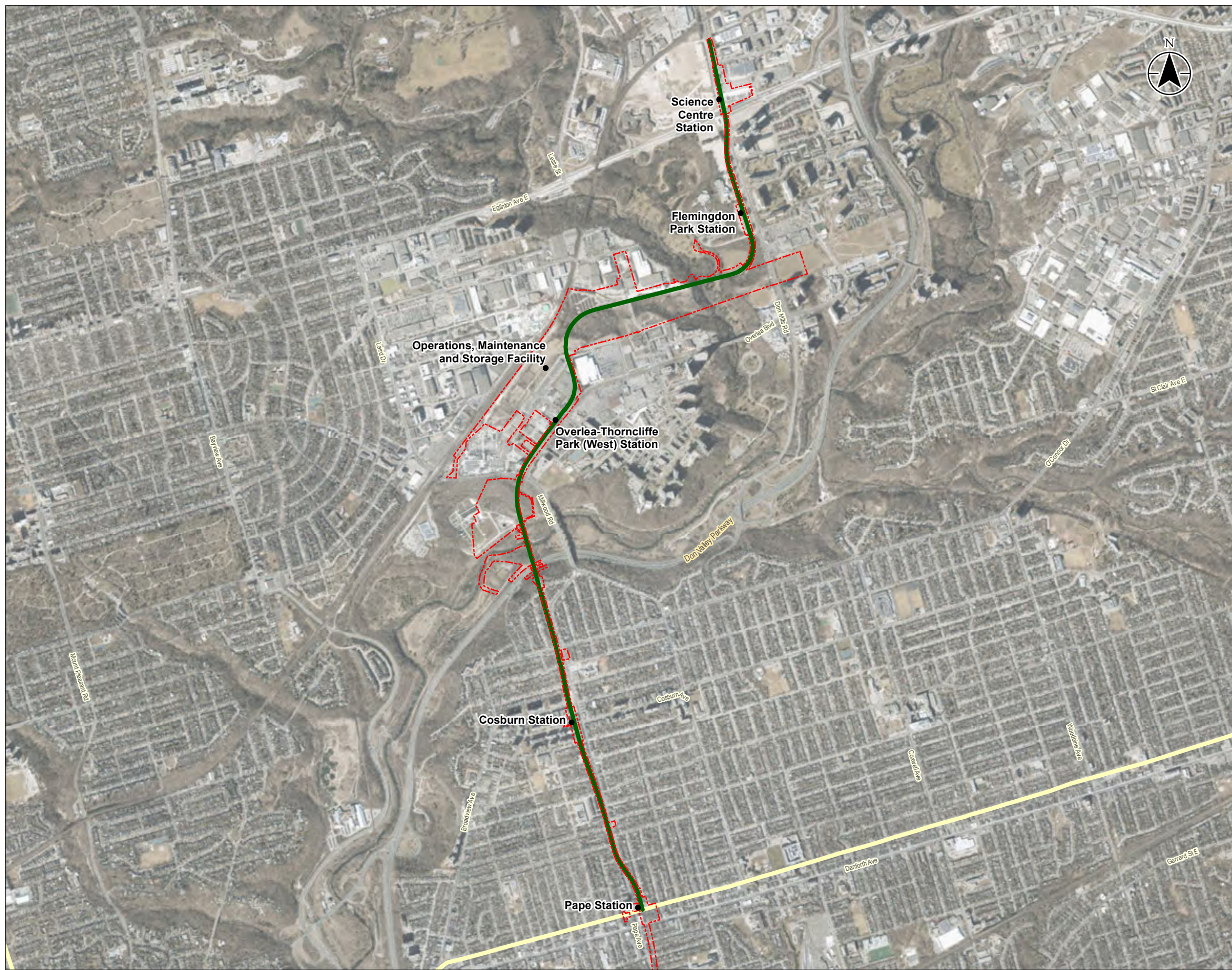


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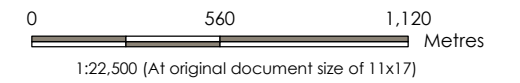
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Figure No.  
**1-3**  
 Title  
**Ontario Line South Section**

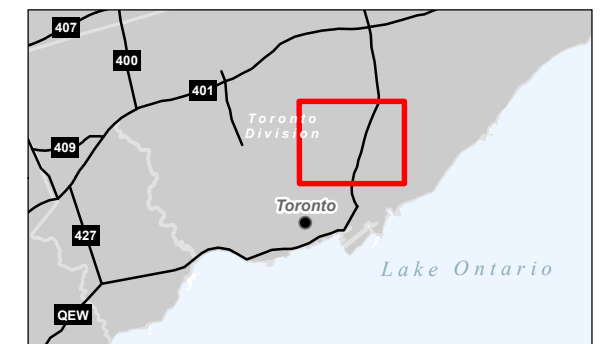
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- Legend
- Project Footprint
  - Station Location
  - Ontario Line North
  - Existing Subway



- Notes
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Project Location: Coity of Toronto, ON  
 160560009 REV4  
 Prepared by BCC on 2022-01-31

Client/Project  
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 ONTARIO LINE TA

Figure No.  
**1-4**

Title  
**Ontario Line North Section and  
 Operations, Maintenance and Storage  
 Facility**

## 1.4 Project Background

### 1.4.1 Planning Studies

The City of Toronto and Metrolinx have previously undertaken the following planning studies relevant to this Project:

- In 2012, the Toronto Transit Commission (TTC)'s Downtown Rapid Transit Expansion Study concluded that Relief Line and GO Transit Improvements will help ease crowding.
- In 2013, Relief Line was identified as a priority for future transit investment in Metrolinx's visionary plan, *The Big Move*.
- In 2014, Relief Line South project planning commenced.
- In 2015, Metrolinx Board of Directors gave direction to advance planning of Relief Line South and assess a northerly extension of the Relief Line. Metrolinx completed the Yonge Relief Network Study (Metrolinx 2015) recommending that Metrolinx, in partnership with the City of Toronto and TTC, advance Relief Line project planning and development in order to further assess the extension of the Relief Line North from Danforth Avenue to Sheppard Avenue East.
- In 2018, the City of Toronto, TTC, and Metrolinx issued Statement of Completion of the Relief Line South Transit Project Assessment Process, as prescribed in Ontario Regulation (O. Reg.) 231/08 under the *Environmental Assessment Act*.
- In 2018, Metrolinx's 2041 Regional Transportation Plan recognized Relief Line North as a key rapid transit project that is "In Development".

Ontario Line was announced by the Province of Ontario in 2019, and the Ontario Line Initial Business Case (Metrolinx and Infrastructure Ontario 2019) was published in the same year and documented the Ontario Line scope, cost estimates, benefits, and implementation challenges. The Initial Business Case highlighted the benefits of utilizing existing GO corridors for Ontario Line infrastructure and the coordination required between GO Expansion and the Ontario Line Project.

Ontario Line was developed with the intent to accelerate delivery of new transit, serve additional markets, and reduce costs per kilometre while building on plans developed by City of Toronto, Toronto Transit Commission and Metrolinx under the umbrella of the Relief Line South Project Assessment and Relief Line North Project Assessment. The Ontario Line concept was developed iteratively and with flexibility to allow for implementation using public-private partnerships. These key drivers led to decisions to use modern standard technology, look at a standalone maintenance and storage facility for Ontario Line, and consider at-grade or elevated alignments (Metrolinx and Infrastructure Ontario 2019).

The Ontario Line Preliminary Design Business Case (Metrolinx 2020a) further documented the benefits of using existing rail corridors where possible. Benefits of a shared corridor as discussed in the Preliminary Design Business Case include reducing underground station construction impacts on businesses, utilities, and the transportation network, improved station

accessibility, and reduced project costs while serving more communities (described further in **Section 3.1**).

## 1.4.2 Alternatives Considered

The design for Ontario Line has evolved through the Initial Business Case (Metrolinx and Infrastructure Ontario 2019), and the Preliminary Design Business Case (Metrolinx 2020a), resulting in the conceptual design (see **Section 1.3**) evaluated in this Report.

The following guiding principles were used to confirm the conceptual design for the Project assessed in this report, supported through development of the Initial Business Case and Preliminary Design Business Case:

- consider alternative alignments, such as surface or elevated guideways, and construction methods to optimize delivery, improve the customer experience, and create better access and connectivity
- reduce costs and delivery times and allow flexibility to deliver the project on time and budget
- use modern, automated driverless technology, and platform edge doors to increase safety and reliability and achieve travel time savings

Initial design criteria were established and used to confirm feasibility, specifying components such as maximum grades, clearances above and below existing features such as roads and building foundations, tunnel and elevated/at-grade guideway dimensions, minimum turning radii, vehicle speeds and capacity (Metrolinx 2020a). From these initial design criteria, a project concept was developed to confirm feasibility in support of the Initial Business Case, which included an alternatives analysis that accounted for community impacts, capital and operating costs, constructability, and operability to identify a preferred concept (Metrolinx 2020a). Alternatives explored in the Initial Business Case included a review of the Relief Line South concept as shown in the 2041 Regional Transportation Plan and the Ontario Line concept which included a western terminus at Exhibition/Ontario Place, northern terminus at Ontario Science Centre, revisions to the alignment across the Lower Don River as compared to the Relief Line South concept, and the inclusion and exclusion of multiple stations along the proposed Ontario Line route (Metrolinx and Infrastructure Ontario 2019). These proposed alignments were evaluated against the strategic objectives and goals of the 2041 Regional Transportation Plan, as they related to the creation of stronger connections, the complete travel experience, supporting sustainable and healthy communities as well as the economic viability of the routing options, the financial costs related to construction and the delivery and operations of the route alternatives (Metrolinx and Infrastructure Ontario 2019). The recommendation of the Initial Business Case was to advance the design of the Ontario Line concept.

Following the completion of the Initial Business Case, an extension of the previous process was undertaken to refine the preferred concept to improve Project benefits while managing costs and delivery risk, as presented in the Preliminary Design Business Case (Metrolinx 2020a). The design criteria were revised based on the results from market sounding and other technical exercises; base assumptions and inputs were also updated. This process included refinement of

the design of the Ontario Line across project elements, resulting in a realignment through the Thorncliffe Park area from the Ontario Line alignment presented in the Initial Business Case. The Preliminary Design Business Case explored two operations concepts to allow for the evaluation of project benefits and costs of varying service patterns and train sizes (Metrolinx 2020a). The main difference between the two operating cases was train size and frequency of service. The business case analysis reviewed the Initial Business Case and the two operating concepts against the following criteria:

1. Improved access to transit
2. Increased access to economic activity
3. Support a synergistic relation between trans and city building
4. Improve travel time and reliability
5. Improved comfort and safety
6. A more resilient and integrated transport network
7. Moving people with less energy and reduced emissions
8. Improve Quality of life and public health
9. Unlocking jobs and economic development

The outcome of the Preliminary Design Business Case showed that both operating concepts, which were evaluated using the same optimized alignment and station designs, were advantageous as compared to the Initial Business Case concept (Metrolinx 2020a). The conceptual design evaluated in the EIAR reflects the refined alignment presented in the Preliminary Design Business Case. The focus of the EIAR is on assessing the impacts this refined design concept, while the operating scenario will be confirmed outside the EIA process as planning and procurement are advanced.

The revised conceptual design presented in **Section 3.2** was developed based on extensive consultation, engineering, planning, and economic modelling and analysis to build upon the design concepts presented in the Initial Business Case and Preliminary Design Business Case processes, to present a realistic and deliverable concept for the Ontario Line. The Project's design will be refined and updated as planning and design progress.

## 2 Study Process

### 2.1 Ontario Regulation 341/20: Ontario Line Project

This Project is assessed in accordance with O. Reg. 341/20: Ontario Line Project (the Ontario Line Regulation), under the *Environmental Assessment Act*. The Ontario Line Regulation provides a defined framework for the proponent to follow to conduct assessment and decision-making surrounding the potential environmental impacts of the Project.

#### 2.1.1 Environmental Assessment Phases

The Ontario Line Regulation divides the environmental assessment process into 3 key phases: Environmental Conditions, Early Works, and Environmental Impact Assessment, each with their own documentation and consultation requirements as described below.

The Environmental Conditions Report describes environmental conditions in a defined study area, presents technical analyses for various environmental disciplines, provides a preliminary description of potential impacts, and describes mitigation, future studies, a record of consultation, and approvals and permits required. Specific requirements for the Environmental Conditions Report are found in Sections 4 to 7 of the Ontario Line Regulation.

Early Works are components of the Project that Metrolinx proposes to proceed with before the completion of the Environmental Impact Assessment Report (EIAR). Early Works Reports include a description of the existing environmental conditions, assessment of early works-specific impacts, and identification of mitigation measures for early works components. Specific requirements for Early Works Reports are found in Sections 8 to 14 of the Ontario Line Regulation.

The EIAR comprises the third key phase of the Ontario Line environmental assessment process and is described further in **Section 2.1.2** below.

The Environmental Conditions Report and Early Works Reports are available under separate cover.

#### 2.1.2 Environmental Impact Assessment Report

##### **Draft Environmental Impact Assessment Report**

This Report was prepared to satisfy the requirements of Section 15 of the Ontario Line Regulation, including those related to existing environmental conditions, impact assessment and consultation.

This Report summarizes the local environmental conditions in the discipline-specific study areas developed for the Project. The local environmental conditions were characterized through a combination of desktop review and field studies by practitioners using industry standard techniques and provincial standards, protocols, and guidelines, where appropriate. A detailed

description of local environmental conditions is documented in the Ontario Line Final Environmental Conditions Report (AECOM 2020a), prepared under a separate cover in accordance with Section 4 of the Ontario Line Regulation.

This Report also provides an assessment and evaluation of the impacts that the Project might have on the environment. The impact assessment in the EIAR focused on confirming the feasibility of the Project through identifying whether appropriate mitigation is available to address potential negative impacts. The EIAR is meant to conceptually confirm these potential impacts and identify whether effective approaches are available through either avoidance or mitigation at an acceptable level. The EIAR is not meant to confirm a final or detailed design approach, as this level of detail will be determined as part of the ongoing design process. Commitments in this EIAR will focus on mitigation strategies to be considered and built upon which may be revised as appropriate through continued consultation with affected stakeholders to support advancement of the design. Based on the potential impacts identified, a description of mitigation measures and monitoring activities is outlined. A list of municipal, provincial, federal, or other permits and approvals that may be required for the Project is also provided.

Discipline-specific assessment and evaluation of impacts were undertaken for the following disciplines:

- Natural Environment
- Soil and Groundwater
- Cultural Heritage
- Archaeological Resources
- Socio-Economic and Land Use
- Air Quality
- Noise and Vibration
- Traffic and Transportation
- Utilities

Lastly, this Report provides a consultation record including a description of the engagement carried out with Indigenous Nations and interested persons.

### **Consultation on the Environmental Impact Assessment Report**

In order to build strong relationships, to develop an understanding of local issues in the surrounding communities, and to ensure communities stay engaged and informed, Metrolinx has engaged the public and a range of interested parties, including Indigenous Nations, Elected Officials, regulatory agencies, community stakeholders and groups and other interested persons. Project consultation activities are outlined below and further detailed in **Section 6** of this Report. Consultation materials are included in **Appendix B**.

The overall approach to consultation for the Project is outlined in Section 7.1.1 of the Ontario Line Final Environmental Conditions Report (AECOM 2020a).

To share information and collect feedback related to the Project, Metrolinx has undertaken the following communication and engagement activities prior to the publication of the Draft EIAR:

- Mailings /notifications;
- Emails via the Project email address ([ontarioline@metrolinx.com](mailto:ontarioline@metrolinx.com));
- E-newsletters to the Project Distribution List;
- Newspaper advertisements;
- Social media posts and advertisements (Facebook, Twitter, Instagram, LinkedIn);
- Postcard mailouts;
- Elected Officials Briefings;
- Outreach to Indigenous Nations, government review agencies and other technical stakeholders;
- Live Virtual Q&A Sessions (see **Section 6.3** for more details);
- Online consultation via the Engage webpage (Project website); and
- Meetings with community stakeholders including community groups, Business Improvement Areas (BIAs) and Elected Officials.

In accordance with Section 15(2)(10) of the Ontario Line Regulation, the consultation record summarized in **Section 6** and provided in **Appendix B** summarizes the EIAR consultation activities carried out with Indigenous Nations, members of the public, government review agencies and other technical stakeholders, community stakeholders and groups, Elected Officials, and other interested parties, including a summary of feedback and comments received.

On February 07, 2022, the Notice of Publication of the Draft EIAR was issued through a variety of media to commence the public review period, effective until March 09, 2022, along with the up to 65-day review and Issues Resolution Process period. EIAR specific updates were also made on the Engage webpage (Project website) – [www.metrolinx.com/ontarioline](http://www.metrolinx.com/ontarioline). The Notice was distributed via:

- Engagement webpage on the Project website
- Newspaper advertisements in thirteen newspapers in multiple languages
- Email to individuals on the Project Distribution List, including community stakeholders and groups, government review agencies and other technical stakeholders, Elected Officials, and Indigenous Nations
- Mailed to 18,000 property owners within 30 metres of the Project Footprint and approximately 106,000 properties (i.e., apartments, houses, businesses) in the 500 m Study Area



## Issues Resolution Process

In accordance with Section 17(6) of the Ontario Line Regulation, Metrolinx will establish an issues resolution process. Any concerns raised by Indigenous Nations and interested persons during the 30-day public review period of the Draft EIAR will be documented in **Section 6.7** of this Report, as required by Section 18(1)(b) of the Ontario Line Regulation. Concerns received after the 30-day public review period will be addressed outside of the issues resolution process.

## Final Environmental Impact Assessment Report

Following the consultation program described above and in **Section 6**, a Notice of Publication of the Final EIAR will be issued to the public through a variety of media (Project website, mail, social media, and newspapers). All parties notified of the Draft EIAR will be notified of the publication of the Final EIAR and provided with access to a copy of the report. Input/feedback received during the 30-day public review period will be incorporated into the Final EIAR.

Within 35 days of receipt of the Notice of Publication of the Final EIAR, the Minister of Environment, Conservation and Parks may issue a notice to Metrolinx imposing conditions related to the Project, in accordance with Section 19 of the Ontario Line Regulation.

After the 35-day Minister review period, Metrolinx will submit a Statement of Completion of the environmental impact assessment process to the Directors of the Ministry's Environmental Assessment Branch and Central Region Office and post the Statement of Completion on the Project website. Metrolinx shall proceed in accordance with the Final EIAR, subject to any conditions imposed by the Minister.

## Contents of the Environmental Impact Assessment Report

This Report has been prepared in accordance with Section 15 of the Ontario Line Regulation and contains the information outlined in **Table 2-1**.

**Table 2-1. EIAR Documentation Requirements**

O. Reg. 341/20 Section	Requirement	Report Section
Section 15(2)1	A statement of the purpose of the Ontario Line Project and a summary of background information relating to the Ontario Line Project.	Sections 1 and 2
Section 15(2)2	The final description of the Ontario Line Project, including a description of the preferred method of carrying it out, and a description of the other methods that were considered.	Sections 1.4 and 3
Section 15(2)3	A map showing the site of the Ontario Line Project.	Section 1
Section 15(2)4	A description of the local environmental conditions at the site of the Ontario Line Project.	Section 4

O. Reg. 341/20 Section	Requirement	Report Section
Section 15(2)5	A description of all studies undertaken in relation to the Ontario Line Project, including a summary of all data collected or reviewed and a summary of all results and conclusions.	Section 4
Section 15(2)6	An assessment and evaluation of the impacts that the preferred method of carrying out the Ontario Line Project and other methods might have on the environment, and Metrolinx's criteria for assessment and evaluation of those impacts.	Section 5
Section 15(2)7	A description of any measures proposed by Metrolinx for mitigating any negative impacts that the preferred method of carrying out the Ontario Line Project might have on the environment.	Section 5
Section 15(2)8	A description of the proposal for monitoring or verifying the effectiveness of mitigation measures.	Section 5
Section 15(2)9	A description of any municipal, provincial, federal, or other approvals or permits that may be required for the Ontario Line Project.	Section 7
Section 15(2)10	A consultation record including: <ul style="list-style-type: none"> <li>• A description of the consultations carried out with Indigenous communities and interested persons</li> <li>• A list of the Indigenous communities and interested persons who participated in the consultations</li> <li>• Summaries of the comments submitted by Indigenous communities and interested persons</li> <li>• A summary of discussions that Metrolinx had with Indigenous communities</li> <li>• Copies of all written comments submitted by Indigenous communities</li> </ul>	Section 6

## 2.2 Planning Context

The Province of Ontario and City of Toronto have plans and policies which are relevant to the development of the Project. The following subsections provide an overview of these plans and policies:

- Provincial and Regional Plans and Initiatives:
  - Provincial Policy Statement (PPS) (Ministry of Municipal Affairs and Housing (MMAH) 2020a)
  - A Place to Grow: Growth Plan for the Greater Golden Horseshoe (GGH), 2019 (MMAH 2020b)
  - Greenbelt Plan (MMAH 2017)
  - 2041 Regional Transportation Plan (Metrolinx 2018)

- Municipal Plans and Policies:
  - City of Toronto Official Plan (2015)

## 2.2.1 Provincial and Regional Plans and Initiatives

### Provincial Policy Statement

The PPS, 2020 is issued under Section 3 of the *Planning Act* and provides policy direction on matters of provincial interest related to land use planning and development, with the aim of securing the long-term prosperity, environmental health, and social wellbeing of the province (MMAH 2020a). The PPS is premised upon the efficient use of land and infrastructure, the protection of environmental resources, and ensuring sufficient land is available for the development of future employment and residential uses.

Of relevance to the Project are policies that relate to transportation systems and infrastructure, long-term economic prosperity, and the protection of natural, cultural, and built heritage. In particular, the PPS promotes:

- Healthy and active communities by facilitating active transportation and community connectivity (MMAH 2020a, Section 1.5.1);
- The planning for and protection of transportation infrastructure and transit to meet current and projected needs (MMAH 2020a, Section 1.6.8.1);
- Providing safe, energy efficient, integrated, and reliable multimodal transportation systems which facilitate the movement of people and appropriately address projected needs (MMAH 2020a Section 1.6.7);
- Maintaining or restoring the diversity and connectivity of natural features in an area, and the long-term ecological function and biodiversity of natural heritage systems (MMAH 2020a Section 2.1.2);
- Restricting development and site alteration in, or adjacent to, significant wetlands, woodlands, valley lands, wildlife habitat, and Areas of Natural and Scientific Interest, unless it has been demonstrated that there will be no negative effects on the natural features or their ecological functions (MMAH 2020a, Sections 2.1.4 and 2.1.5);
- Restricting development and site alteration in habitat of endangered or threatened species except in accordance with provincial and federal requirements (MMAH 2020a, Section 2.1.7);
- Restricting development and site alteration in or near sensitive surface or groundwater features such that their features and related hydrological functions will be protected, improved, or restored (MMAH 2020a, Section 2.2.2); and
- Conserving significant built heritage resources and significant cultural heritage landscapes; and restricting development and site alternation on lands containing archaeological resources or areas of archaeological potential unless significant archaeological resources have been conserved (MMAH 2020a, Sections 2.6.1 and 2.6.2).

The PPS was recently updated and came into effect on May 1, 2020, to replace the previous PPS issued in 2014. The updated PPS reflects new land use planning systems, such as Ontario's Housing Supply Action Plan issued under the *More Homes, More Choice Act*, 2019. The changes address matters such as enhanced municipal flexibility in securing a greater range and mix of housing, integration of land use planning and transit-supportive development, and consultation with Indigenous Nations.

## **A Place to Grow: Growth Plan for the Greater Golden Horseshoe**

A Place to Grow: Growth Plan for the Greater Golden Horseshoe, 2020 (Growth Plan) is a long-term plan for the Greater Golden Horseshoe (GGH) designed to promote economic growth, increase housing supply, create jobs, and build communities that make life easier, healthier, and more affordable for people of all ages (MMAH 2020b). As one of the fastest-growing regions in North America, the GGH is a destination for many people and businesses from other parts of Canada and around the world. To accommodate such growth, an integral part of the Plan's vision is focused on investing in transit infrastructure to support the regional transit network.

The Growth Plan identifies Downtown Toronto as an "urban growth centre" and several "priority transit corridors" have been identified in the vicinity of Downtown Toronto (MMAH 2020b). The Growth Plan notes that "urban growth centres" will be planned:

- As focal areas for investment in regional public service facilities, as well as commercial, recreational, cultural, and entertainment uses;
- To accommodate and support the transit network at the regional scale and provide connection points for inter- and intra-regional transit;
- To serve as high-density major employment centres that will attract provincially, nationally, or internationally significant employment uses; and
- To accommodate significant population and employment growth (MMAH 2020b, 16).

Each "urban growth centre" is given a minimum density target to achieve by 2031. The minimum density target for urban growth centres in Downtown Toronto is 400 residents and jobs combined per hectare. To support these growth and density targets, priority transit corridors are identified with policies for infrastructure development, such as requiring municipalities to recognize these areas in their official plans to implement the policies of the Growth Plan.

The current Growth Plan came into effect on August 28, 2020. It contains changes to the Growth Plan since its original 2006 release, and builds on updates in 2012, 2017, and 2019 to provide greater detail on policies for achieving vibrant and complete communities. A primary objective of the Growth Plan is the achievement of complete communities that have access to transit networks and an increased amount and variety of housing options.

Of relevance to the Project are policies that relate to the creation of complete communities and enhanced transit planning in "strategic growth areas". In particular, the Growth Plan:

- Directs growth to "strategic growth areas" in settlement areas, including "urban growth centres" and "major transit station areas" (Policy 2.2.1.2);

- Supports the achievement of complete communities that expand convenient access to a range of transportation options (Policy 2.2.1.4(d));
- Guides growth and change along priority transit corridors (as identified on Schedule 5 of the Growth Plan) and within major transit station areas, being areas within 500 to 800 metres or within approximately a ten-minute walk from higher-order transit stations (Policy 2.2.4);
- Establishes specific density targets for major transit station areas along priority transit corridors or subway lines, requiring 200 residents and jobs per hectare for areas served by subways (Policy 2.2.4.3);
- Requires planning for lands adjacent to or near frequent transit to be transit-supportive, which relates to development that makes transit viable and improves the quality of the experience of using transit, often referring to compact, mixed-use development that has a high level of employment and residential densities (Policy 2.2.4.10);
- Requires municipalities to identify and protect lands that may be needed for future enhancement or expansion of transit infrastructure for lands adjacent or near higher order transit corridors, as determined through consultation with Metrolinx (Policy 2.2.4.11);
- Promotes economic development and competitiveness by planning to better connect areas with high employment densities to transit (Policy 2.2.5.1(c));
- Requires the transportation system to be planned and managed to provide connectivity among transportation modes for moving people and goods, offering multimodal access to jobs, housing, schools, cultural, and recreational opportunities, and goods and services (Policies 3.2.2(a) and (d));
- Supports public transit as the first priority for transportation infrastructure planning and major transportation investments (Policy 3.2.3.1);
- Provides criteria for transit planning and investment decisions, including prioritizing areas with existing or planned higher residential or employment densities, increasing the capacity of the existing transit system to support strategic growth areas; and expanding transit services to areas that have or will be planned to achieve transit-supportive densities and provide a mix of uses (Policy 3.2.3.2); and
- Supporting existing and planned transit to reduce dependence on the automobile in an effort to address climate change adaptation and reduce greenhouse gas emissions (Policy 4.2.10.1(b)) (MMAH 2020b).

## Greenbelt Plan

The Greenbelt Plan, 2017 identifies where urbanization should not occur in order to provide permanent protection to the agricultural land base and the ecological and hydrological features, areas, and functions in the GGH landscape (MMAH 2017). The Greenbelt Plan was introduced under the *Greenbelt Act, 2005* and includes lands within, and builds upon the ecological protections provided by, the Niagara Escarpment Plan and the Oak Ridges Moraine

Conservation Plan<sup>1</sup>. The Greenbelt Plan, together with the Growth Plan, builds on the PPS to establish a land use planning framework for the GGH that supports a thriving economy, a clean healthy environment, and social equity.

The Greenbelt Plan, 2017 describes the Greenbelt as a broad band of permanently protected land that:

- Protects against the loss and fragmentation of the agricultural land base and supports agriculture as the predominant land use;
- Gives permanent protection to the natural heritage and water resource systems that sustain ecological and human health and that form the framework around which major urbanization in southcentral Ontario will be organized;
- Provides for a diverse range of economic and social activities associated with rural communities, agriculture, tourism, recreation and resource uses; and
- Builds resilience to and mitigates climate change (MMAH 2017).

## 2041 Regional Transportation Plan

Metrolinx was established under the *Metrolinx Act*, 2006 by the Government of Ontario to support transit connectivity throughout the Greater Toronto and Hamilton Area (GTHA). Part of Metrolinx's mandate is to create a long-term strategic plan for an effective multi-modal regional transportation system, promoting the integration of all modes of transportation in the GTHA. To do so, Metrolinx developed The Big Move in 2008, which was the first regional transportation plan for the GTHA (Metrolinx 2008a). The plan provided a strategic, long-term vision for a co-ordinated transportation network across the region. It proposed over 1,200 kilometres of rapid transit over 25 years so that over 80% of residents in the region will live within two kilometres of a rapid transit line.

The 2041 Regional Transportation Plan builds on The Big Move to guide the continuing transformation of the GTHA transportation system through the goals of creating strong connections, complete travel experiences, and sustainable and healthy communities (Metrolinx 2018). The Relief Line Subway from Osgoode Station to Sheppard Avenue was included in Map 4 and Figure 15 of the 2041 Regional Transportation Plan as an in-development rapid transit project. Significant components of this project are now being delivered in a modified form through the Ontario Line.

The 2041 Regional Transportation Plan identifies five strategies to achieve transformation of the GTHA transportation system:

- a. Complete the delivery of current regional transit projects;
- b. Connect more of the region with frequent rapid transit;
- c. Optimize the transportation system;

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1. The Ontario Line Study Area is not located in areas protected by the Niagara Escarpment Plan or Oak Ridges Moraine Conservation Plan.

- d. Integrate transportation and land use; and
- e. Prepare for an uncertain future (Metrolinx 2018).

## 2.2.2 Municipal Plans and Policies

### City of Toronto Official Plan

The City of Toronto Official Plan sets out a vision and direction for future growth and development to create a livable, healthy, prosperous, and sustainable city (City of Toronto 2015). Chapters 1 to 5 of the Official Plan contain city-wide policies that guide new development and related decision-making. As a municipal document, the Official Plan reflects provincial policies, plans, and initiatives for effective implementation at the city level. The City of Toronto is currently undertaking a review to update the City's Official Plan to conform to the A Place to Grow: Growth Plan for the Greater Golden Horseshoe (MMAH 2020b).

Further to the Official Plan's city-wide policies, Chapter 6 of the Official Plan is dedicated to Secondary Plans, which are more detailed local development policies to guide growth and change in a defined area of the City of Toronto. Each Secondary Plan focuses on a key area, community, or neighbourhood to implement visions and objectives specific to these areas. The Secondary Plans in **Table 2-2** are applicable to the Project within the Ontario Line Study Areas.

**Table 2-2. Secondary Plans applicable to the Ontario Line Study Areas**

City of Toronto Secondary Plan	Study Area Section
Fort York Neighbourhood Secondary Plan	• OLW
Garrison Common North Secondary Plan	• OLW
King-Spadina Secondary Plan	• OLW
Railway Lands Central Secondary Plan	• OLW
Railways Lands West Secondary Plan	• OLW
Downtown Plan	• OLW and OLS
Central Waterfront Secondary Plan	• OLW and OLS
King-Parliament Secondary Plan	• OLS
Regent Park Secondary Plan	• OLS
Queen-River Secondary Plan	• OLS
Unilever Precinct Secondary Plan	• OLS
Don Mills Crossing Secondary Plan	• OLN

These 12 Secondary Plans and their applicability to the Project are described further in **Section 4.7**.



## 3 Project Description

### 3.1 Key Project Components

The Ontario Line will be composed of a variety of physical structures, such as bridges, stations, tracks, and tunnels. Key Project components are described below and include:

**Bridges** – Bridges will be built to reduce impacts on sensitive environmental areas below. Bridges will balance forces of tension and compression, while carrying the load of the subway and resisting environmental forces.

**Emergency Egress Buildings (EEBs)** – Emergency egress buildings (EEBs) are the surface element of stairways that extend from the underground tunnel to provide an emergency exit for passengers and an access point maintenance or emergency crews. EEBs are equipped with emergency backup power and ventilation. These small, one-room buildings are approximately 40 m<sup>2</sup> in size. The locations of EEBs are based on safety guidelines.

**Noise Barriers** – Noise barriers will be built in locations along the at-grade tracks and on the elevated guideways to reduce noise levels.

#### Operations and Maintenance

- **Train Storage Yard** – the storage yard will be a component of the operations and maintenance facility where trains are parked on storage rails for inspection, cleaning, and maintenance.
- **Maintenance Facility and Operations Centre** – will service as the physical building housing maintenance bays, and the operations centre which will oversee daily operations of the Ontario Line.
- **Layover facilities** – will be located in the larger operations and maintenance facility and will provide for overnight storage of trains as well as storage during off-peak times when less passenger capacity is required.

**Portals** – Portals allow the alignment to transition between at-grade or elevated and underground tracks.

**Retaining Walls** – Retaining walls will be built in locations along the alignment, including adjacent to portals where the alignment transitions from at-grade to below grade or vice versa as well as in the existing GO Transit Lakeshore East/Stouffville elevated Rail Corridor (the Joint Corridor). These walls are designed to hold up soil and earth and to stabilize uneven ground. These walls are generally constructed of precast concrete, and where warranted, noise barriers will be installed on the top of the retaining wall. Retaining walls will be installed where needed to reduce the footprint of a slope.

**Stations** – Stations are designed considering the future customer needs and local neighbourhood environment. Stations will be accessible, integrated, and convenient for use by all passengers. Stations will also aim to provide a safe connection for passengers transferring from adjacent bus routes, streetcars, subway lines and GO Transit and associated stops.

- **Below grade** – Below grade stations will be accessed from above via the station entrance at street level. Passengers will travel down to the platform level by a combination of stairs, escalators, elevators, and corridors. Some below grade stations will interface with the TTC subway providing seamless connections between the two systems.
- **At grade** – At grade stations will be accessed through street-level station entrances and will provide for easy connection with adjacent transit lines.
- **Above grade** – Above grade or elevated stations will be accessed from below via the station entrance at street level. Passengers will travel up to the platform level by a combination of stairs, escalators, elevators, and corridors.

## Tracks and Tunnels

The Project will use a mix of below-grade (tunneled), at-grade (ground level) and above-grade (elevated) structures. Twin tracks will run parallel to each other along the entire length of the alignment.

- **Tunnels** – Two parallel tunnels will be constructed in specific locations throughout the alignment. Subway tunnels will be constructed using tunnel boring, cut-and-cover and mining construction techniques.
- **At Grade** – Along specific sections of the alignment, parallel twin tracks will be constructed at-grade within portions of existing rail corridors.
- **Elevated Guideways** – Elevated guideways are stand-alone structures that act as platforms for the twin tracks, allowing for continuous operations without direct interactions with existing roadways. The elevated guideway will preserve opportunities for public realm improvements under and near the guideway. The guideways will be designed to reduce overshadowing, noise, and vibration.
- **Crossovers** – Crossovers are specific locations within the tunnel where the two parallel twin tracks crossover, allowing for the trains to utilize the other track as required for emergency and maintenance purposes.
- **Traction Power Substation** – These substations will be installed to provide power for operation of the trains (referred to as traction power), and may provide power for operating lights, equipment, and safety systems associated with the stations. The substations are the connection between the Project and the power distribution grid, and contain transformers, switches, and circuit panels.

## 3.2 Construction Activities

**Table 3-1** summarizes the anticipated construction activities that will be associated with the Project. These activities are based on typical construction practices and are meant to generally illustrate the methods that will be used to construct the Project. Construction details, such as specific construction equipment, location of use and duration will be confirmed as design advances.

Construction activities have the potential to interact with the existing environment and are used to determine the potential environmental impacts of the Project during construction.

**Table 3-1. Construction Activities**

Activity	Description	Associated Equipment
<b>Site Preparation</b>	<ul style="list-style-type: none"> <li>• Delivery of equipment and materials to the laydown area</li> <li>• Removal of vegetation, clearing and grubbing</li> <li>• Removal of infrastructure</li> <li>• Installation of erosion and sediment control measures</li> <li>• Installation of temporary fencing, hoarding</li> </ul>	<ul style="list-style-type: none"> <li>• Grading and grubbing equipment (if required)</li> <li>• Excavation equipment including backhoe, dump trucks, and soil removal equipment.</li> <li>• Delivery trucks, flatbeds</li> </ul>
<b>Temporary Access Roads</b>	<ul style="list-style-type: none"> <li>• Access to construction areas</li> <li>• Installation of temporary shoring, roadbeds, fencing, signage, gates, and lighting</li> </ul>	<ul style="list-style-type: none"> <li>• Grading and grubbing equipment (if required)</li> <li>• Excavators, backhoes, loaders, dump trucks, as required</li> <li>• Delivery trucks, flatbeds</li> </ul>
<b>Building Demolition</b>	<ul style="list-style-type: none"> <li>• Pre demolition surveying</li> <li>• Removal of Hazardous Materials</li> <li>• Identifying and removing utility connections</li> <li>• Removal of demolition debris and material to appropriate offsite disposal/recycling facilities</li> </ul>	<ul style="list-style-type: none"> <li>• Demolition equipment: sledgehammer, excavators and bulldozers, high reach excavators, cranes, loaders</li> </ul>
<b>Modifications or Relocations of Utilities</b>	<ul style="list-style-type: none"> <li>• Removal and realignment of the utilities as required</li> <li>• Encasement where needed for protection</li> </ul>	<ul style="list-style-type: none"> <li>• Concrete pouring equipment</li> <li>• Excavation equipment including backhoe, dump trucks, soil removal equipment, jack hammers</li> </ul>
<b>Temporary Lane Closures/Detours</b>	<ul style="list-style-type: none"> <li>• Temporary lane closures, realignments, and detours</li> <li>• Lane closures will follow standard traffic control management guidelines</li> </ul>	<ul style="list-style-type: none"> <li>• Temporary traffic control devices such as signs, signals, barriers, traffic barrels</li> </ul>

Activity	Description	Associated Equipment
<b>Excavation and Grading</b>	<ul style="list-style-type: none"> <li>• Construction of Support of Excavation (SOE) at excavation sites</li> <li>• Excavation of soils</li> <li>• Grading, sloping and contouring</li> <li>• Grading of areas associated with track detours</li> </ul>	<ul style="list-style-type: none"> <li>• Grading equipment</li> <li>• Excavation equipment including backhoe, dump trucks, and soil removal equipment</li> </ul>
<b>Staging and Laydown</b>	<ul style="list-style-type: none"> <li>• Designation of areas to be used for laydown of materials and construction staging</li> <li>• As appropriate, use of gravel or other materials for the areas</li> <li>• Security fencing and hoarding, as applicable</li> </ul>	<ul style="list-style-type: none"> <li>• Grading and grubbing equipment (if required)</li> <li>• Excavation equipment including backhoe, dump trucks, and soil removal equipment</li> <li>• Generator for site trailers</li> </ul>
<b>Groundwater Dewatering</b>	<ul style="list-style-type: none"> <li>• The need for dewatering during construction activities will be confirmed during detailed design</li> </ul>	<ul style="list-style-type: none"> <li>• Groundwater pumping, collection and treatment equipment as required</li> </ul>
<b>Management of Stormwater</b>	<ul style="list-style-type: none"> <li>• During construction, stormwater management will follow best management practices and align with applicable standards, municipal standards and requirements, and regulatory requirements</li> <li>• Installation of erosion and sediment control measures</li> </ul>	<ul style="list-style-type: none"> <li>• Grading equipment</li> <li>• Pumping, collection and treatment equipment as required</li> </ul>
<b>Construction of Bridges</b>	<ul style="list-style-type: none"> <li>• Installation of temporary and permanent barriers for track and road safety</li> <li>• Excavation, pier and foundation construction</li> <li>• Construction of new bridge and trackwork</li> <li>• Construction of sidewalks</li> <li>• Reconstruction of roads</li> <li>• Removal of temporary shoring and barriers</li> </ul>	<ul style="list-style-type: none"> <li>• Small cranes</li> <li>• Excavators, Backhoes, Loaders, Dump trucks</li> <li>• Concrete mixer trucks</li> <li>• Truck cranes</li> <li>• Bulldozers, Compaction rollers, Road rollers</li> <li>• Road paving machines</li> </ul>

Activity	Description	Associated Equipment
<b>Construction of elevated guideway</b>	<ul style="list-style-type: none"> <li>• Installation of temporary and permanent barriers for track and road safety</li> <li>• Excavation</li> <li>• Installation of appropriate foundations and piers</li> <li>• Construction of guideway and trackwork</li> <li>• Reconstruction of sidewalks, if disturbed</li> <li>• Removal of temporary shoring and barriers</li> </ul>	<ul style="list-style-type: none"> <li>• Cranes, concrete trucks</li> <li>• Excavator</li> <li>• Bulldozer</li> </ul>
<b>Construction of Tunnels</b>	<ul style="list-style-type: none"> <li>• Relocation of utilities</li> <li>• Excavation</li> <li>• Boring</li> <li>• Storage and removal of spoils</li> <li>• Removal of TBM</li> </ul>	<ul style="list-style-type: none"> <li>• TBM</li> <li>• Backhoes, loaders, dump trucks, conveyors</li> <li>• Concrete batch plant</li> </ul>
<b>Track Installation</b>	<ul style="list-style-type: none"> <li>• Assembly of track, ties and fastenings</li> <li>• Installation of the various railroad systems, including tracks, signals and communication systems, and overhead contact system structures and wires.</li> </ul>	<ul style="list-style-type: none"> <li>• Thermal welding</li> <li>• Tie placement (cranes, lifting equipment)</li> <li>• Ballast placement equipment</li> <li>• Concrete pouring equipment</li> </ul>
<b>Station Construction</b>	<ul style="list-style-type: none"> <li>• Identification and relocation of utilities.</li> <li>• Construction of stations and entrances, corridors, and associated structures.</li> <li>• Disposal of excess material; backfilling of stations and refinish roadways and sidewalks.</li> <li>• Construct surface facilities (including above-ground structures), drainage, and backfill; and pave streets.</li> </ul>	<ul style="list-style-type: none"> <li>• Small cranes</li> <li>• Excavators, Backhoes, Loaders, Dump trucks.</li> <li>• Concrete mixer trucks</li> <li>• Truck cranes.</li> <li>• Bulldozers, Compaction rollers, Road rollers</li> <li>• Road paving machines</li> <li>• Concrete pouring equipment</li> <li>• TBM</li> <li>• Cut and cover equipment</li> </ul>
<b>OMSF Construction</b>	<ul style="list-style-type: none"> <li>• Relocation of utilities</li> <li>• Trackwork</li> <li>• Fill and grading to create a level surface for the OMSF Building Construction</li> <li>• Construction of access haul road</li> <li>• OMSF building construction</li> <li>• Fencing the OMSF property</li> </ul>	<ul style="list-style-type: none"> <li>• Grading and grubbing equipment (if required)</li> <li>• Excavation equipment including backhoe, dump trucks, and soil removal equipment</li> </ul>

Activity	Description	Associated Equipment
<b>Updates to signals and switches</b>	<ul style="list-style-type: none"> <li>• Install all system elements (electrical, mechanical, signals, and communication),</li> </ul>	<ul style="list-style-type: none"> <li>• Power equipment, power supply systems, and railroad signaling and communication system</li> </ul>
<b>Restoration of lands</b>	<ul style="list-style-type: none"> <li>• Site Restoration works, including new entrance asphalt, curbs and concrete sidewalk</li> <li>• Removal of equipment, structures and debris</li> <li>• Establishment of proper drainage,</li> <li>• Replacement of topsoil,</li> <li>• Re- vegetation,</li> <li>• Slope stabilization,</li> <li>• In- filling of excavations or any other appropriate actions in the circumstances</li> <li>• traffic signals, street lighting where applicable, landscaping, signing and striping; close detours; clean-up and test system</li> </ul>	<ul style="list-style-type: none"> <li>• Trucks to remove debris, construction equipment</li> <li>• Hydroseeding, tree planting equipment</li> <li>• Asphalt and concrete pouring equipment</li> </ul>

### 3.3 Operation Activities

**Table 3-2** summarizes the anticipated operation activities that will be associated with the Project. Final operation activities will be confirmed as design advances. These activities have the potential to interact with the existing environment and are used to determine the potential environmental impacts of the Project during operation.

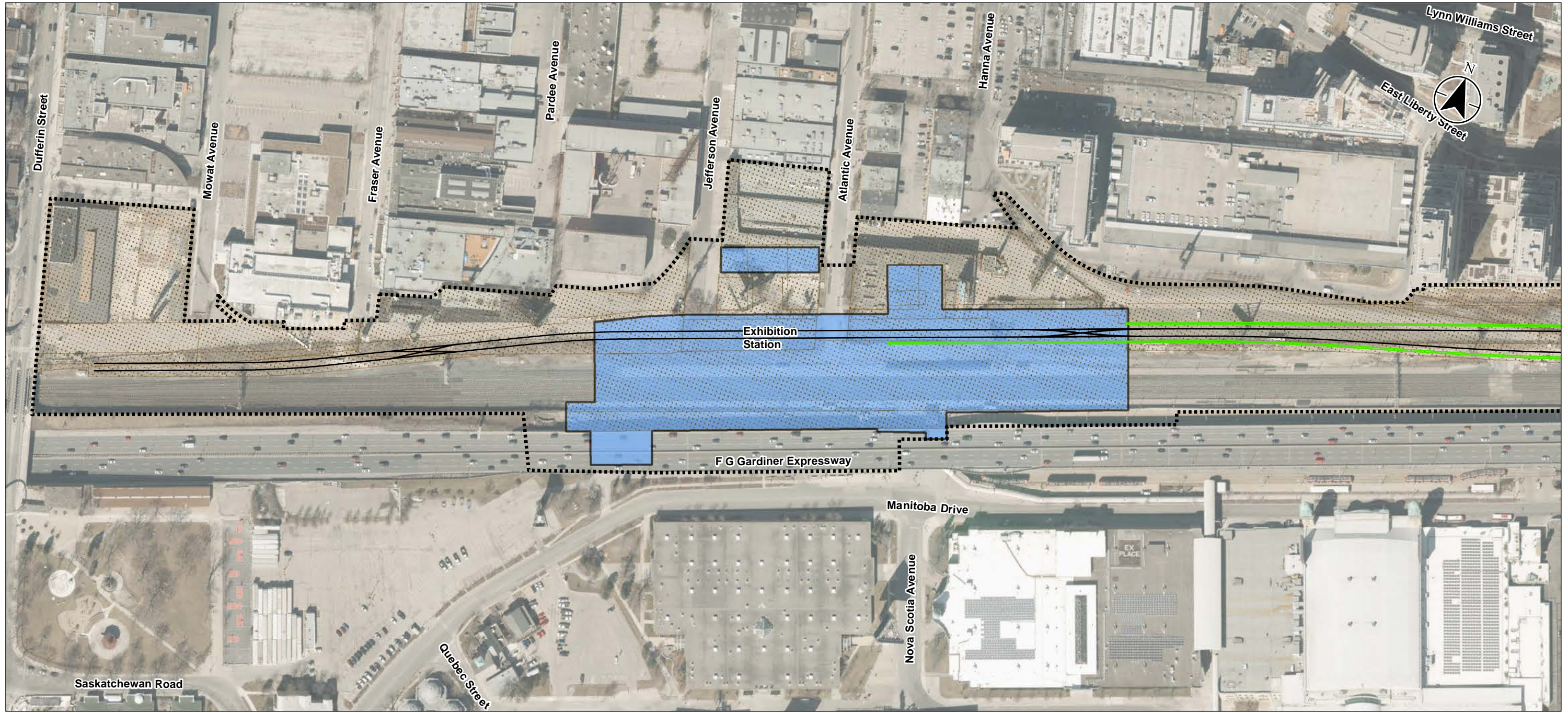
Trains are proposed to operate from 6am to 1:30am daily including weekends and holidays. Stations are assumed to operate during the same hours daily. The OMSF is assumed to operate 24 hours a day, seven (7) days a week using rotating shifts. Shifts are assumed to be three (3) shifts per day, five (5) days per week, with reduced operations on weekends and holidays.

Table 3-2. Anticipated Operation Activities

Activity	Description	Associated Equipment
General Operations	<ul style="list-style-type: none"> <li>• Trains, signals, and switches</li> <li>• Rail safety</li> <li>• Stations, fair collection, wayfinding, security</li> <li>• OMSF</li> </ul>	<ul style="list-style-type: none"> <li>• Fleet trucks</li> <li>• Rail trucks</li> <li>• Snow plough</li> <li>• Garbage collection vehicles</li> <li>• Portable wash trucks</li> <li>• Boom trucks</li> <li>• Signs, signage, and barriers</li> <li>• Pumping, collection, and treatment equipment as required</li> <li>• Power equipment, power supply systems, and railroad signaling communication system</li> <li>• General construction equipment</li> </ul>
Maintenance Activities	<ul style="list-style-type: none"> <li>• Tracks (below grade, at-grade and above grade)</li> <li>• Signals and switches</li> <li>• Stations</li> <li>• Wayfinding signage</li> <li>• EEBs</li> <li>• Rail bridges</li> <li>• Elevated guideway</li> <li>• Noise walls</li> <li>• Retaining walls</li> <li>• Electrification barriers</li> <li>• Stormwater and sanitary infrastructure</li> <li>• Flood control measures</li> <li>• Vegetation management</li> <li>• Snow clearing</li> <li>• Debris/garbage clean-up</li> <li>• Graffiti management</li> <li>• Lighting replacement</li> </ul>	

### 3.4 Conceptual Design

The Project Footprint and components are shown on **Figure 3-1** to **Figure 3-19**, with descriptions to follow. The Project profile drawings are provided in **Appendix C**.



- Legend**
- Project Footprint
  - Alignment - Current**
  - Ontario Line Tracks
  - Portal
  - Construction Staging and Laydown Area
  - Station

0 40 80 metres  
1:2,500 (At original document size of 11x17)

**General Note:**  
The construction impacts within the EIA/R project footprint will be refined as detailed design progresses.



Project Location: Toronto, ON  
Prepared by BCC on 2022-03-31

Client/Project: HDR CORPORATION  
ONTARIO LINE TA  
160560009 REVA

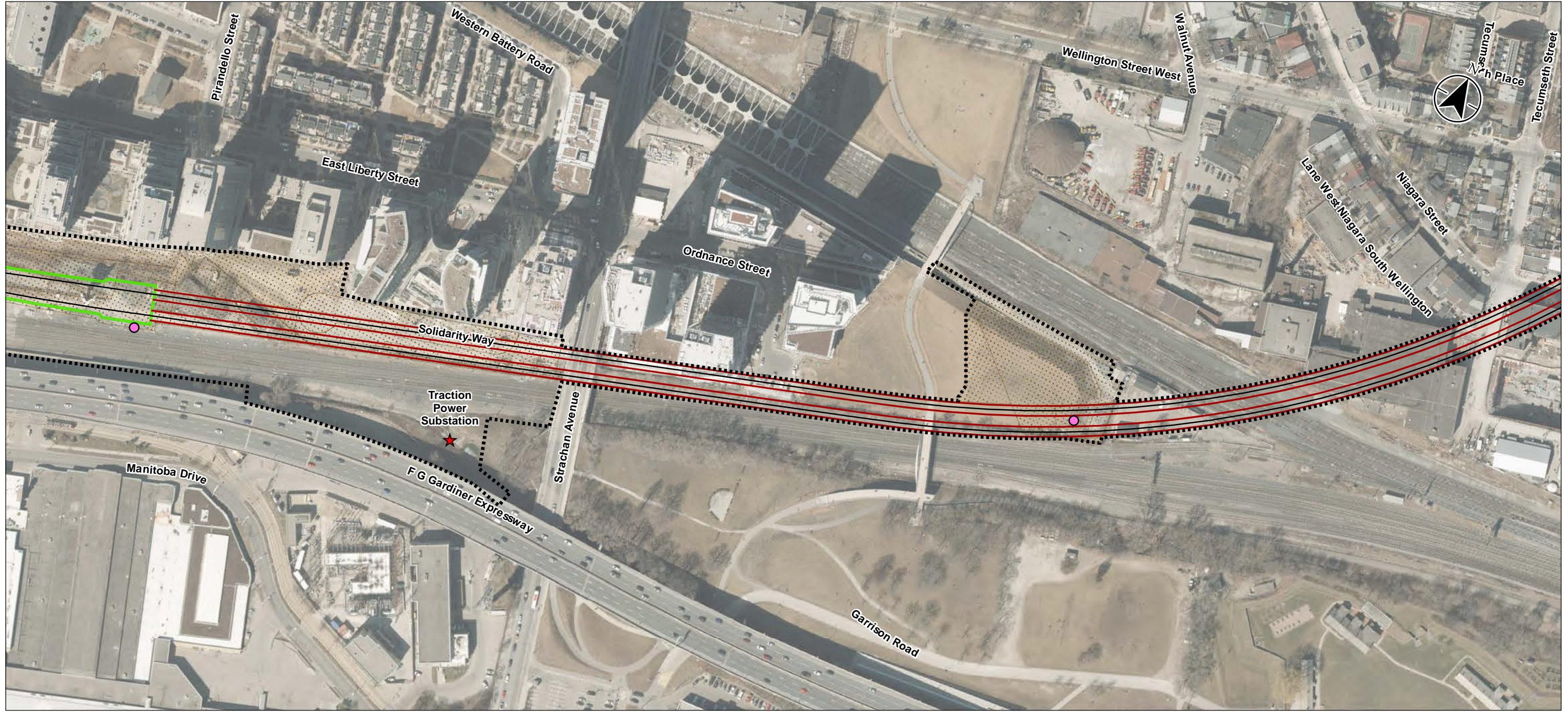
Figure No.: **3-1**

Title: **Project Footprint and Project Components**

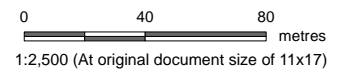
**Notes**  
1. Coordinate System: NAD27 MTM zone 10  
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- Legend**
- Project Footprint
  - Alignment - Current**
  - Ontario Line Tracks
  - Tunnels
  - Portal
  - Emergency Egress Building (EEB)
  - Construction Staging and Laydown Area
  - Traction Power Substation



**General Note:**  
The construction impacts within the EIA/R project footprint will be refined as detailed design progresses.



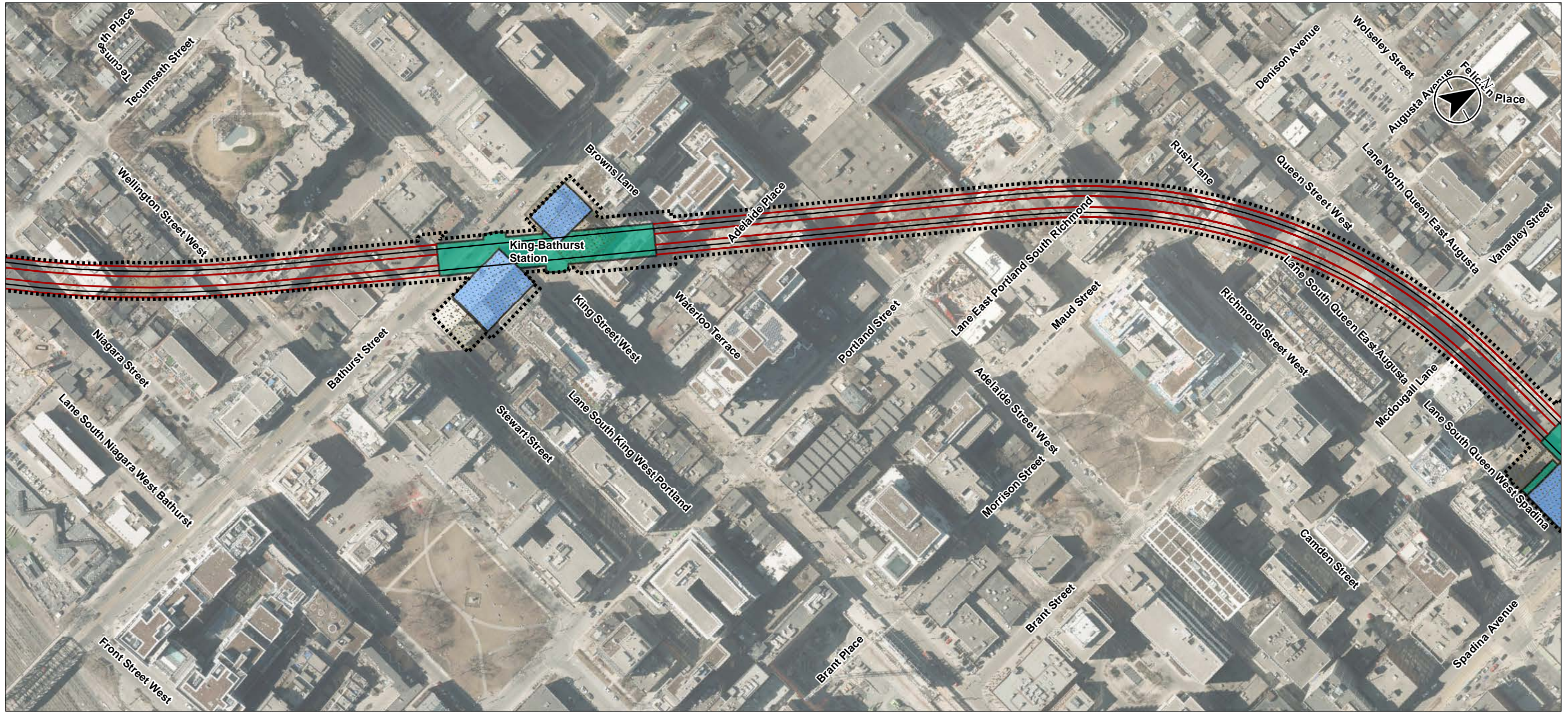
Project Location: Toronto, ON  
Prepared by BCC on 2022-03-31

Client/Project: HDR CORPORATION, ONTARIO LINE TA  
160560009 REVA

Figure No.: **3-2**  
Title: **Project Footprint and Project Components**

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- Legend**
- Project Footprint
  - Alignment - Current**
  - Ontario Line Tracks
  - Tunnels
  - Construction Staging and Laydown Area
  - Station
  - Station Platform - Subsurface Level

0 40 80 metres  
1:2,500 (At original document size of 11x17)

**General Note:**  
The construction impacts within the EIA/R project footprint will be refined as detailed design progresses.



Project Location: Toronto, ON Prepared by BCC on 2022-03-31

Client/Project: HDR CORPORATION ONTARIO LINE TA 160560009 REVA

Figure No.

**3-3**









Title

**Project Footprint and Project Components**

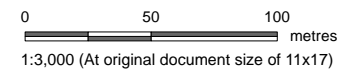
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**Legend**

-  Project Footprint
- Alignment - Current**
-  Ontario Line Tracks
-  Tunnels
-  Construction Staging and Laydown Area
-  Station
-  Station Platform - Subsurface Level
-  Temporary Streetcar Diversion and Permanent Enhancements to Streetcar Network
-  Details on traffic staging can be found in the Transportation and Traffic Analysis Report. Northbound access will be maintained throughout construction

**Notes**  
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**General Note:**  
 The construction impacts within the EIA project footprint will be refined as detailed design progresses.



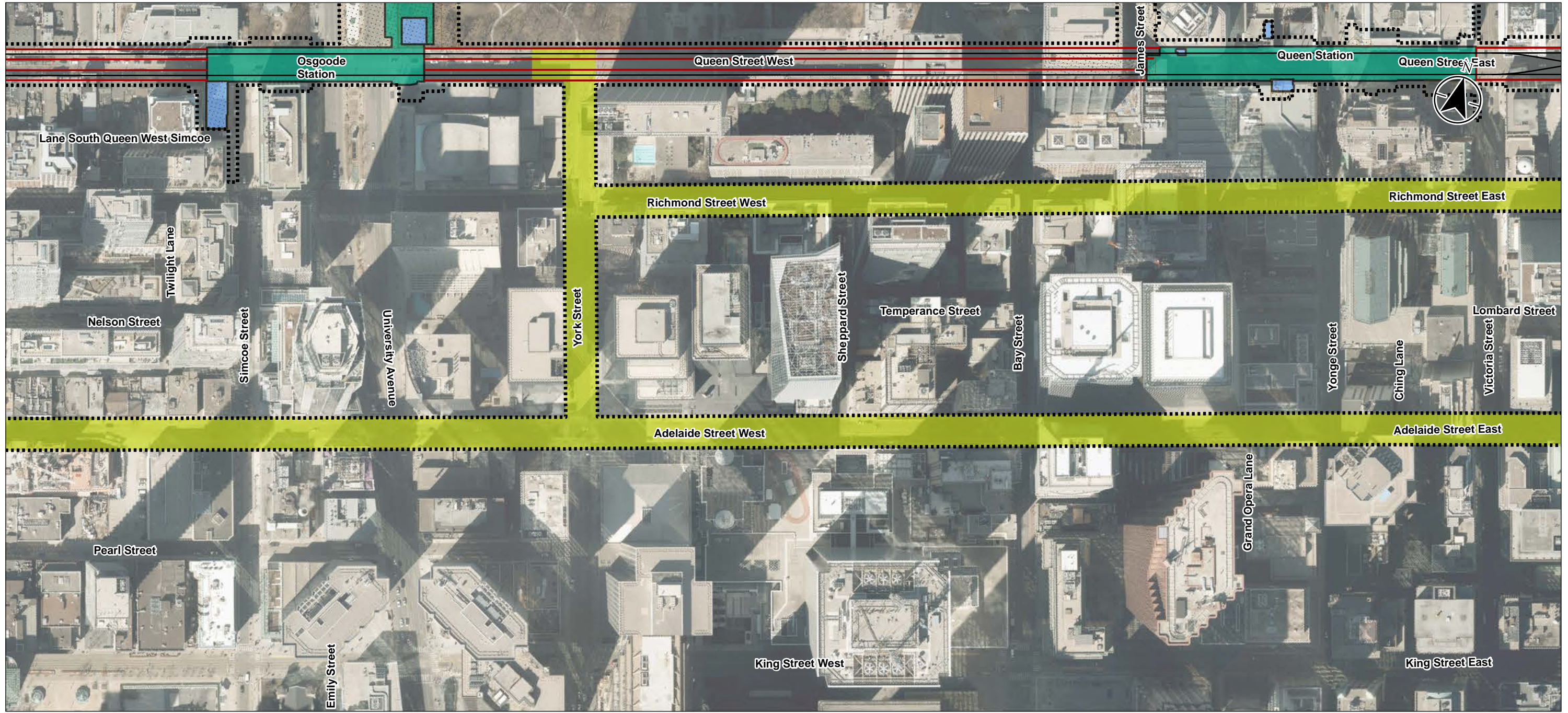
Project Location: Toronto, ON Prepared by BCC on 2022-03-31

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Figure No. **3-4**

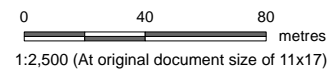
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- Legend**
- Project Footprint
  - Alignment - Current**
  - Ontario Line Tracks
  - Tunnels
  - Construction Staging and Laydown Area
  - Station
  - Station Platform - Subsurface Level
  - Temporary Streetcar Diversion and Permanent Enhancements to Streetcar Network

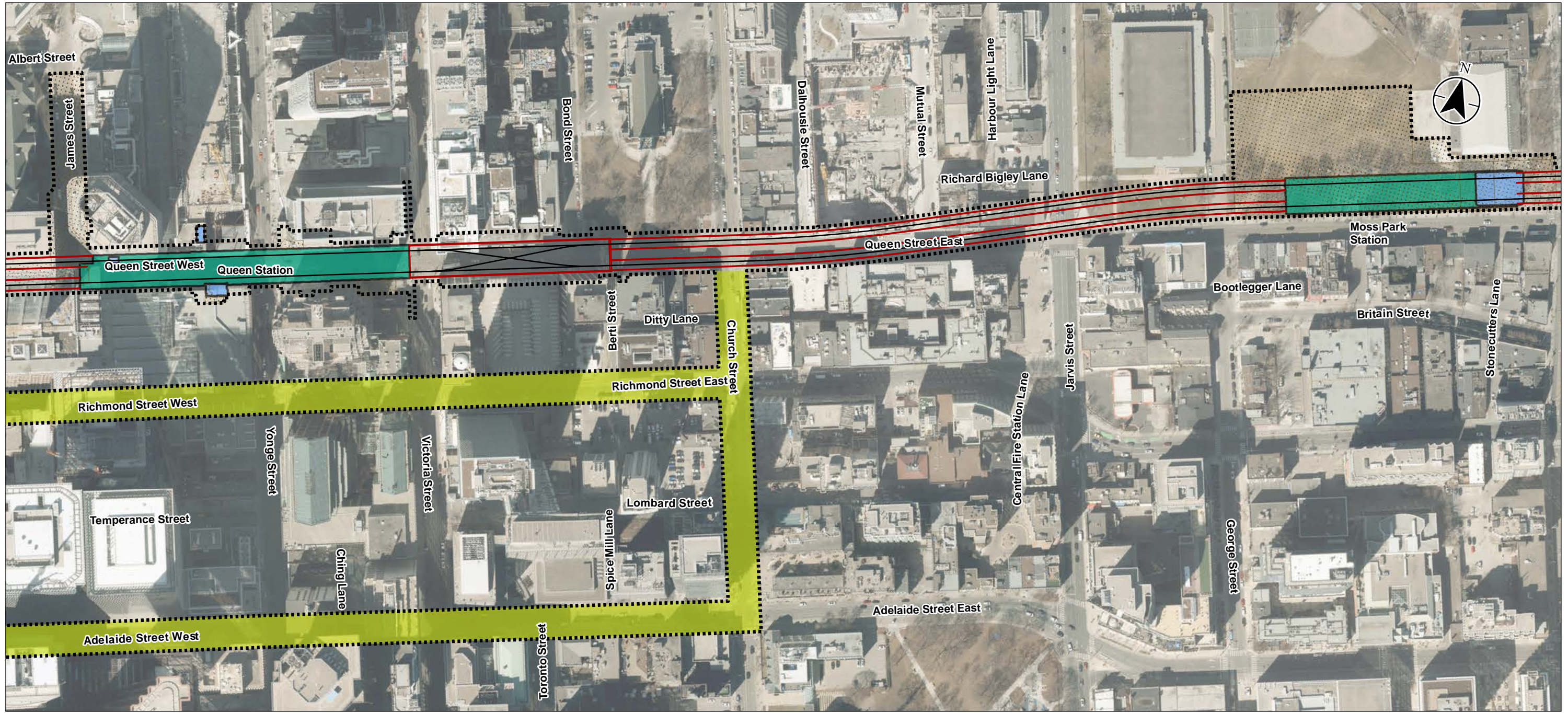
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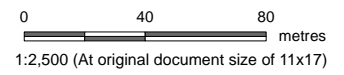
**General Note:**  
 The construction impacts within the EIAR project footprint will be refined as detailed design progresses.



<i>Project Location</i> Toronto, ON	Prepared by BCC on 2022-03-31
<i>Client/Project</i> HDR CORPORATION ONTARIO LINE TA	160560009 REVA
<i>Figure No.</i> <b>3-5</b>	
<i>Title</i> <b>Project Footprint and Project Components</b>	



- Legend**
- Project Footprint
  - Alignment - Current**
  - Ontario Line Tracks
  - Tunnels
  - Construction Staging and Laydown Area
  - Station
  - Station Platform - Subsurface Level
  - Temporary Streetcar Diversion and Permanent Enhancements to Streetcar Network



**General Note:**  
The construction impacts within the EIA/R project footprint will be refined as detailed design progresses.



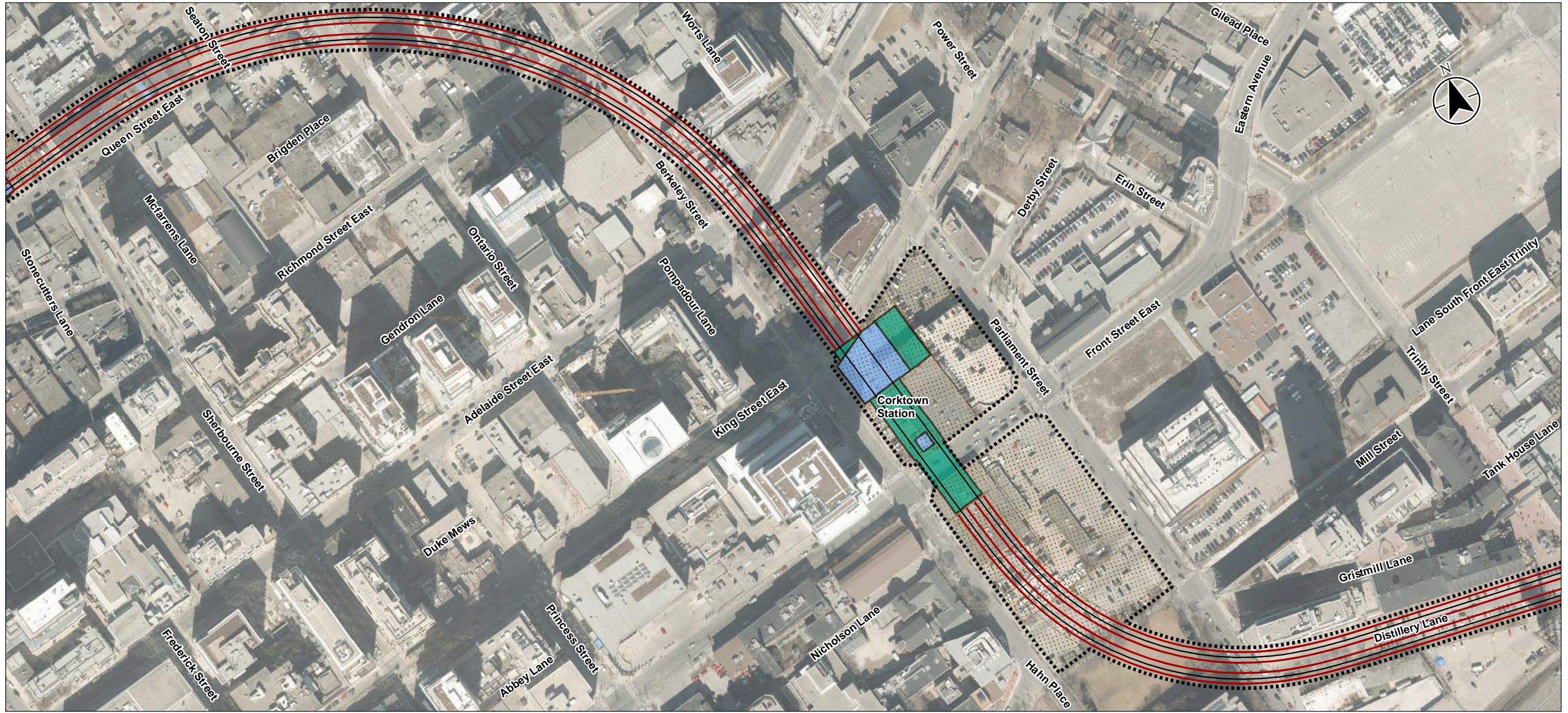
Project Location: Toronto, ON  
Prepared by BCC on 2022-03-31

Client/Project: HDR CORPORATION, ONTARIO LINE TA  
160560009 REVA

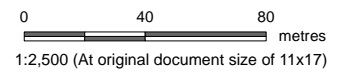
Figure No.: **3-6**  
Title: **Project Footprint and Project Components**

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- Legend**
- Project Footprint
  - Alignment - Current**
  - Ontario Line Tracks
  - Tunnels
  - Construction Staging and Laydown Area
  - Station
  - Station Platform - Subsurface Level



**General Note:**  
The construction impacts within the EIA/R project footprint will be refined as detailed design progresses.



Project Location: Toronto, ON  
Prepared by BCC on 2022-03-31

Client/Project: HDR CORPORATION, ONTARIO LINE TA  
160560009 REVA

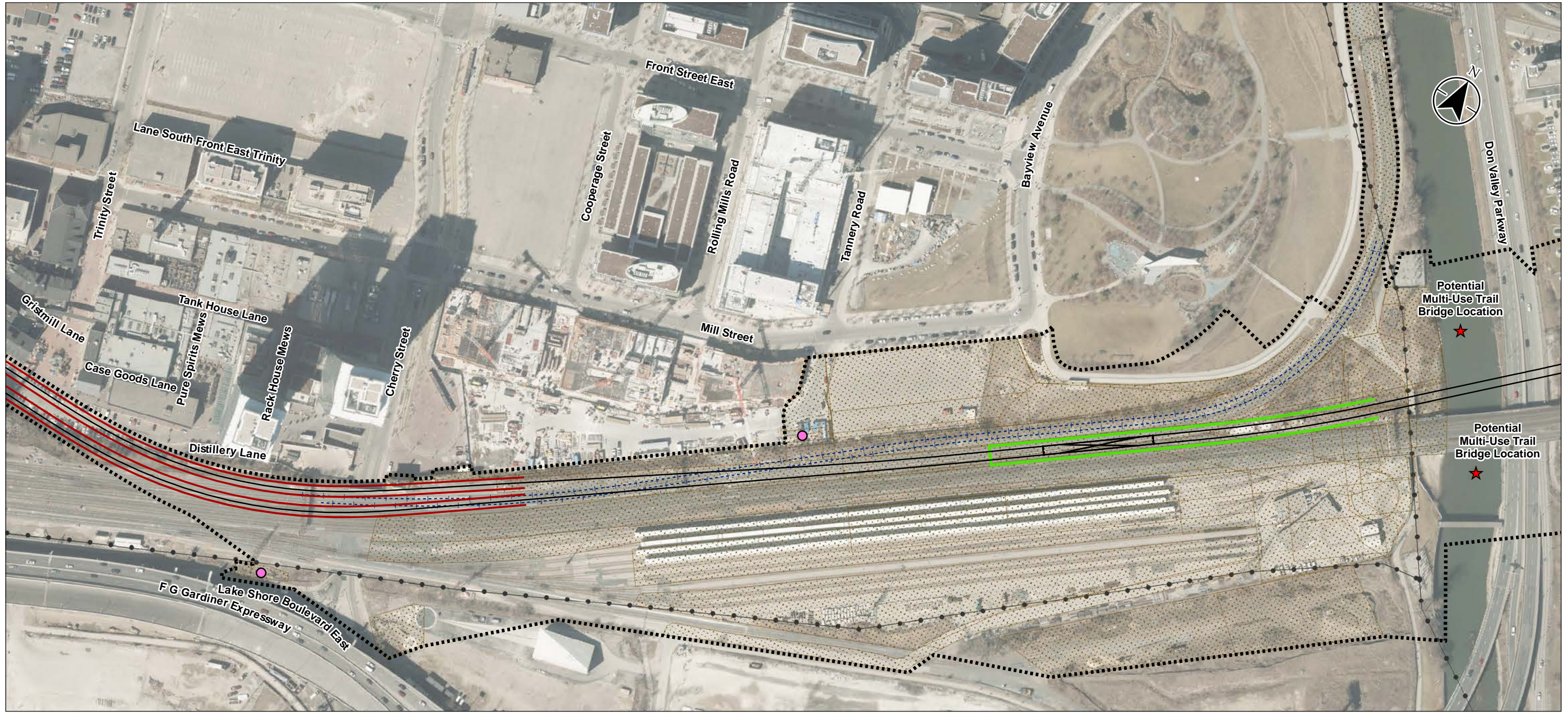
Figure No.: **3-7**

Title: **Project Footprint and Project Components**

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- Legend**
- Project Footprint
  - Alignment - Current**
  - Ontario Line Tracks
  - Tunnels
  - Portal
  - Emergency Egress Building (EEB)
  - Realigned Richmond Hill Tracks
  - Construction Staging and Laydown Area
  - Existing Hydro One Electrical Transmission Line
  - ★ Potential Multi-Use Trail Bridge Location

0 40 80 metres  
 1:2,500 (At original document size of 11x17)

**General Note:**  
 The construction impacts within the EIAR project footprint will be refined as detailed design progresses.



<i>Project Location</i> Toronto, ON	<i>Prepared by</i> BCC on 2022-03-31
<i>Client/Project</i> HDR CORPORATION ONTARIO LINE TA	160560009 REVA
<i>Figure No.</i> <b>3-8</b>	
<i>Title</i> <b>Project Footprint and Project Components</b>	

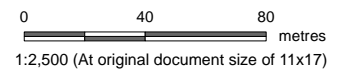
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- Legend**
- Project Footprint
  - Alignment - Current**
  - Ontario Line Tracks
  - Portal
  - Realigned Richmond Hill Tracks
  - Construction Staging and Laydown Area
  - Existing Hydro One Electrical Transmission Line
  - Station
  - Potential Multi-Use Trail Bridge Location

★ The Project Footprint includes areas in support of construction access, staging and laydown that may be required on a temporary basis. The extent of these land requirements may be refined and reduced to the extent feasible as project planning and design progress. Note that such lands adjacent to the Eastern Avenue rail bridge on the north side of Eastern Avenue will be shared with the Ontario Line Lakeshore East Joint Corridor early works project to reduce temporary land requirements in support of construction activities.

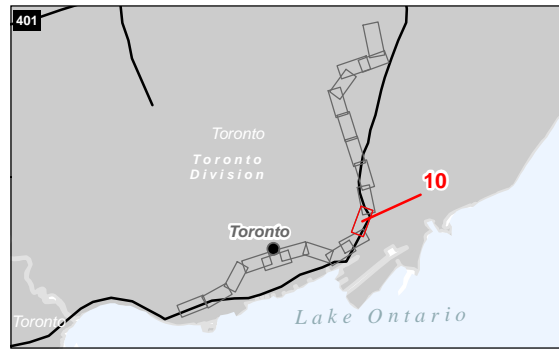
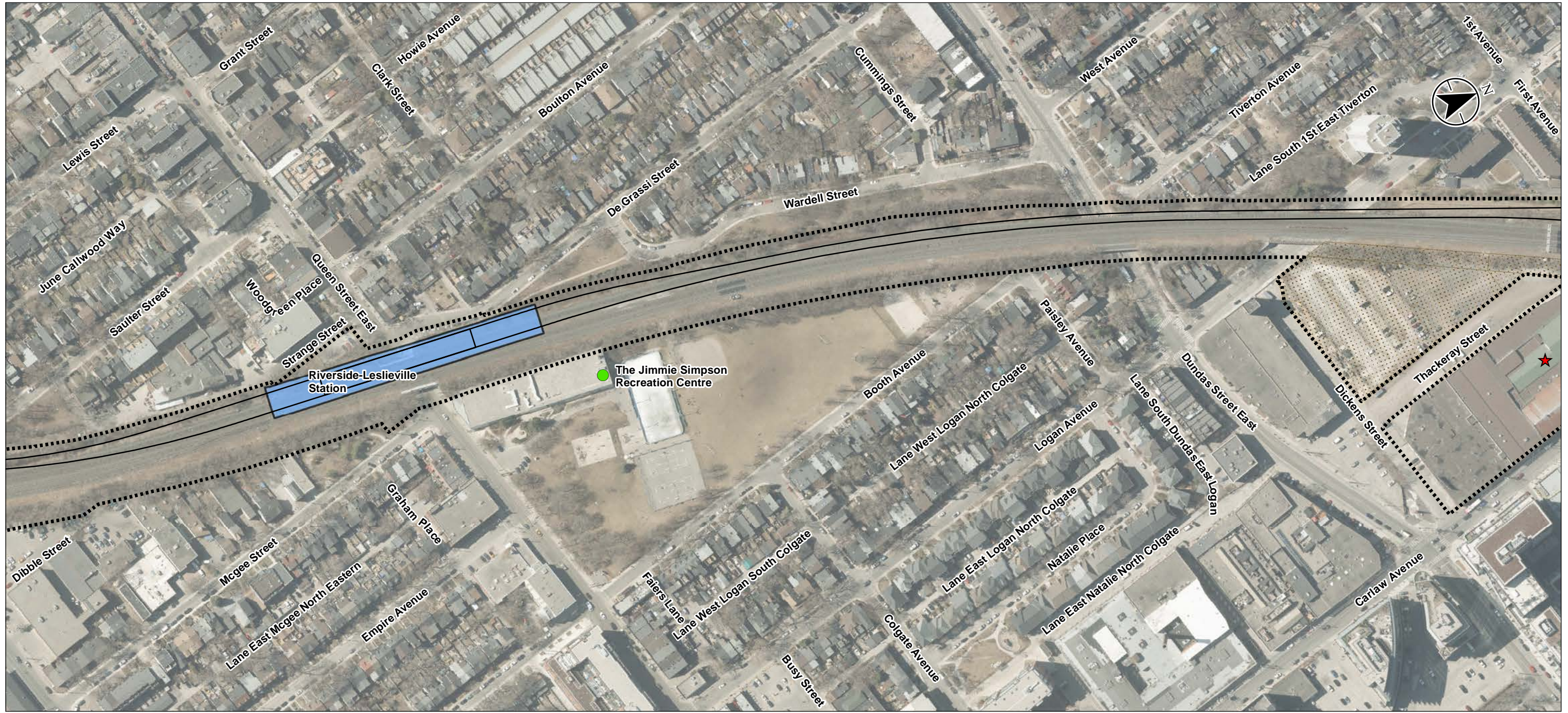


**General Note:**  
 The construction impacts within the EIAR project footprint will be refined as detailed design progresses.



<i>Project Location</i> Toronto, ON	Prepared by BCC on 2022-03-31
<i>Client/Project</i> HDR CORPORATION ONTARIO LINE TA	160560009 REVA
<i>Figure No.</i> <b>3-9</b>	
<i>Title</i> <b>Project Footprint and Project Components</b>	





- Legend**
- Project Footprint
  - Alignment - Current**
  - Ontario Line Tracks
  - Construction Staging and Laydown Area
  - Station
  - Metrolinx is actively working with the building tenants on relocation options
  - The Jimmie Simpson Recreation Centre is located outside of the Ontario Line project footprint

**Notes**

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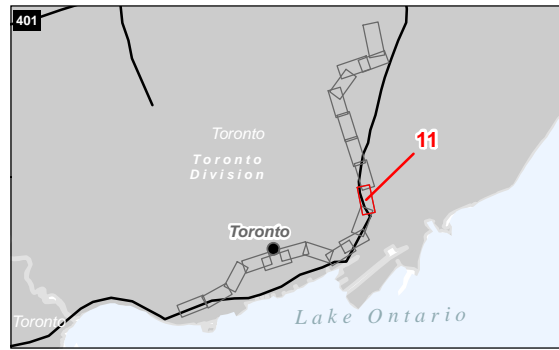
**General Note:**  
The construction impacts within the EIA/R project footprint will be refined as detailed design progresses.



Project Location: Toronto, ON  
Prepared by BCC on 2022-03-31

Client/Project: HDR CORPORATION, ONTARIO LINE TA  
160560009 REVA

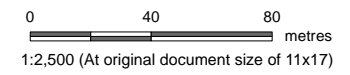
Figure No.: **3-10**  
Title: Project Footprint and Project Components



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- Legend**
- Project Footprint
  - Alignment - Current**
  - Ontario Line Tracks
  - Tunnels
  - Portal
  - Emergency Egress Building (EEB)
  - Proposed Sewer Relocation
  - Construction Staging and Laydown Area
  - Station
  - Metrolinx is actively working with the building tenants on relocation options

★ The existing sewer will be relocated using tunnelling methods underneath the Pape Avenue Junior Public School property, with no direct surface impacts anticipated on the school property. Metrolinx will continue to work with both the Toronto District School Board and Pape Avenue Junior Public School throughout the design process to minimize any potential construction impacts.



**General Note:**  
 The construction impacts within the EIAR project footprint will be refined as detailed design progresses.



*Project Location*  
 Toronto, ON Prepared by BCC on 2022-03-31

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*Client/Project*  
 HDR CORPORATION  
 ONTARIO LINE TA 160560009 REVA

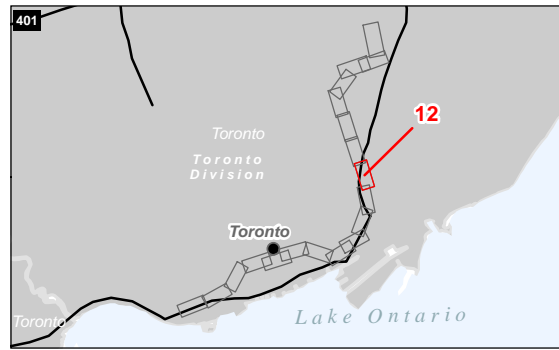
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*Figure No.*  
**3-11**

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*Title*  
**Project Footprint and Project Components**

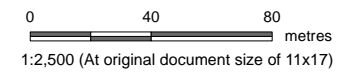
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- Legend**
- Project Footprint
  - Alignment - Current**
  - Ontario Line Tracks
  - Tunnels
  - Emergency Egress Building (EEB)
  - Construction Staging and Laydown Area
  - Station
  - Station Platform - Subsurface Level
  - The existing bus terminal at Pape Station will remain operational during the construction period

**Notes**

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**General Note:**  
The construction impacts within the EIA/R project footprint will be refined as detailed design progresses.



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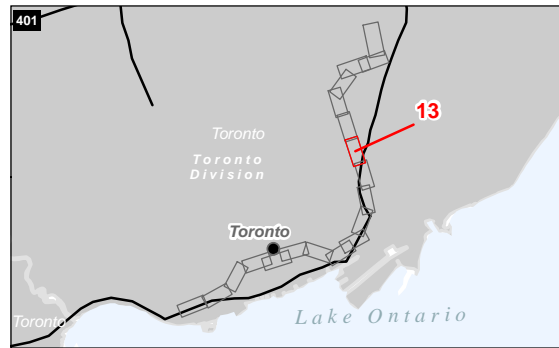
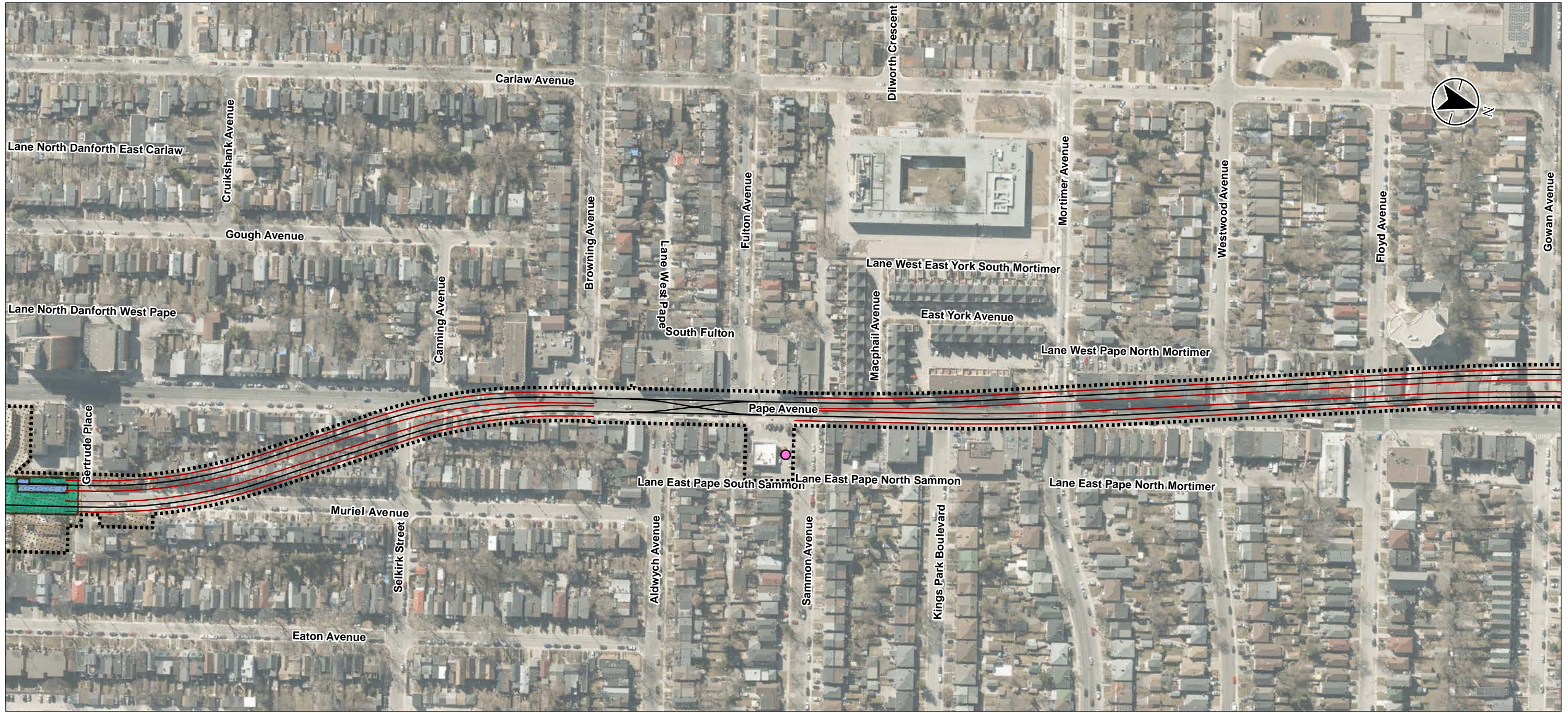
Client/Project: HDR CORPORATION ONTARIO LINE TA 160560009 REVA

Figure No. **3-12**

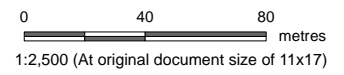
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- Legend**
- Project Footprint
  - Alignment - Current**
  - Ontario Line Tracks
  - Tunnels
  - Emergency Egress Building (EEB)
  - Construction Staging and Laydown Area
  - Station
  - Station Platform - Subsurface Level



**General Note:**  
The construction impacts within the EIAR project footprint will be refined as detailed design progresses.



*Project Location*  
Toronto, ON Prepared by BCC on 2022-04-07

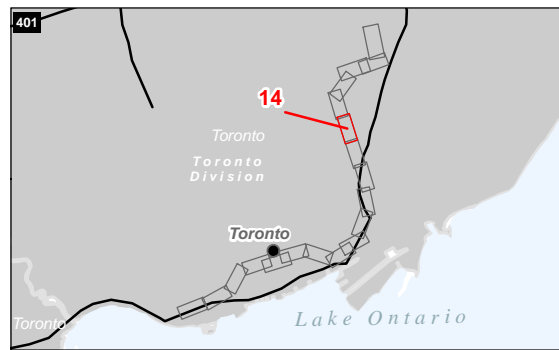
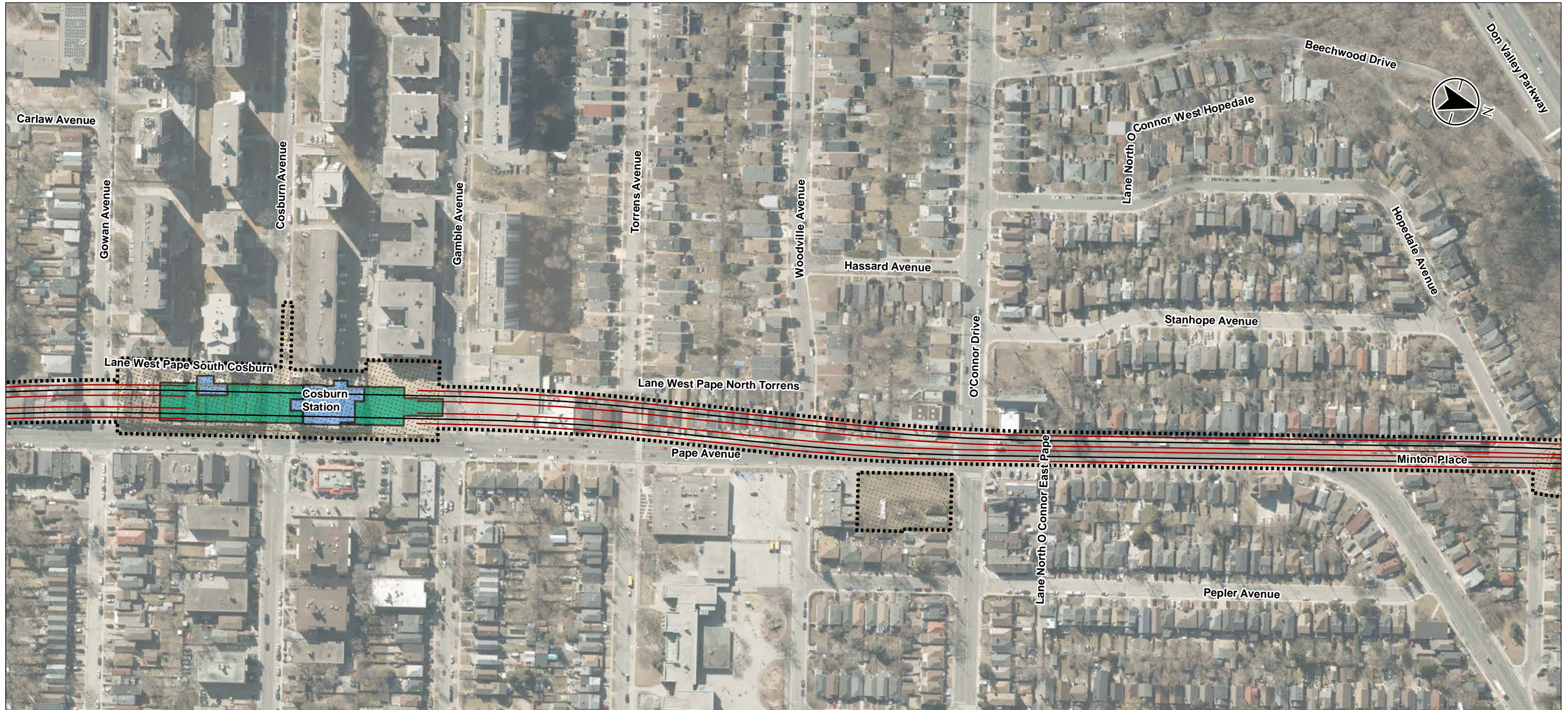
*Client/Project*  
HDR CORPORATION  
ONTARIO LINE TA 160560009 REVA

*Figure No.*  
**3-13**

*Title*  
**Project Footprint and Project Components**

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- Legend**
- Project Footprint
  - Alignment - Current**
  - Ontario Line Tracks
  - Tunnels
  - Construction Staging and Laydown Area
  - Station
  - Station Platform - Subsurface Level

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**General Note:**  
The construction impacts within the EIAR project footprint will be refined as detailed design progresses.



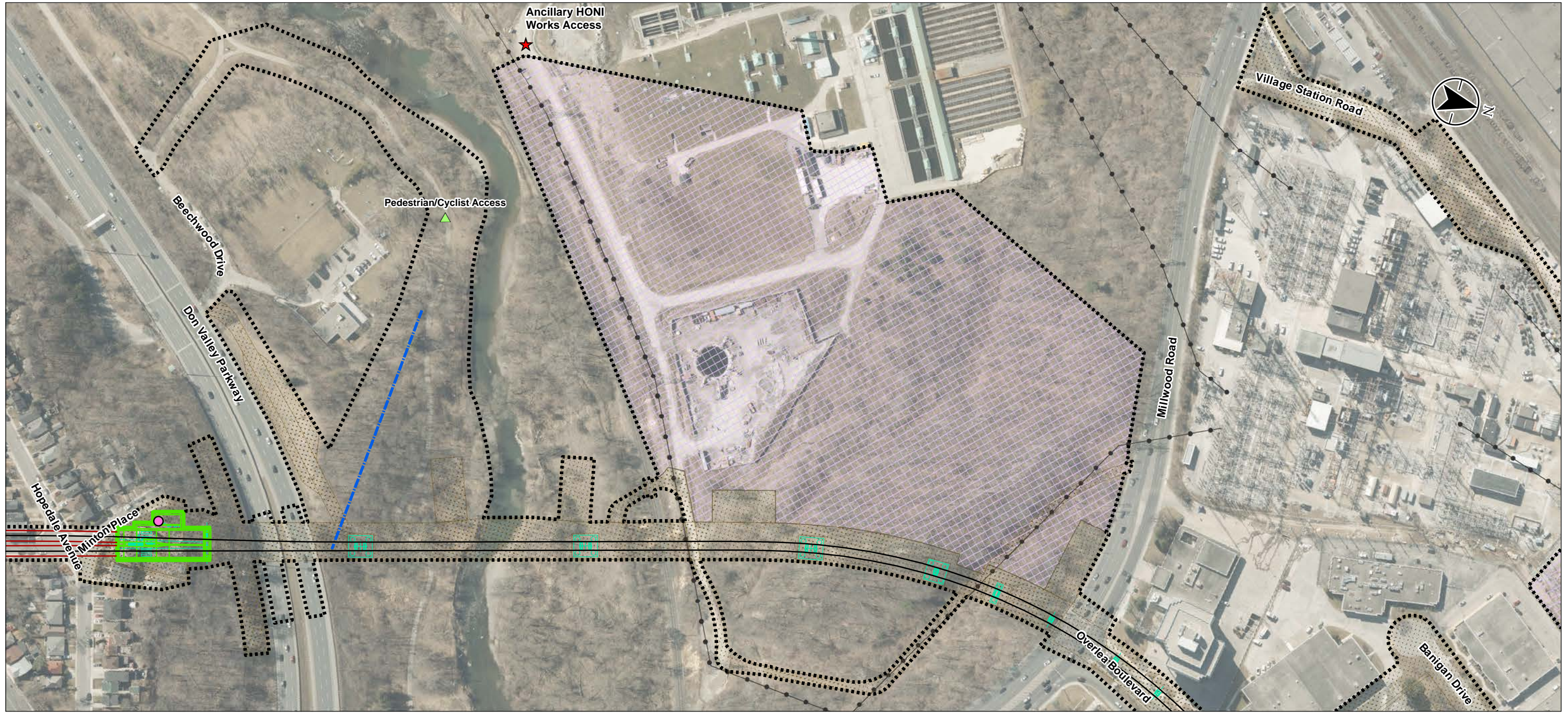
*Project Location*  
Toronto, ON *Prepared by* BCC on 2022-03-31

*Client/Project*  
HDR CORPORATION  
ONTARIO LINE TA *160560009* REVA

*Figure No.*  
**3-14**  
*Title*  
**Project Footprint and Project Components**

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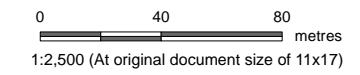


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- Legend**
- Project Footprint
  - Alignment - Current**
  - Ontario Line Tracks
  - Tunnels
  - Portal
  - Elevated Guideway Pier
  - Emergency Egress Building (EEB)
  - Proposed Sewer Bypass
  - Ancillary HONI Realignment Area\*
  - Construction Staging and Laydown Area
  - Existing Hydro One Electrical Transmission Line

- Ancillary HONI Works Access
- Pedestrian/cyclist access to the trail system will be maintained

\*This area contains existing HONI infrastructure, and represents a conservatively large area within which transmission lines will be relocated to accommodate the Ontario Line. The area of potential impact will be further refined and reduced to the extent possible as design progresses, and disturbed areas will be restored in consultation with the TRCA and City of Toronto.



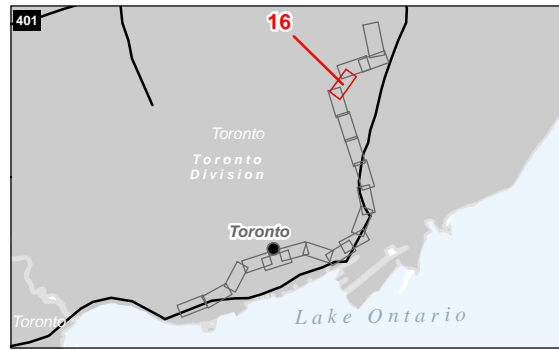
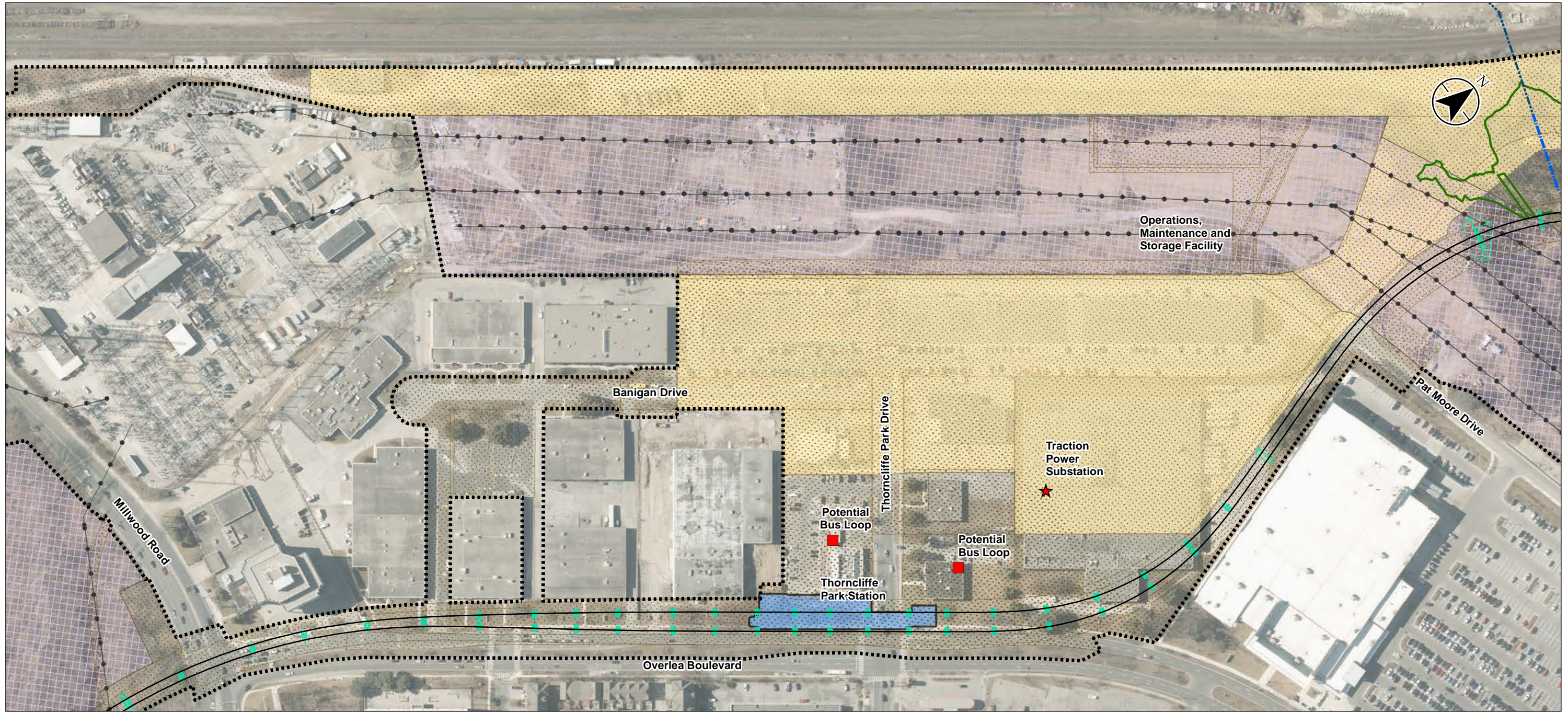
**General Note:**  
 The construction impacts within the EIAR project footprint will be refined as detailed design progresses.



Project Location: Toronto, ON  
 Prepared by BCC on 2022-03-31

Client/Project: HDR CORPORATION, ONTARIO LINE TA  
 160560009 REVA

Figure No.: **3-15**  
 Title: **Project Footprint and Project Components**

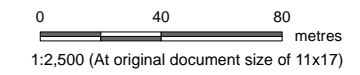


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- Legend**
- Project Footprint
  - Alignment - Current**
  - Ontario Line Tracks
  - Elevated Guideway Pier
  - Existing Storm Sewer
  - Storm Sewer Extension
  - OMSF Bridge Fill Area
  - Ancillary HONI Realignment Area\*
  - Construction Staging and Laydown Area
  - Existing Hydro One Electrical Transmission Line
  - Station

- Operations, Maintenance and Storage Facility
- Potential Bus Loop
- Traction Power Substation

\*This area contains existing HONI infrastructure, and represents a conservatively large area within which transmission lines will be relocated to accommodate the Ontario Line. The area of potential impact will be further refined and reduced to the extent possible as design progresses, and disturbed areas will be restored in consultation with the TRCA and City of Toronto.



**General Note:**  
 The construction impacts within the EIA/R project footprint will be refined as detailed design progresses.

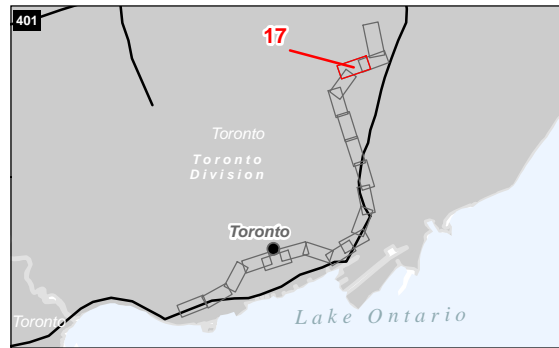
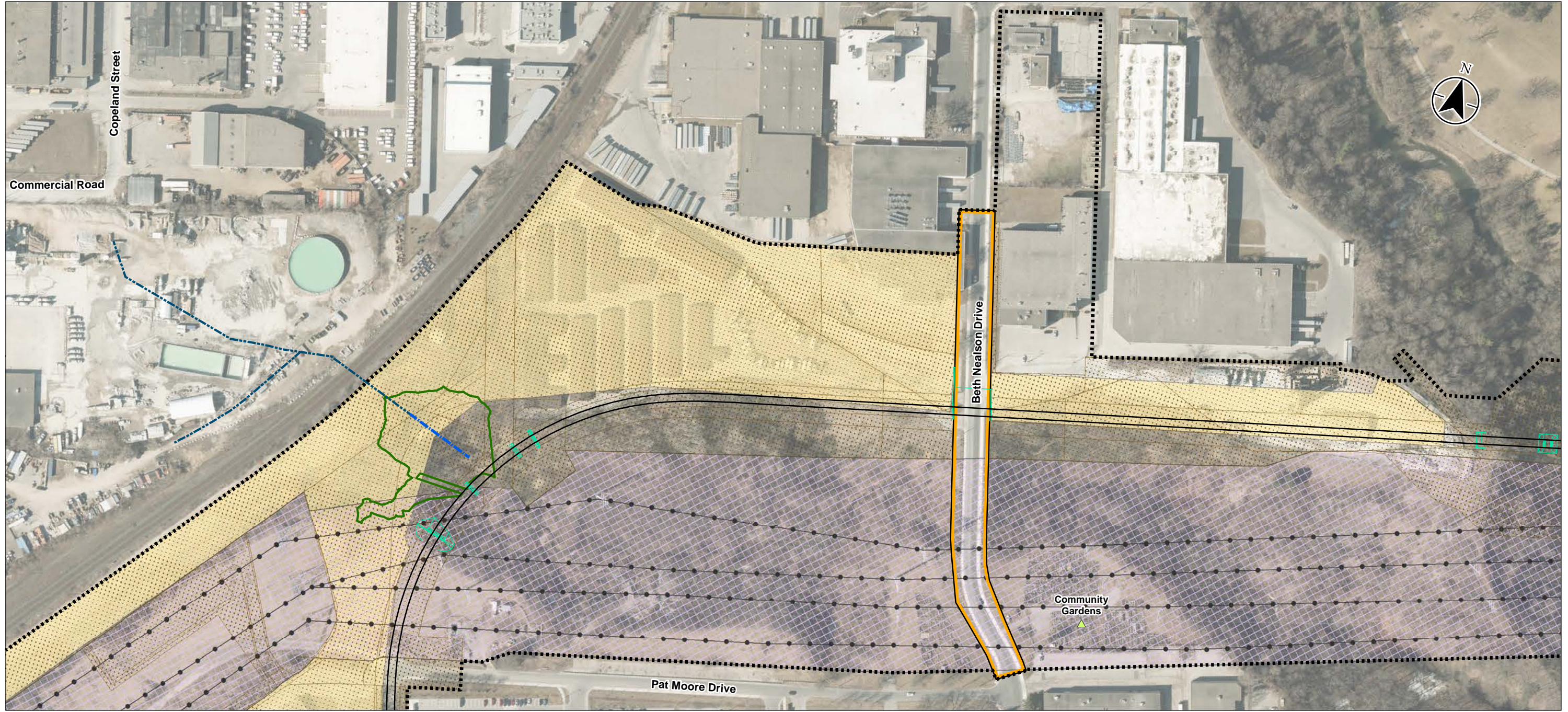


Project Location: Toronto, ON  
 Prepared by BCC on 2022-03-31

Client/Project: HDR CORPORATION, ONTARIO LINE TA  
 160560009 REVA

Figure No.: **3-16**  
 Title: **Project Footprint and Project Components**

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**Legend**

- Project Footprint
- Alignment - Current**
- Ontario Line Tracks
- Elevated Guideway Pier
- Existing Storm Sewer
- Storm Sewer Extension
- OMSF Bridge Fill Area
- Ancillary HONI Realignment Area\*
- Construction Staging and Laydown Area
- Road Under Rail Grade Separation
- Existing Hydro One Electrical Transmission Line

- Operations, Maintenance and Storage Facility
- Community Gardens will be maintained and direct impacts are not anticipated

\*This area contains existing HONI infrastructure, and represents a conservatively large area within which transmission lines will be relocated to accommodate the Ontario Line. The area of potential impact will be further refined and reduced to the extent possible as design progresses, and disturbed areas will be restored in consultation with the TRCA and City of Toronto.

0 50 100 metres  
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**General Note:**  
 The construction impacts within the EIA project footprint will be refined as detailed design progresses.



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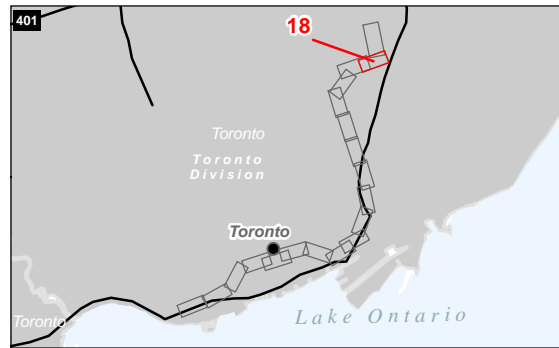
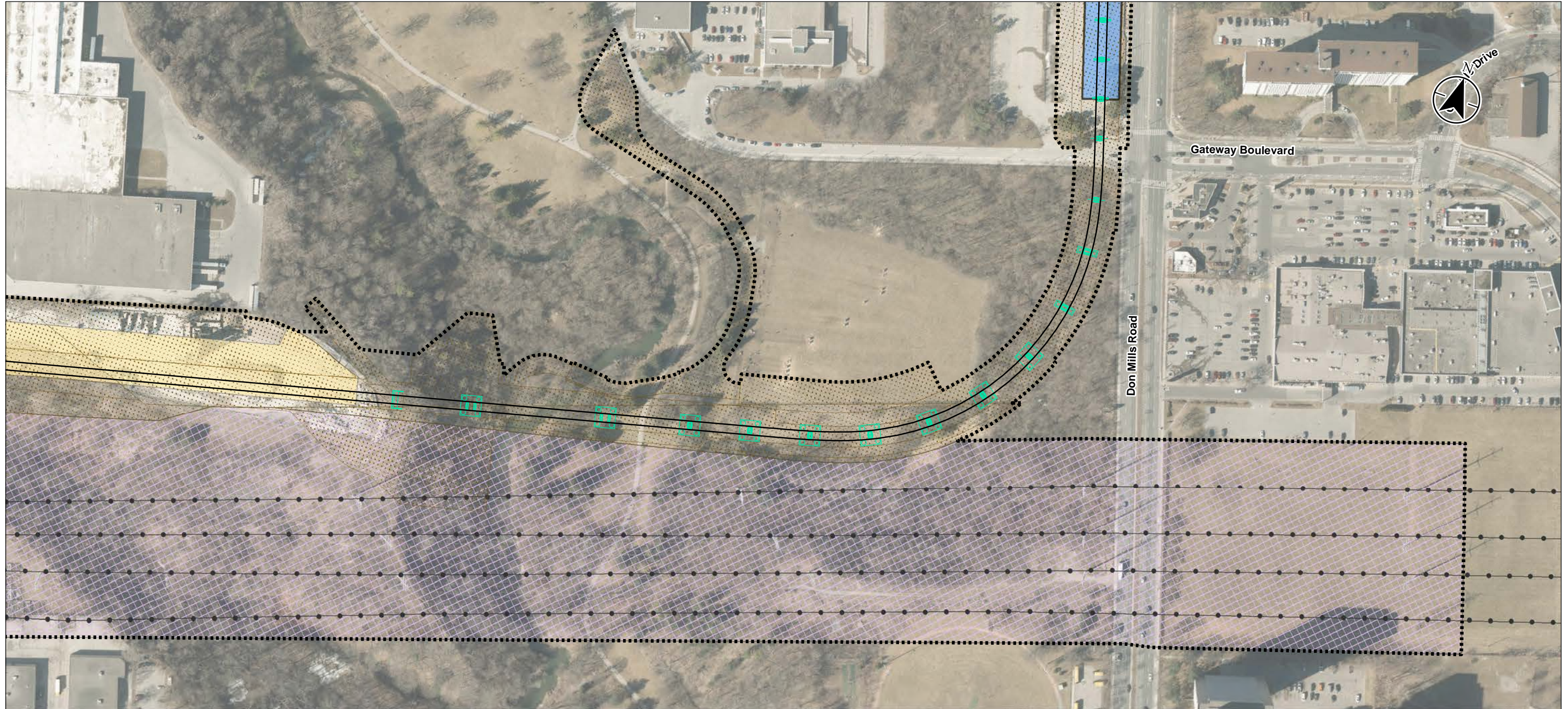
Client/Project: HDR CORPORATION ONTARIO LINE TA 160560009 REVA

Figure No. **3-17**  
 Title **Project Footprint and Project Components**

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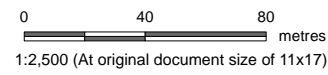


- Legend**
- Project Footprint
  - Alignment - Current**
  - Ontario Line Tracks
  - Elevated Guideway Pier
  - Ancillary HONI Realignment Area\*
  - Construction Staging and Laydown Area
  - Existing Hydro One Electrical Transmission Line
  - Station
  - Operations, Maintenance and Storage Facility

**Notes**

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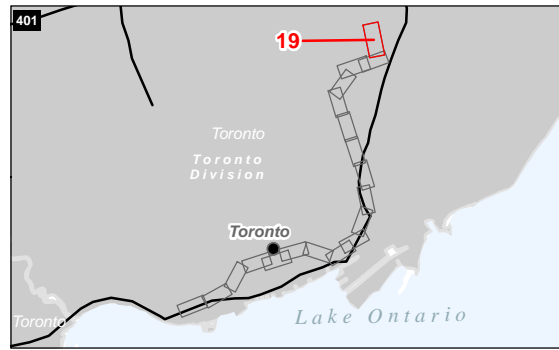
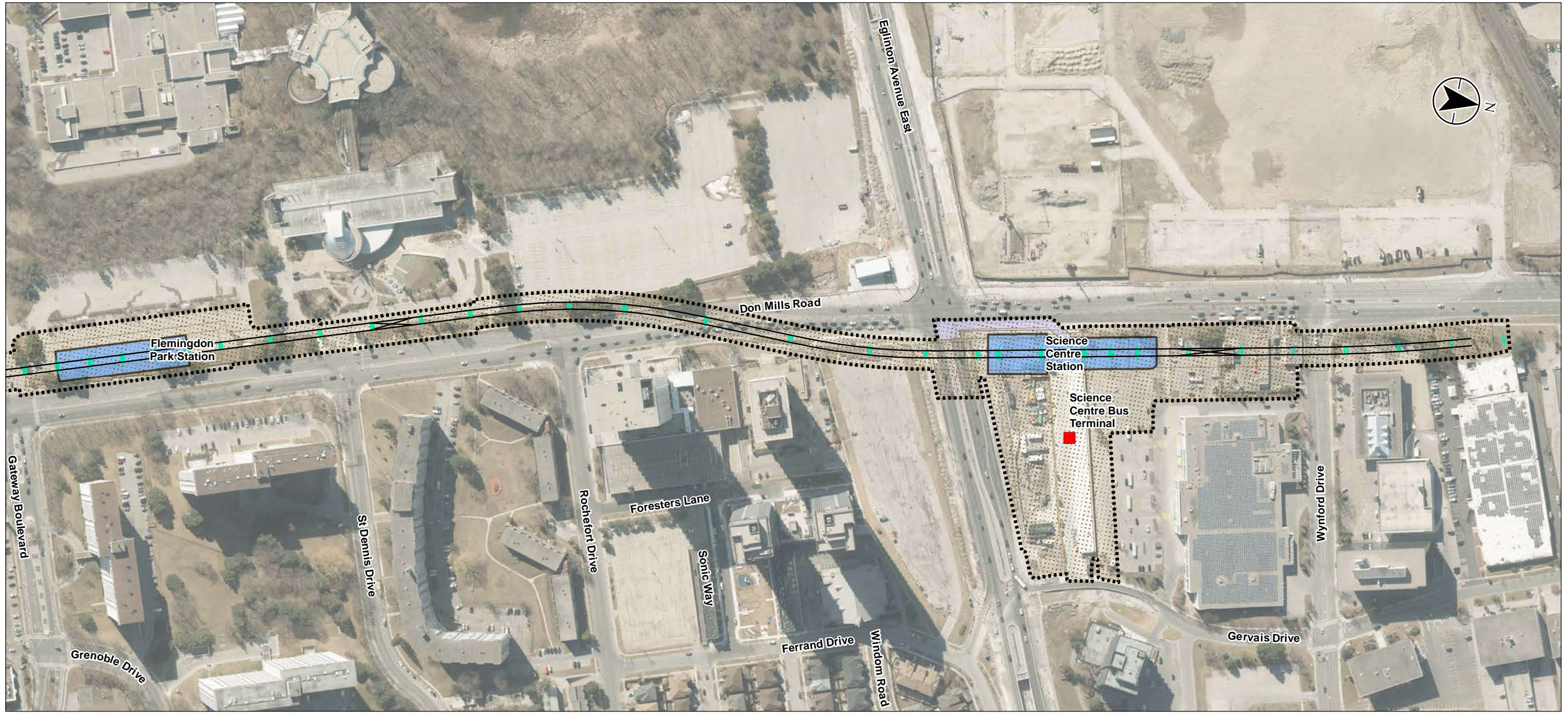
\*This area contains existing HONI infrastructure, and represents a conservatively large area within which transmission lines will be relocated to accommodate the Ontario Line. The area of potential impact will be further refined and reduced to the extent possible as design progresses, and disturbed areas will be restored in consultation with the TRCA and City of Toronto.



**General Note:**  
The construction impacts within the EIAR project footprint will be refined as detailed design progresses.



Project Location Toronto, ON	Prepared by BCC on 2022-03-31
Client/Project HDR CORPORATION ONTARIO LINE TA	160560009 REVA
Figure No. <b>3-18</b>	
Title <b>Project Footprint and Project Components</b>	



- Legend**
- Project Footprint
  - Alignment - Current**
  - Ontario Line Tracks
  - Elevated Guideway Pier
  - Construction Staging and Laydown Area
  - Station
  - Pedestrian Tunnel
  - The future bus terminal at Science Centre Station will remain operational during the construction period

0 50 100 metres  
 1:3,000 (At original document size of 11x17)

**General Note:**  
 The construction impacts within the EIA project footprint will be refined as detailed design progresses.



Project Location: Toronto, ON Prepared by BCC on 2022-03-31

Client/Project: HDR CORPORATION ONTARIO LINE TA 160560009 REVA

Figure No. **3-19**

Title: **Project Footprint and Project Components**

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### 3.4.1 Ontario Line West Section

The OLW section extends from Exhibition Station (a terminus and interchange point with the Lakeshore West GO Transit corridor) to the TTC Line 1 interchange at Osgoode Station.

At Exhibition Place, the OLW tracks and platform will be located at-grade on the north side of the Lakeshore West GO Transit corridor. An above-grade concourse is planned to span both sets of tracks to facilitate cross-track access to the Ontario Line and GO Transit platforms. As the tracks extend eastwards from Exhibition Station they gradually descend, and the tracks will be below-grade before entering the portal to transition the subway underground. Between Exhibition Station and the portal, retaining walls will be installed to facilitate the gradual descent of the subway line. The location of supporting structures will be confirmed as design advances, but based on current information, it is anticipated that a traction power substation may be located east of the Exhibition portal, and an EEB may be located in the Ordnance Park area.

The subway tunnel continues underground at an approximate depth of 30 m to King/Bathurst Station. Beyond King/Bathurst Station, the tunnel continues northeast before curving to arrive at Queen/Spadina Station. From there, the tunnel extends east under Queen Street to an interchange station under the existing TTC Osgoode Station. The Ontario Line Osgoode Station will be an interchange station with the existing TTC Line 1 Osgoode Station.

**Table 3-3** summarizes the key components for the OLW section, from west to east.

**Table 3-3. OLW Section Key Components**

Component	Description
<b>Construction</b>	
Exhibition Tunnel Boring Machine (TBM) launch site	Launch shafts will be constructed on the north side of the existing Lakeshore West GO Transit Corridor for the beginning of the subway tunnels. From here, the subway line will gradually be tunnelled to a depth of approximately 30 m.
Exhibition Station Laydown and Staging Areas	Staging and laydown areas will be located around Exhibition Station, extending from Dufferin Street to Strachan Avenue. These will be the areas used for storage of construction equipment and materials located close to construction sites. Areas will be fenced for security and controlled access.
Exhibition Station	Construction works will include building demolitions, advertising signs removals and/or relocations, and building relocations. At grade platforms with an overhead concourse will be constructed.
Exhibition Spoils Management	Tunnel spoils will be produced from the actions of the TBM. Spoils will be conveyed from the tunnel portal and temporarily stored in the staging areas prior to daily removal.

Component	Description
Utilities Relocation	Utility relocations as required at each station location and along the corridor are proposed to accommodate future project infrastructure.
King/Bathurst Station Construction	The station will be excavated using sequential excavation method (SEM) and both station entrances will be integrated into existing heritage buildings.
King/Bathurst Station Laydown and Staging Areas	Staging and laydown areas will be located near the King/Bathurst Station, north of Stewart Street adjacent to the station location. This area will be used for storage of construction equipment and materials located close to construction sites. The area will be fenced for security and controlled access.
Queen/Spadina Station Construction	The station will be excavated using SEM. The north entrance will be integrated into the existing heritage building.
Queen/Spadina Station Laydown and Staging Areas	Staging and laydown areas will be located north of the northeast station entrance, between Bulwer Street and Queen Street West, east of Spadina Avenue. This area will be used for storage of construction equipment and materials located close to construction sites. The area will be fenced for security and controlled access.
Osgoode Station Construction	The north entrance will be constructed on the northeast corner of Queen Street West and University Avenue, in a limited portion of the green space located in front of Osgoode Hall. The south entrance will be incorporated into an existing heritage building. The station will be excavated using SEM.
Osgoode Laydown and Staging Areas	Laydown and staging areas will be located on the north side of Queen Street West and on the east side and within the median of University Avenue adjacent to Osgoode Hall. These are the areas used for storage of construction equipment and materials located close to construction sites. Areas will be fenced for security and controlled access.

Component	Description
<b>Operation</b>	
Exhibition Station	The expanded Exhibition Station platforms will be at grade with an above-grade concourse to facilitate access to east/west Ontario Line subway platforms as well as east/west GO Transit train platforms.
Traction Power Substation	The Traction Power Substation will consist of both internal equipment and external transformers and connecting equipment and will be located east of the Exhibition Portal.
Vent Shafts	Vent shafts will be installed along the alignment and at each station to allow for air supply and exhaust from the platform and concourse areas, as well as the tunnels as necessary.
At-grade rail	A single eastbound track and a single westbound track are proposed from Exhibition Station to the Exhibition portal. These tracks will be to the north of the GO rail tracks.
Exhibition Portal	Tracks leaving Exhibition station will gradually descend and will be below-grade before entering the portal. The portal is located east of Exhibition Station.
Below-grade rail	There is a single eastbound track and a single westbound track from the portal to Osgoode Station, which continue into the OLS section. The eastbound and westbound tracks will run through adjacent tunnels.
Ordnance Park EEB	An EEB will be located within the Ordnance Park area with emergency access provided from Strachan Avenue.
King/Bathurst Station	The station entrances will be located on the east side of Bathurst Street on the north and south corners of King Street. The station platforms will be located approximately 28 metres underground. The station location will provide for transition of passengers to the adjacent TTC streetcar route.
Queen/Spadina Station	The station entrances will be located on the northeast and southwest corners of Queen Street West and Spadina Avenue, with the station platforms located approximately 30 metres underground. The location of the station entrances facilitates transition of passengers to the adjacent TTC streetcar route.
Osgoode Station	The north station entrance will be located on the northeast corner of Queen Street West and University Avenue. The south entrance will be located on the southwest side of Queen Street West and Simcoe Street. The station platforms will be located approximately 34 metres underground below the existing TTC Osgoode Station. The Ontario Line and TTC Osgoode Stations will be interconnected to facilitate transfer between subway lines.

### 3.4.2 Ontario Line South Section

The OLS section extends from the east side of Osgoode Station to just south of Pape Station.

The OLS tracks continue from Osgoode Station through the subway tunnels east under Queen Street to an interchange station under the existing TTC Line 1 Queen Station. The Ontario Line Queen Station will be connected with TTC Line 1 Queen Station and the PATH system. An underground track crossover will be constructed east of Queen Station for maintenance and emergency diversion purposes. East of the crossover, the tunnels continue under Queen Street East to the Moss Park Station, located on the north side of Queen Street East between George Street and Sherbourne Street. From Moss Park Station the tunnels turn south and travels underground to Corktown Station near the intersection of Berkeley Street and King Street East. An EEB connected to the station will be located on the east side of Berkeley Street, north of Front Street. From Corktown Station, the tunnels turn southeast and travels under Distillery Lane.

An EEB will be located west of Cherry Street in the Metrolinx Union Station Rail Corridor RoW with emergency access provided from Cherry Street and Lakeshore Boulevard East. An additional EEB is proposed at the foot of Tannery Road in the Metrolinx Union Station Rail Corridor RoW. The tunnels reach the surface at the Don Yard Portal, located just west of the Don River, to the north of the existing GO Transit Union Station Rail Corridor and Don Yard train storage facility and to the southeast of Mill Street. Retaining walls will be constructed from the portal face on both sides of the tracks as the elevation ascends from below grade to at-grade. The tracks will cross the Lower Don River on a new bridge, the Lower Don Bridge, that will be constructed on the north side of the existing rail bridge. Once the tracks cross the Lower Don River, the tracks will be located on the northwest side of the Joint Corridor that runs from the Don Valley Parkway in the south to Gerrard Street East in the north.

The East Harbour Station will be located south of Eastern Avenue and Broadview Avenue and will support transfer between Ontario Line and GO transit through the station concourse. Moving northeast along the Joint Corridor, the tracks will enter the Riverside/Leslieville Station at Queen Street East. The tracks continue into Gerrard Station at Gerrard Street East and Carlaw Avenue, with a new rail bridge at the intersection of Gerrard Street East and Carlaw Avenue to accommodate the tracks. North of Gerrard Station, the tracks begin to descend from the Gerrard portal underground. The Gerrard portal is situated south of the intersection of Pape Avenue and Langley Street immediately north of the Joint Corridor. Once underground at the Gerrard portal, the subway tunnels will continue north along Pape Avenue to Pape Station at Danforth Avenue and Pape Avenue. An EEB is planned to be located at Bain Avenue and Pape Avenue.

**Table 3-4** summarizes the key components for the development of the OLS section.

**Table 3-4. OLS Section Key Components**

Component	Description
<b>Construction</b>	
Utilities Relocation	Utility relocations as required at each station location and along the corridor are proposed to accommodate future project infrastructure.
Hudson Bay Modifications	Basement modifications within Queen Street RoW to accommodate future Queen Station construction.
Queen Station Laydown and Staging Areas	The laydown and staging areas are proposed along Queen Street West between Bay Street and Victoria Street, as well as along the western side of Victoria Street and on James Street from Queen Street East to Albert Street. These will be the areas used for storage of construction equipment and materials located close to construction sites. Areas will be fenced for security and controlled access.
Queen Station, and Queen Station Crossover Construction	The station will be excavated using SEM as well as cut and cover in the Queen Street RoW. The Queen Station Crossover will be excavated using SEM method.
Tunnel construction from Queen Station to Moss Park Station	The TBM, moving west, will continue from Corktown Station to Queen Station.
Moss Park Laydown and Staging Areas	The laydown and staging areas are proposed in Moss Park to the west of the existing arena. These areas will be used for storage of construction equipment and materials located close to construction sites. Areas will be fenced for security and controlled access.
Moss Park Station Construction	The station will be excavated using a cut and cover method.
Corktown Station TBM launch site	The TBM launch site will be located in the Corktown Station footprint. TBM will tunnel from Corktown to Queen Station and will be extracted at Queen Station.
Corktown Laydown and Staging Areas	The laydown and staging areas are proposed between King Street East on the north, Parliament Street on the east, Parliament Square Park on the south and Berkeley Street on the west. These will be the areas used for storage of construction equipment and materials located close to construction sites. Areas will be fenced for security and controlled access. Tunnel spoils will be produced from the actions of the TBM. Spoils will be conveyed from the tunnel portal and stored temporarily in the staging areas for daily removal.

Component	Description
Corktown Station Construction	The station will be excavated using a cut and cover method and SEM will be employed to avoid utility impacts in the Front Street right-of-way.
Tunnel construction from Corktown to Don Yard	SEM mining of two tunnels from Corktown Station to the face of the Don Yard portal.
Don Yard Construction	Temporary access roads and staging areas will be located within the Don Yard Train Storage Facility. Retaining walls and a crash wall will be constructed on the north side of the Don Yard and Union Station Rail Corridor in the vicinity of the Don Yard portal. SOE will be installed in the area to support portal excavation and construction. Temporary and permanent track realignments will be required for the new Signal Bridge just east of Cherry Street along the GO Line. The Existing Signal Bridge west of Cherry Street will be removed and decommissioned.
Building Demolition	Demolition of buildings along Eastern Avenue and First Avenue to accommodate future Ontario Line infrastructure.
Gerrard Portal and TBM launch site	The Gerrard portal will be excavated using an open cut method. Utilities will be relocated to accommodate future project infrastructure. The TBM launch site will be located at the Gerrard portal. TBM will excavate two twin tunnels from Gerrard portal to the Minton Place portal.
Gerrard Station Laydown and Staging Areas	The laydown and staging areas are proposed north and south of Gerrard Station. The south staging areas are generally located between Dickens Street in the south, the GO Transit Joint Corridor west, Gerrard Street East on the north and Carlaw Avenue on the west. The north staging areas are generally located between Carlaw Avenue on the west, Langley Avenue on the north, Pape Avenue on the west and Gerrard Street East on the south. These will be the areas used for storage of construction equipment and materials located close to construction sites. Areas will be fenced for security and controlled access. Tunnel spoils will be produced from the actions of the TBM. Spoils will be conveyed from the tunnel portal and temporarily stored in the staging areas prior to daily removal.
Sewer Relocation	The storm sewer north of the Gerrard portal, near the intersection of Langley Avenue and Pape Avenue, will be relocated through subsurface tunneling in order to accommodate future project infrastructure.



Component	Description
<b>Operation</b>	
Below-grade rail	Two single tracks, east and west, in twin tunnels from Queen Station through to Don Yard portal, and from Gerrard portal northward.
Queen Station	The station entrances will be integrated into existing TTC entrances within existing buildings at Queen Street and Yonge Street.. The station platforms will be located approximately 35 metres underground below the TTC Queen Station. Queen Station will be connected with the TTC Queen Station and the PATH system.
Queen Station Crossover	Underground track crossover for maintenance or emergency diversion purposes, will be located below Queen Street, on the east side of Queen Station.
Moss Park Station	The station entrance will be located on the north side of Queen Street East, west of Sherbourne Street. The station platforms will be located approximately 35 metres underground.
Corktown Station	The station entrance will be located on the east side of Berkeley Street at King Street East. The station platforms will be located approximately 25 metres underground. A secondary station exit will be located on the east side of Berkeley Street at Front Street.
Cherry St EEB	An EEB will be located west of Cherry Street in the Metrolinx right-of-way with emergency access provided from Cherry Street and Lakeshore Boulevard.
Tannery Road EEB	An EEB will be located at the foot of Tannery Road in the Metrolinx RoW.
Don Yard Portal	Retaining walls will run from the portal exit on both sides of the tracks as the elevation ascends from below grade to at-grade. The portal face will be located within the existing Don Yard Train Storage Facility.
At-grade rail	Two single tracks, east and west, located along the north side of the existing Lakeshore East/Stouffville GO Transit service lines from the Don Yard portal to the Gerrard portal.
Lower Don Bridge	The rail bridge will extend over the Lower Don River, on the north side of the existing GO Transit Joint Corridor.
Multi-Use Trail Bridge	Connecting to the Lower Don River Trail on the west and spanning the Lower Don River. The Multi-Use Trail bridge will support multiple recreation and transportation opportunities, such as walking, bicycling, and wheelchair use. Potential Multi-Use Trail bridge locations on the north and south sides of the existing rail bridge are being studied.

Component	Description
East Harbour Station	East Harbour Station will be a surface station configured to support transfer between the Ontario Line and GO Transit services through the station concourse.
Eastern Avenue Rail Bridge	Replacement of the existing GO rail bridge across Eastern Avenue, as well as construction of a new bridge to support future Ontario Line tracks.
Queen Street East Rail Bridge	Replacement of the existing GO rail bridge across Queen Street East.
Queen Street Intersection Bridge	A station bridge will be constructed for the Ontario Line station.
Dundas Street East Rail Bridge	Replacement of the existing GO rail bridge across Dundas Street East, as well as construction of a new bridge to support future Ontario Line tracks.
Logan Avenue Rail Bridge	Replacement of the existing GO rail bridge across Logan Avenue, as well as construction of a new bridge to support future Ontario Line tracks.
Riverside/Leslieville Station	Riverside/Leslieville station entrances will be located on the north and south sides of Queen Street East and will be at grade. Station platform will be elevated and span over Queen Street East. The station location facilitates transfer of passengers to and from the TTC streetcar.
Gerrard Station	Gerrard Station entrances will be at grade and located on the southwest and northeast corners of the Gerrard Street East and Carlaw Avenue intersection. Station platform will be elevated and span over the intersection. The station location facilitates transfer of passengers to/from the TTC streetcar.
Gerrard/ Carlaw Intersection Bridge	A station bridge will be constructed to support the Ontario Line station.
Gerrard Station Portal	Upon leaving Gerrard Station the subway will start to descend as it approaches the Gerrard portal. The portal face will be located on the north side of the Joint Corridor, around Langley Avenue.
Bain Avenue EEB	An EEB is planned to be located at Bain Avenue and Pape Avenue.

### 3.4.3 Ontario Line North Section

The OLN section extends from Pape Station to Science Centre Station.

Pape Station will interchange with the existing TTC Line 2 Pape Station. North of Pape Station, under Pape Avenue, between Browning Avenue and Sammon Avenue, an underground track crossover, the Sammon Avenue Crossover, will be constructed for maintenance and emergency diversion purposes. From the Sammon Avenue Crossover, the tunnel continues north crossing

under Pape Avenue to run along the west side of Pape Avenue RoW to Cosburn Station which is planned to be located on the west side of Pape Avenue at Cosburn Avenue. The tunnel continues north to the Minton Place portal, which includes an EEB. The portal face is on the southern valley wall of the Don Valley, north of Hopedale Avenue.

The underground segment of OLN will emerge from the southern valley wall of the Don Valley west of the Don Valley Crossing Bridge on an elevated structure that will span the Don Valley Parkway and the Don River. The elevated guideway will continue along the northwest side of Overlea Boulevard to the Thorncliffe Park Station, located at Thorncliffe Park Drive. East of Thorncliffe Park Station, the elevated guideway turns north, then east, crossing over Beth Neilson Drive (which will run underneath the guideway) and crossing the west branch of the West Don River to arrive at Flemingdon Park Station. Flemingdon Park Station is located on the west side of Don Mills Road, just north of Gateway Boulevard. North of Flemingdon Park Station, a crossover will be constructed for maintenance and emergency diversion purposes. The elevated guideway then travels north crossing from the west side to the east side of Don Mills Road to Science Centre Station, located at Don Mills Drive and Eglinton Avenue East. This station will have an underground tunnel connection to the existing TTC Line 5 (the Eglinton Crosstown LRT). North of Science Centre Station, a crossover will be constructed for maintenance and emergency diversion purposes.

**Table 3-5** summarizes the key components for the development of the OLN section.

**Table 3-5. OLN Section Key Components**

Component	Description
<b>Construction</b>	
Pape Station Laydown and Staging Areas	The laydown and staging areas are proposed adjacent to the station location on the east side and west of Pape Avenue. These will be the areas used for storage of construction equipment and materials located close to construction sites. Areas will be fenced for security and controlled access.
Pape Station Construction	Construction activities will include building demolitions. The station will be excavated using cut and cover method.
Existing TTC Pape Station	Headhouse renovations, partial demo, vent shaft relocation, temporary bus loop construction, and minor sewer relocation within bus loop.
Sammon Avenue Crossover	The crossover will be excavated using cut and cover method within the Pape Avenue right of way.
Utility Relocations	Utility relocations as required at each station location and along the corridor are proposed to accommodate future project infrastructure.

Component	Description
Cosburn Station Laydown and Staging Areas	The laydown and staging areas are proposed north and south of Cosburn Station and west along Cosburn Avenue. These will be the areas used for storage of construction equipment and materials located close to construction sites. Areas will be fenced for security and controlled access.
Cosburn Station Construction	Construction activities will include building demolitions. The station will be excavated using cut and cover method.
Minton Place TBM Extraction Site	The TBM will be extracted through the Minton Place portal. Adjacent staging areas will be utilized to facilitate the extraction of the TBM.
Minton Place Laydown and Staging Areas	The laydown areas are proposed north of the Minton Place portal, along the Don Valley Parkway and Beechwood Drive. These will be the areas used for storage of construction equipment and materials located close to construction sites. Areas will be fenced for security and controlled access.
Sanitary Sewer Relocation	The sanitary sewer north of the Don Valley Parkway, near the Don Valley Bridge will be bypassed and relocated in order to accommodate the new Don Valley Bridge pier.
Don Valley Crossing Bridge Access and Staging and Temporary Bridge Crossing	Temporary construction access roads and staging areas will be constructed to facilitate the construction of piers and other elements of the substructure of the Don Valley Crossing Bridge across the Don River valley, as well as a temporary bridge across the Don River, a crane assembly area and other staging areas to facilitate the construction of the superstructure of the Don Valley Crossing Bridge. The temporary bridge is required to facilitate construction activities while erecting the Don Valley Crossing Bridge.
Beth Nealson Drive Grade Separation Construction	Retaining walls will be constructed on either side of Beth Nealson Drive to facilitate the grade separation. Beth Nealson roadway will be depressed to slope down north and south of the Ontario Line tracks, to accommodate the rail over road grade separation.
West Don River Crossing Bridge Access and Staging and Temporary Bridge Crossing	Temporary construction access roads and staging areas will be constructed to facilitate the construction of piers and other elements of the substructure of the West Don River Crossing Bridge across the West Don River valley, as well as a temporary bridge across the West Don River and other staging areas to facilitate the construction of the superstructure of the West Don River Crossing Bridge. The temporary bridge is required to facilitate construction activities while erecting the West Don River Crossing Bridge.
Thornccliffe Bus Loop	A new off-street bus loop at Thornccliffe Park station for TTC.

Component	Description
Thorncliffe Station Laydown and Staging Areas	The laydown and staging areas are proposed north of Overlea Boulevard on the east and west sides of Thorncliffe Park Drive. These will be the areas used for storage of construction equipment and materials located close to construction sites. Areas will be fenced for security and controlled access.
Flemingdon Park Station Laydown and Staging Areas	The laydown and staging areas are proposed on the west side of Don Mills Road, north of Gateway Boulevard between Gateway Boulevard and St Dennis Drive. These will be the areas used for storage of construction equipment and materials located close to construction sites. Areas will be fenced for security and controlled access.
Science Centre Station Laydown and Staging Areas	The laydown and staging areas are proposed on the east of Don Mills Road to Gervais Drive, north of Eglinton Avenue East, south of Wynford Drive. These will be the areas used for storage of construction equipment and materials located close to construction sites. Areas will be fenced for security and controlled access.
<b>Operation</b>	
Below-grade rail	This is two single tracks, east and west, in twin tunnels from Pape Station to the Minton Place portal.
Pape Station	The station entrance will be located on the north side of Danforth Avenue at Pape Avenue in proximity to the existing TTC Line 2 Pape Station. The station platforms will be located approximately 30m underground.
Sammon Avenue Crossover and EEB	Underground track crossover for maintenance or emergency diversion purposes. The crossover is proposed to be located directly under Pape Avenue between Browning Avenue and Sammon Avenue. An EEB is located north of the crossover.
Cosburn Station	The station entrance will be located on the north of Cosburn Avenue on the west side of Pape Avenue. The station platforms will be located approximately 25m underground.
Minton Place Portal	The portal face will be located on the southern valley wall of the Don Valley, north of the Minton Place/Hopedale Avenue intersection. An at-grade EEB is proposed to be located on the east side of Minton Place.
Don Valley Crossing Bridge	The underground section of the Ontario Line will emerge from the southern valley wall of the Don Valley north of Minton Place at the Minton Place portal, west of the Don Valley Crossing Bridge, and will continue upon parallel eastbound and westbound tracks on an elevated structure that will span the Don Valley Parkway and the Don River.

Component	Description
Elevated rail	Parallel eastbound and westbound Ontario Line tracks will run along an elevated guideway from the terminus of the Don Valley Crossing Bridge through the Thorncliffe Park Station until they reach Pat Moore Drive. The tracks will then descend to existing grade north of Pat Moore Drive to cross under the Hydro One corridor and to align with track elevations in the OMSF. The guideway will then continue as an elevated structure from the terminus of the West Don River Crossing Bridge through to the Ontario Science Centre Station.
Thorncliffe Park Station	The station entrance will be located at-grade on the west side of Overlea Boulevard south of Thorncliffe Park Drive between Thorncliffe Park Drive and Millwood Road, with elevated station platforms located between the east and west sides of the elevated rail. The station also includes an off-street bus terminal to provide connections with TTC buses.
Walmsley Brook Crossing Bridge	The elevated guideway will cross the existing Hydro Corridor and the Walmsley Brook tributary of the West Don River via a bridge from Pat Moore Drive.
Beth Neelson Drive Grade Separation	A rail-over-road grade separation will separate the tracks from Beth Neelson Drive.
West Don River Crossing Bridge	The elevated guideway will continue along the northern crest of the Walmsley Brook Ravine, across Beth Neelson Drive, to cross the West Don River via a bridge to Don Mills Road and Flemingdon Park Station.
Flemingdon Park Station	The station entrance will be located at grade on the west side of Don Mills Road, north of Gateway Boulevard between Gateway Boulevard and St. Dennis Drive, with elevated station platforms along the east and west sides of the elevated guideway.
Flemingdon Park Station Crossover	The crossover will be constructed for maintenance or emergency diversion purposes.
Science Centre Station	The station entrance will be located at grade on the east of Don Mills Road north of Eglinton Avenue East, with station platforms along the east and west sides of the elevated guideway. The station will include a pedestrian connection to the Eglinton Crosstown LRT.
Science Centre Station Crossover	The crossover will be constructed for maintenance or emergency diversion purposes.

The OMSF will be located north of Thorncliffe Park Station. The OMSF will provide storage, inspection, maintenance, and repair services for the Project.

**Table 3-6** summarizes the key OMSF components.

**Table 3-6. OMSF Key Components**

Component	Description
Train Maintenance Facilities	This will include a train wash building, a wheel turning building and a painting booth.
OMSF Building	The main facility building will consist of a parking garage, operations control centre, maintenance-of-way shops, parts warehouse, and vehicle maintenance bays.
Traction Power Substation	Step-down transformer to provide power supply to the OMSF from the adjacent Hydro One substation.
Storage Tracks	Storage tracks will be constructed for trains not needed for service or scheduled for maintenance.
Test Tracks	Test tracks will be used to test newly delivered trains and trains undergoing maintenance.
Site Access Components	These include access roads and parking.

### 3.5 Ancillary Works

Ancillary works are modifications to existing infrastructure (e.g., roads, bridges, utility corridors) being undertaken to facilitate the construction and operation of Ontario Line. These works are assessed as part of this EIAR, except where otherwise noted. Planned ancillary works include:

- **Banigan Drive** – A new public road connection to Banigan Drive is required as the OMSF will close permanently the intersection connecting Banigan Drive to Overlea Boulevard through Thorncliffe Park Drive. Several possible connection locations are being proposed in the vicinity of 10 Overlea Boulevard, which will also require relocation of existing utilities under the road.
- **Hydro One Corridor Relocations** – The following Hydro One infrastructure relocations are planned to resolve conflicts with planned Ontario Line infrastructure:
  - Don Valley Crossing Bridge – The proposed Don Valley Crossing Bridge of the Ontario Line, crossing over the Lower Don Parklands, crosses a Hydro One transmission line for which the clearance requirements are not met. To mitigate this conflict with the existing overhead transmission line, Hydro One will remove existing structures and associated components of a portion of the transmission line south of Millwood Road and install new structures northwest of the proposed Don Valley Crossing Bridge of Ontario Line.
  - Walmsley Brook Crossing Bridge – The proposed Walmsley Brook Crossing Bridge of the Ontario Line, located in Thorncliffe Park on the southeast side of the existing Canadian Pacific Railway and west of Beth Neilson Drive, crosses existing and future transmission lines. The majority of the existing and future transmission lines

- do not meet the clearance requirements with the proposed Bridge and the OMSF structures near the crossing of the Ontario Line. To mitigate conflict, Hydro One will remove existing structures and associated components of a portion of the transmission line and install new structures east of the existing structure locations and east of the proposed Ontario Line. To ensure continued and reliable supply within the City of Toronto, Hydro One will also install permanent and/or temporary bypass transmission line structures north of the existing transmission lines.
- **West Don River Crossing Bridge** – The proposed West Don River Crossing Bridge of the Ontario Line, east of Beth Neelson Drive, is in close proximity of the existing Hydro One transmission lines west of Don Mills Road and is located within the Hydro One transmission corridor intended for future transmission lines. To mitigate the conflict with future transmission lines, Hydro One will remove existing conflicting structures and install new structures east and west of Don Mills Road. To ensure continued and reliable supply within the City of Toronto, Hydro One will also install permanent and/or temporary bypass transmission line structures north of the existing transmission lines.
  - **Liberty New Street** – Liberty New Street is a new east-west, two-lane street from Strachan Avenue to Dufferin Street, just north of the Lakeshore West GO Rail Corridor in the Liberty Village neighborhood. A Municipal Class Environmental Assessment was undertaken for Liberty New Street in 2016 (LEA 2016). As a result of the need for construction and staging lands to support the construction of Exhibition Station as a component of the Ontario Line Project, the originally assessed design is being modified in coordination with the City of Toronto. The re-designed Liberty New Street will improve connections for people walking, cycling, taking transit, and driving in the area and support multi-modal access to Exhibition Station. The proposed improvements include: two general purpose lanes (one in each direction) for cars and buses; a two-way separated cycle track; and sidewalks on both sides of the street for the entire length of the street. New bus stops for TTC routes 29 (Dufferin) and 63 (Ossington) will be accommodated along Liberty New Street, westbound between Jefferson and Atlantic Avenue and eastbound just east of Atlantic Avenue.
  - **The Last Mile Connection** – the Last Mile Connection is the physical area between Exhibition Station and Ontario Place. The goal in this area is to improve the connection between the Ontario Line/ GO Corridor and Ontario Place. Improvements in connectivity will include improvements to pedestrian pathways or the installation of alternative transportation methods including but not limited to such measures as autonomous vehicles, a transit guideway, and/or a gondola. Metrolinx is working closely with the City of Toronto and the Exhibition Place board of governors to explore options for improvements along this corridor. The Last Mile Connection is not assessed in the EIAR.
  - **Richmond Hill GO Corridor Realignment** – The Richmond Hill GO Corridor realignment work will facilitate Ontario Line construction north of the Don Yard. During the diversion stage, a section of track will be shifted toward the Kingston subdivision direction to maintain the rail traffic, and both realignment and new track construction will be needed. At the final stage, track will be reconstructed on a different alignment, and a retaining wall will be built.



- **York Street Queen Streetcar Detour** – Due to the constrained downtown road network and the extent of the civil works for the Ontario Line, Queen Street has been proposed to be closed to all traffic and transit from Bay Street to Victoria Street during a portion of the Ontario Line construction. The closure will impact the 501 Queen streetcar route, and a temporary detour route will need to be established and operational by May 2023.
  - To maintain streetcar services, the diversion is proposed along Richmond Street and Adelaide Street between York St and Church St. New track connection to the existing streetcar network include proposed north/south tracks on York Street and Church Street from Queen Street West to Adelaide Street West. Additionally, east/west tracks are proposed on Adelaide Street West from Charlotte Street to Church Street and along Richmond St W from York St to Church St. Construction will include the installation of tracks, track slabs, an overhead catenary system (OCS) and OCS poles.
  - York Street is proposed to be converted from a one-way street to a two-way street from Richmond to Adelaide to accommodate the southbound streetcar movement. Adelaide Street West is also being proposed to be reconstructed in conjunction with the York Street project to allow for the streetcar to travel from York Street to Church Street.
- **Road Closures** – temporary road closures are expected during the construction term. A full description of anticipated closures is presented in **Section 5.9**.
- **Road Conversions** – permanent road conversions, including one-way and two-way road conversion are expected during the construction period. A full description of anticipated road conversions is presented in **Section 5.9**.

## 4 Existing Conditions

### 4.1 Overview

This chapter describes the existing environmental conditions for the Project. The purpose of characterizing existing environmental conditions is to establish a baseline condition for the assessment of environmental impacts and the identification of environmental mitigation and monitoring measures. The local environmental conditions were characterized through a combination of desktop review and field studies by practitioners using industry standard techniques and provincial standards, protocols, and guidelines, where appropriate. A detailed description of local environmental conditions is documented in the Ontario Line Final Environmental Conditions Report (AECOM 2020a), prepared under a separate cover in accordance with Section 4 of the Ontario Line Regulation. Where necessary, review of additional desktop and field information was undertaken to inform this report.

Information on the following environmental components, including the methodology used to characterize existing environmental conditions, is provided in the sections below and where applicable, is supplemented with supporting technical reports:

- Natural Environment.....**Section 4.3 and Appendix A1**
- Soil and Groundwater.....**Section 4.4**
- Cultural Heritage .....**Section 4.5 and Appendix A2**
- Archaeological Resources.....**Section 4.6 and Appendix A3**
- Socio-Economic and Land Use.....**Section 4.7 and Appendix A4**
- Air Quality.....**Section 4.8 and Appendix A5**
- Noise and Vibration .....**Section 4.9 and Appendix A6**
- Traffic and Transportation.....**Section 4.10 and Appendix A7**
- Utilities.....**Section 4.11**

### 4.2 Discipline-Specific Study Areas

As noted in **Section 1.3**, the Project Footprint represents the area of primary disturbance which may result from construction and operation of the Project. Discipline-specific study areas were developed for environmental disciplines to account for potential impacts beyond the Project Footprint. The study areas for each discipline are defined in **Table 4-1**.

Table 4-1. Study Area Definition by Discipline

Discipline	Study Area Definition
<b>Natural Environment</b>	The Natural Environment Study Area includes the Project Footprint and a 120-metre buffer, extended to 170-metres in the north where key environmental features are present. The minimum 120-metre buffer has been applied in accordance with the Natural Heritage Reference Manual for Natural Heritage Policies of the Provincial Policy Statement, Second Edition (Ministry of Natural Resources and Forestry (MNR) 2010).
<b>Soil and Groundwater</b>	The Soil and Groundwater Study Area includes the Project Footprint and a 500-metre buffer for water wells. This buffer has been applied in accordance with the Hydrogeological Assessment Submissions Conservation Authority Guidelines for Development Applications (Toronto and Region Conservation Authority (TRCA) 2013), which recommends well data for private wells within 500 metres be used for impact assessment.
<b>Built Heritage Resources and Cultural Heritage Landscapes</b>	The Built Heritage Resources and Cultural Heritage Landscapes Study Area includes the Project Footprint, adjacent properties to account for potential indirect impacts, and properties within a zone of influence to account for potential structural impacts that may result from vibration.
<b>Archaeological Resources</b>	Archaeological assessments were limited to the Project Footprint. Based on the Standards and Guidelines for Consultant Archaeologists (Government of Ontario 2011), all areas affected by construction activities are subject to further archaeological assessment.
<b>Socio-Economic and Land Use</b>	The Socio-Economic and Land Use Study Area includes the Project Footprint, and a 500-metre buffer based on Project components and associated impacts, with greater detail provided closer to the Project Footprint. This buffer has been applied in socio-economic studies for approved transit project environmental assessments of similar scope.
<b>Air Quality</b>	The Air Quality Study Area includes the Project Footprint and a 500-metre buffer. This buffer has been applied in accordance with the Ministry of Transportation's (MTO) Environmental Guide for Assessing and Mitigating the Air Quality Impact and Greenhouse Gases of Provincial Transportation Projects (MTO 2020), which states that transportation related impacts are expected to be limited to the area within approximately 500 metres.
<b>Noise and Vibration</b>	The study area for the noise and vibration impact assessment was determined based on the area around the Project Footprint in which Project impacts have the potential to be experienced. For the purposes of this assessment the study area is defined as 500 m from the Project Footprint.

Discipline	Study Area Definition
<b>Traffic and Transportation</b>	Review of traffic and transportation includes the Project Footprint and adjacent road segments and intersections. This approach captures potential direct impacts to pedestrians, cyclists, transit, and traffic as a result of construction and operations activities.
<b>Utilities</b>	Review of utilities was limited to the Project Footprint. This approach captures potential direct impacts to private and public utilities as a result of construction activities.

## 4.3 Natural Environment

The natural environment refers to natural heritage features and resources such as designated features and policy areas, vegetation communities, fish and fish habitat, wildlife and wildlife habitat, significant wildlife habitat, and species at risk (SAR).

### 4.3.1 Methodology

A Natural Environment Technical Report was prepared by Stantec in 2022 (see **Appendix A1**). The findings of the Natural Environment Environmental Conditions Report (AECOM 2020b) completed in support of the Environmental Conditions Report were reviewed and updated as appropriate to reflect the current Project understanding, scope, and footprint.

The objectives of this assessment were to examine the following aspects of the natural environment:

- designated features and policy areas
- Ecological Land Classification (ELC) vegetation community surveys (Lee et al. 1998) and plant inventory
- fish and fish habitat
- wildlife and wildlife habitat
- significant wildlife habitat (MNR 2000; MNR 2015) and SAR

Background review of available desktop information was conducted to characterize the existing natural environment conditions, including:

- Ministry of Northern Development, Mines, Natural Resources and Forestry (NDMNRFs) Ontario GeoHub base mapping data (NDMNRF 2020a)
- Wildlife atlases (Bird Studies Canada 2001; Dobbyn 1994; eBird 2020; Macnaughton et. al. 2019; Ontario Nature 2020)
- Planning documents and guidelines
- Previously completed environmental assessments within the Ontario Line Study Area
- Open data portals

Other background information was collected through correspondence with the following agencies:

- NDMNRF – Aurora District Office
- TRCA
- Ontario Nature

ELC mapping was completed using the ELC field guide for Southern Ontario (Lee et al. 1998), including the 2008 updated catalogue. Vegetation communities were first identified on aerial imagery and then confirmed in the field.

Field investigations were also completed in support of the Project, as summarized below.

#### Ontario Line West:

- ELC and Plant Inventory – June 2020
- Incidental Wildlife Observations – Spring 2020

#### Ontario Line South:

- ELC and Plant Inventory – October 2018

#### Ontario Line North:

- ELC and Plant Inventory
  - Millwood Road Area – June/July 2019
  - E.T. Seton Park/Walmsley Brook and Valley – June 2020
- Aquatic Site Reconnaissance
  - Millwood Road Area – July 2019
  - E.T. Seton Park – October 2019
- Breeding Bird Surveys
  - Millwood Road Area – June/July 2019
- Nocturnal Amphibian Breeding Call Surveys (Bird Studies Canada et al. 2009)
  - Millwood Road Area – April 2019
- Incidental Wildlife Observations
  - Millwood Road Area – Spring 2020
  - E.T. Seton Park – Spring 2020
- SAR Surveys – August 2020

Note: In most cases SAR locations are subject to confidentiality to protect the long-term protection and recovery of species and populations. As such, the results of the SAR surveys, including SAR locations, have not been included in this EIAR.

Further details regarding the natural environment can be found in **Appendix A1**.

### 4.3.2 Ontario Line West

#### Designated Features and Policy Areas

According to the NDMNRF's GeoHub Mapping (2020a), there are no Provincially Significant Wetlands, Locally Significant Wetlands, Areas of Natural or Significant Interest, valleylands, unevaluated wetlands or woodlands in the OLW Study Area (shown on **Figure 4-1** and **Figure 4-2**). The City of Toronto does not identify significant woodlands or significant valleylands in their Official Plan (City of Toronto 2015).

According to the City of Toronto's Interactive Map (City of Toronto 2020a), a small portion of the City's Natural Heritage System falls in the western most limits of the OLW Study Area west of Dufferin Street along the rail corridor. There are no other policy areas identified in the OLW Study Area. The OLW Study Area is located outside of TRCAs regulation limits.

#### Vegetation Communities

The majority of the OLW Study Area is urbanized, and vegetation is limited to streetscapes (e.g., street trees, city parks, manicured lawns, etc.). Based on aerial photography interpretation, there are limited vegetation communities present in the Fort York Historic Site and in the Right of Way of the existing rail corridor. These vegetation communities were investigated in June 2020 and are mainly cultural in nature and consist of Cultural Hedgerows, Cultural Thickets, and a Deciduous Forest as shown on **Figure 4-1** and **Figure 4-2**.

Of the 72 species documented in the OLW Study Area, 29 (40%) were native and 43 (60%) were invasive. There were no plant SAR or provincially rare species (S1-S3 rank), however, there were two Regional Species of Conservation Concern plants recorded.

#### Aquatic Habitat

There are no watercourses in the OLW Study Area, therefore, fish and fish habitat assessments were not conducted.

- Legend
- Ontario Line West
  - Project Footprint
  - Study Area
  - Natural Heritage System (City of Toronto)
  - RavineByLaw (City of Toronto)
  - ELC
  - Potential Bat Roosting
  - Regulation Limit (TRCA)



- Notes
1. Coordinate System: NAD27 MTM zone 10
  2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2020.



Project Location: Coily of Toronto, ON  
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Figure No.  
**4-1**

Title  
**Natural Heritage Results**

ELC Description
CUH – Cultural Hedgerow
CUT1 – Mineral Cultural Thicket
FOD4 – Dry-Fresh Deciduous Forest Ecosite

1:10,000 (At original document size of 11x17)

- Legend
- Ontario Line West
  - Ontario Line South
  - Project Footprint
  - Study Area
  - Natural Heritage System (City of Toronto)
  - Confirmed Peregrine
  - ELC
  - Regulation Limit (TRCA)
- TRCA Natural Heritage System**
- Potential Natural Cover

- Notes
1. Coordinate System: NAD27 MTM zone 10
  2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2020.

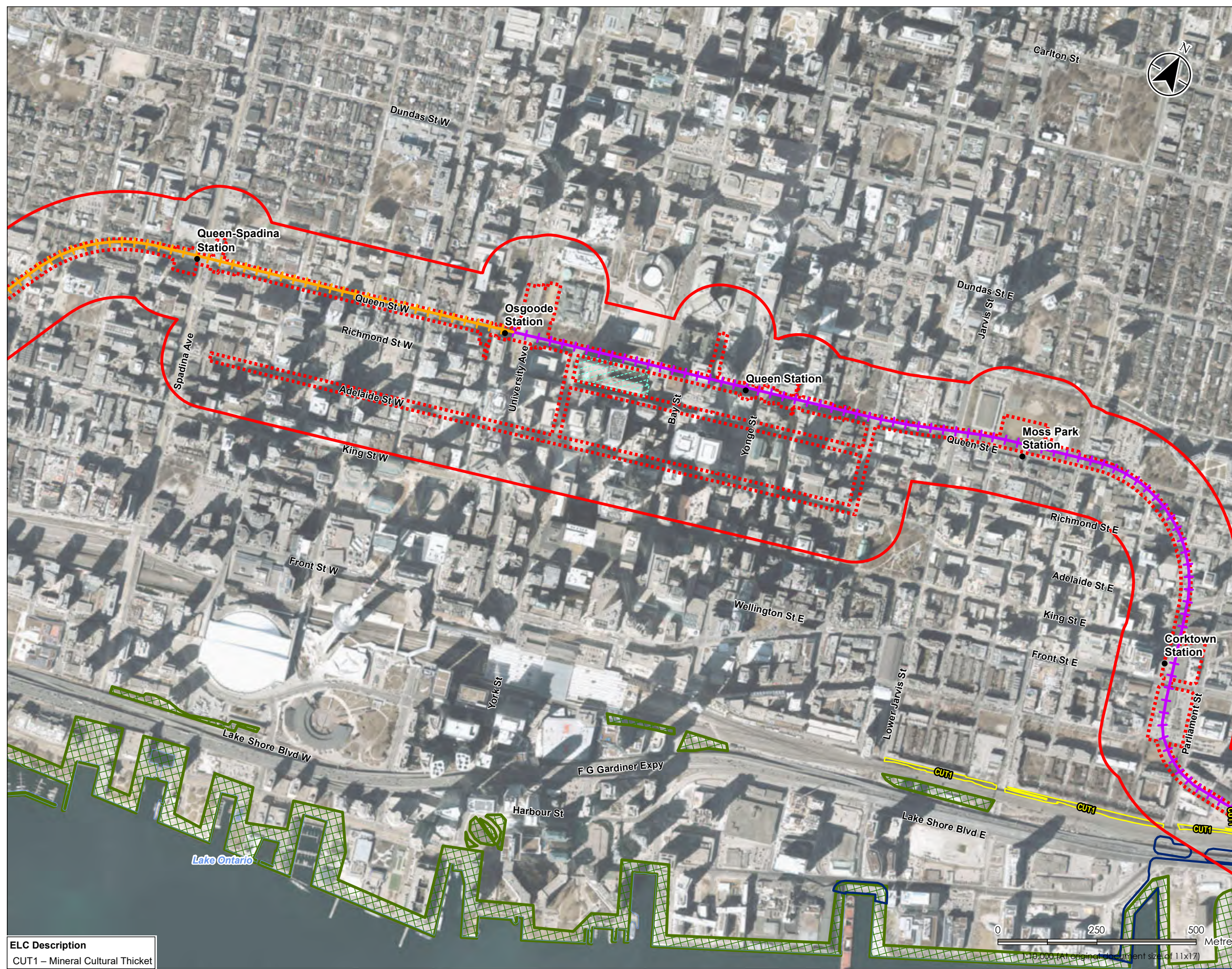


Project Location: Coily of Toronto, ON  
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Figure No.  
**4-2**  
 Title

**Natural Heritage Results**



**ELC Description**  
 CUT1 – Mineral Cultural Thicket

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 Review: 2022-01-31 Rev: bccover



## Wildlife and Wildlife Habitat

The majority of wildlife in the OLW Study Area are common in the City of Toronto and secure in Ontario and tolerant to anthropogenic disturbances, while a small proportion is comprised of sensitive or rare species. Many bird species are protected under the *Migratory Birds Convention Act* (MBCA) and a few Species of Conservation Concern and SAR species were noted.

Generally, the OLW Study Area is largely urbanized with very limited naturalized areas providing low-quality habitat for urban wildlife due to fragmentation, limited connectivity to significant natural areas, presence of non-native and invasive plants, and noise and vibration from surrounding vehicle, train, and pedestrian traffic. However, it is important to note that isolated trees and shrubs, vegetation communities and anthropogenic (human-made) structures (e.g., buildings and bridges) can provide nesting habitat for many migratory birds protected under the MBCA. The existing rail corridor may support movement of small mammals, birds and insects but overall is considered to be a poor wildlife linkage due to limited connectivity to significant natural areas, which are generally absent in the OLW Study Area.

The following incidental wildlife were recorded during the 2020 field investigations:

- Barn Swallow (*Hirundo rustica*)
- Song Sparrow (*Melospiza melodia*)
- Chimney Swift (*Chaetura pelagica*)

Song sparrow is a common bird that is protected under the MBCA; however, barn swallow and chimney swift are listed as threatened and protected under the *Endangered Species Act, 2007* (ESA), as well as the MBCA (refer to **Section 4.3.3** for detailed discussion on SAR). Barn swallows were observed flying over and foraging over mowed lawns of the Garrison Commons; however, no nests were observed in the vicinity of the Garrison Commons from accessible areas. It is possible that barn swallows are nesting at sites closer to the waterfront and foraging further away in open areas such as Garrison Commons. Chimney swifts were observed flying over the Royal Regiment of Canada Museum, which appears to contain an uncapped smokestack. It is suspected that chimney swifts may be using this smokestack as nesting and roosting habitat; however, none were incidentally observed entering the smokestack. Chimney swifts were also observed flying over near Jefferson Avenue and the existing rail corridor.

## Significant Wildlife Habitat

Based on the preliminary review of Significant Wildlife Habitat Criteria Schedules for Ecoregion 7E (MNR 2015), the following Significant Wildlife Habitat types may occur in the OLW Study Area.

### Seasonal Concentration Areas:

- **Candidate Bat Maternity Colonies**
  - Deciduous Forests, Mixed Forests, Deciduous Swamp and Mixed Swamp communities are considered to be candidate bat maternity colony habitats. A Deciduous Forest Community was identified in the Study Area north of the Gardiner Expressway between Strachan Avenue and Bathurst Street.

### Habitats of Species of Conservation Concern:

- **Candidate Habitat for Species of Conservation Concern**
  - Common Nighthawk (*Chordeiles minor*)  
This species may nest on the flat, gravel rooftops of buildings in urban areas (Brigham et al. 2011).
  - Eastern Wood-pewee (*Contopus virens*)  
A forested area in the existing rail corridor may provide suitable nesting habitat. This species is protected by MBCA.
  - Peregrine Falcon (*Falco peregrinus*)  
High-rise buildings may provide suitable nesting. This species is not protected by MBCA but receives protection under the Ontario *Fish and Wildlife Conservation Act*, 1997.
  - Red-headed Woodpecker (*Melanerpes erythrocephalus*)  
A forested area in the existing rail corridor may provide suitable habitat for this species. This species is protected by MBCA.

There was no candidate or confirmed rare vegetation communities, specialized habitat for wildlife or animal movement corridors identified within the OLW Study Area. The OLW Study Area is significantly urbanized and contains many barriers to animal movements (i.e., railways, roads, construction areas and fences). In addition, there were no confirmed Species of Conservation Concern habitats identified within the OLW Study Area.

## Species

The following SAR have a high probability of occurring in the OLW Study Area:

- **Barn Swallow**  
This species is listed as Threatened and receives protection under the ESA, as well as the MBCA. Barn Swallows are known to use anthropogenic structures (e.g., bridges and buildings); however, nesting Barn Swallows require proximity to suitable open habitat for foraging and generally also require access mud to for nest building (Heagy et al. 2014). Therefore, anthropogenic structures (e.g., buildings) located within 200 metres of waterbodies were determined as having a higher probability of supporting Barn Swallow nesting. The buildings within the OLW Study Area were generally deemed to have low potential for supporting nesting Barn Swallows as these were located more than 200 metres from the nearest waterbody. This species was observed foraging within the OLW Study Area in the Garrison Commons; however, no nests in the vicinity were observed

from accessible areas. It is suspected that barn swallow may be nesting closer to the Lake Ontario waterfront and forage further inland.

- **Chimney Swift**

This species is listed as Threatened and receives protection under the ESA, as well as the MBCA. Chimney swifts are aerial insectivores and are typically concentrated in urban settlements where there are suitable chimneys for nesting and roosting (Steeves et al. 2014). Chimney swifts were observed flying over in the OLV Study Area. Buildings with suitable chimneys or standalone smokestacks may provide nesting or roosting habitat for chimney swifts within the OLV Study Area. Suitable chimneys have the following characteristics (Bird Studies Canada 2009; Committee on the Status of Endangered Wildlife in Canada 2018):

- chimneys with a wide diameter of at least 2.5 standard bricks (20 cm x 9 cm x 6 cm) in width or that have a minimum interior diameter of 25 cm to 30 cm (or 1 foot)
- chimneys built of brick, stucco, stone or concrete
- chimneys lacking caps, spark protectors and animal guards that would otherwise prevent entry
- chimneys lacking aluminum flues or metal linings that may prevent chimney swifts from clinging to the interior of the chimney
- internal chimney temperatures between 13°C and 43°C
- chimney height extends beyond the roofline with a preferred height of 2.68 metres

The following SAR have a medium probability of occurring in the OLV Study Area:

- **Bat SAR, including Eastern Small-footed Myotis (*Myotis leibii*), Little Brown Myotis (*Myotis lucifugus*), Northern Long-eared Myotis (*Myotis septentrionalis*) and Tri-coloured Bat (*Perimyotis subflavus*)**

Bat SAR are listed as Endangered and receive protection under the ESA. Little brown myotis and northern myotis may roost in trees that are hollow, have cavities or loose bark. Tri-coloured bats are known to roost in dead leaf clusters while eastern small-footed myotis are known to roost in rocky outcrops and talus slopes. Bat SAR are known to roost in anthropogenic structures such as buildings in crevice-like spaces; under sidings, eaves, roof tiles or shingles or behind shutters or sliding doors, between building wings, cracks and crevices in walls, wall coatings, hollow mortice joints, rain gutters and chimneys; and/or in attics (Bat Conservation Trust 2012; MNRF 1984; Humphrey 2017; Humphrey and Fotherby 2019). There were no hibernacula identified in the OLV Study Area; however, maternity roosting habitats may be present. In the OLV Study Area, a forest community along the existing rail corridor may provide suitable maternity roosting habitats for these species. Buildings with potential entry or exit points in the OLV Study Area may also be used by bat SAR for roosting. A portion of the OLV occurs in underground sections of new and existing infrastructure. The Ministry of the Environment, Conservation and Parks (MECP) has determined that it is unlikely that underground sections would be used by overwintering SAR bats and that surveys to confirm this prior to construction would not be necessary. Notwithstanding, conditions of the tunnels could be suitable for overwintering and MECP advises that a contingency

plan be in place should bats be encountered. The plan should include worker awareness of the potential prior to construction activity and actions for scenarios where bats are encountered outlining actions to be taken.

- **Butternut**

This species is listed as Endangered and receives protection under the ESA. This species may occur in the cultural hedgerows in the existing rail corridor or in the forested area.

The remaining SAR identified have low probability of occurrence in the OLW Study Area:

- Bank Swallow (*Riparia riparia*)
- Bobolink (*Dolichonyx oryzivorus*)
- Eastern Meadowlark (*Sturnella magna*)
- Blanding's Turtle (*Emydoidea blandingii*)

There are no aquatic SAR present given that there are no water features identified in the OLW Study Area.

### 4.3.3 Ontario Line South

#### Designated Features and Policy Areas

According to the NDMNRF's GeoHub Mapping (2020a), there are no Provincially Significant Wetlands, Locally Significant Wetlands, Areas of Natural or Significant Interest, unevaluated wetlands, or woodlands in the OLS Study Area. However, areas associated with the Lower Don River Valley fall in the City of Toronto's Natural Heritage System, Ravine and Natural Feature Protection by-law area, and the TRCAs Terrestrial Natural Heritage System and regulation limits (shown on **Figure 4-2**, **Figure 4-3**, and **Figure 4-4**). The Don River Valley is also designated as an Urban River Valley under the Greenbelt Plan. There are no environmentally significant areas in the OLS Study Area.

#### Vegetation Communities

Vegetation communities identified in the OLS Study Area are generally disturbed and are largely limited to narrow vegetation strips in the existing rail corridor surrounded by heavily developed commercial, industrial, and residential areas. These vegetation communities contain large proportions of non-native and invasive plant species, and none were identified as being provincially significant (AECOM 2017; AECOM 2018; 4Transit 2018; HDR 2018; Golder Associates 2018). Vegetation communities consist of Cultural Hedgerows, Cultural Meadows, Cultural Thickets, Cultural Woodlands, and a Cultural Plantation as shown on **Figure 4-2**, **Figure 4-3**, and **Figure 4-4**.

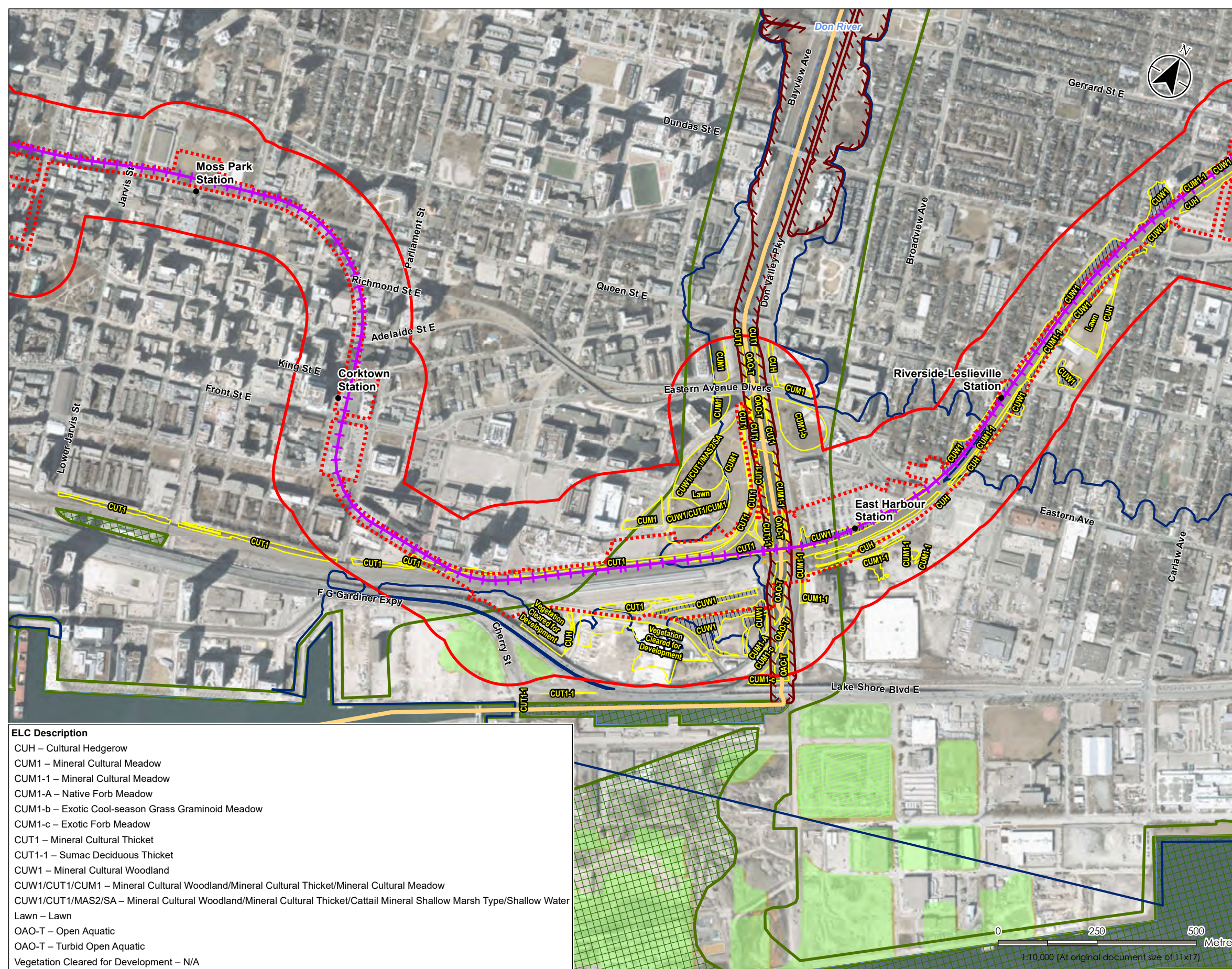
There were no plant SAR or provincially significant plants identified in the OLS Study Area (AECOM 2017; AECOM 2018; HDR 2018). However, three Regional Species of Conservation Concern plans were recorded.

## Aquatic Habitat

The Study Area contains the Don River, which is situated in the Don River watershed with the southern extent adjacent to the Lake Ontario waterfront. Previous assessments of the Don River in the OLS Study Area showed evidence of prior re-alignment to accommodate urban transportation corridor development with little natural features present (AECOM 2017), and slow flowing, turbid water (HDR 2018). Banks were found to have a narrow strip of riparian vegetation and steel support walls (HDR 2018). Bankfull width and depth were approximately 40 metres and 2 metres respectively, with wetted width approximately 36 metres (HDR 2018). The Don River in the Study Area provides direct fish habitat important for migration, feeding and refuge however conditions are generally non-limiting throughout with no specialized habitat (e.g., critically limiting spawning habitat) identified (AECOM 2017; 4Transit 2018). Migratory species (i.e., Salmon) use the Don River as a seasonal migratory corridor to and from Lake Ontario as there are no barriers to fish use (AECOM 2017).

Legend

- Ontario Line South
- Project Footprint
- Study Area
- Thermal Regime**
- Warm
- Environmentally Significant Area (City of Toronto)
- Natural Heritage System (City of Toronto)
- RavineByLaw (City of Toronto)
- ELC
- Potential Barn Swallow Habitat
- Potential Bat Roosting
- Regulation Limit (TRCA)
- TRCA Natural Heritage System**
- Existing Natural Cover
- Potential Natural Cover



**ELC Description**

CUH	– Cultural Hedgerow
CUM1	– Mineral Cultural Meadow
CUM1-1	– Mineral Cultural Meadow
CUM1-A	– Native Forb Meadow
CUM1-b	– Exotic Cool-season Grass Graminoid Meadow
CUM1-c	– Exotic Forb Meadow
CUT1	– Mineral Cultural Thicket
CUT1-1	– Sumac Deciduous Thicket
CUW1	– Mineral Cultural Woodland
CUW1/CUT1/CUM1	– Mineral Cultural Woodland/Mineral Cultural Thicket/Mineral Cultural Meadow
CUW1/CUT1/MAS2/SA	– Mineral Cultural Woodland/Mineral Cultural Thicket/Cattail Mineral Shallow Marsh Type/Shallow Water
Lawn	– Lawn
OAO-T	– Open Aquatic
OAO-T	– Turbid Open Aquatic
Vegetation Cleared for Development	– N/A

- Notes**
1. Coordinate System: NAD27 MTM zone 10
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Figure No.  
**4-3**  
 Title

**Natural Heritage Results**

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 Review: 2022-01-31 Rv\_bcc\ocw...

Legend

- Ontario Line South
- Ontario Line North
- Project Footprint
- Study Area

Thermal Regime

- Warm
- Watercourse (Permanent)
- Environmentally Significant Area (City of Toronto)
- Natural Heritage System (City of Toronto)
- RavineByLaw (City of Toronto)
- ELC
- Potential Bat Roosting
- Regulation Limit (TRCA)

TRCA Natural Heritage System

- Existing Natural Cover
- Potential Natural Cover

Notes

1. Coordinate System: NAD27 MTM zone 10
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Figure No.

**4-4**

Title

**Natural Heritage Results**



ELC Description
CUH – Cultural Hedgerow
CUM1-1 – Mineral Cultural Meadow
CUM1-b – Exotic Cool-season Grass Graminoid Meadow
CUW1 – Mineral Cultural Woodland
Lawn – Lawn

The section of the Don River through the OLS Study Area is classified as estuarine in the City of Toronto Natural Heritage Study (HDR 2018) with 33 species of fish recorded (TRCA 2014a & 2020). The aquatic species composition represents a mix of generally common warm to cold water species that are intermittently tolerant to tolerant of environmental perturbation with Salmonid species being the exception (AECOM 2018). Coldwater species that are generally pollution intolerant such as Atlantic Salmon and Brown Trout were identified, however are not anticipated to be resident fish. Rather, they have been captured in the Don River as a result of sport fish restocking initiatives and/or seasonal migration to and from Lake Ontario (AECOM 2018). There is no habitat classified as critical by the *Species at Risk Act*.

American Eel has been assessed as Endangered by the Committee on the Status of Species at Risk in Ontario and is protected under the ESA. American Eel may occur in the greater Study Area, as it has been recorded once in the Lower Don and it resides in Lake Ontario. The potential for American Eel to occur in the Study Area is extremely low given that there is no preferred habitat for its life cycle process in this area, and its presence would most likely be a result of individuals wandering in search of suitable habitat.

## **Wildlife and Wildlife Habitat**

There is limited natural cover providing wildlife habitat in the OLS Study Area in the form of urban parks, residential yards, and narrow strips of riparian vegetation along the Don River and in the existing rail corridor (HDR 2018). The Corktown Common Park is located in the West Don Lands adjacent to the Don River and was converted from an industrial brownfield to a 7.3 hectare park, containing a system of restored urban prairie and marsh habitats situated on top of a flood protection landform (Waterfront Toronto 2020). This Park provides habitat for urban wildlife. Small pockets of low-quality vegetation west of Don River supporting urban wildlife were documented but generally lacked in amphibian breeding habitat (AECOM 2018). Similarly, there is limited wildlife habitat in the existing rail corridor as vegetation communities are largely disturbed containing a high proportion of non-native and invasive plant species that were highly fragmented with low connectivity to significant natural features (AECOM 2017). The existing rail corridor provides low-quality movement corridors for some small mammals, birds, and insects.

Most of the bird species recorded in the existing rail corridor east of the Don River consisted of common species in Ontario that are tolerant to urban disturbances except for Barn Swallow and Chimney Swift, both SAR birds protected under the ESA, noted flying over the existing rail corridor (AECOM 2017).

Areas that could potentially support herpetofauna tolerant of urban conditions including American Toad (*Anaxyrus americanus*), Dekay's Brownsnake (*Storeria d. dekayi*), and Eastern Gartersnake (*Thamnophis s. sirtalis*) were also identified close to the Don River (4Transit 2018).

Generally, the OLS Study Area provides limited wildlife habitat throughout and although the Don River may function as a movement corridor for small to medium sized urban wildlife, there is low connectivity to other significant natural features with many barriers to animal movement (i.e., railways, roads, construction areas, and fences). However, it is important to note that isolated trees and shrubs, vegetation communities, and anthropogenic structures (e.g., buildings and



bridges) can provide nesting habitat for many migratory birds, which are protected under the MBCA.

## Significant Wildlife Habitat

Based on review of the Significant Wildlife Habitat Criteria Schedules for Ecoregion 7E (MNR 2015), the following Significant Wildlife Habitat types occur or may occur within the OLS Study Area.

### Habitats of Species of Conservation Concern:

- **Confirmed Habitat for Species of Conservation Concern**

- Peregrine Falcon  
This species may nest on ledges of high-rise buildings. This species was recorded by TRCA in 2010 near the intersection of Queen Street West and University Avenue. The Sheraton Centre Toronto Hotel located at 123 Queen Street West is a confirmed and current nesting location for this species (Canadian Peregrine Foundation 2020). This species is not protected by MBCA but receives protection under the Ontario *Fish and Wildlife Conservation Act* (1997).
- Northern Map Turtle  
The Don River may serve as a movement corridor for this species due to its moderate flow and less than 1 metre depth. However, there are no suitable nesting or basking habitats present. A single record of this species within the OLS Study Area was reported by Ontario Nature in 2016.

- **Candidate Habitat for Species of Conservation Concern**

- Common Nighthawk  
This species may nest on the flat, gravel rooftops of buildings in urban areas (Brigham et al. 2011), as well as along the banks of the Don River. This species was recorded by TRCA in 2016 near the intersection of Pape Avenue and Danforth Avenue. This species is protected by the MBCA.
- Eastern Wood-pewee  
The cultural woodlands west of the Don River may provide suitable nesting habitat for this species. This species is protected by the MBCA.
- Red-headed Woodpecker  
Wooded areas (e.g., cultural woodlands) may provide suitable habitat for this species. This species is protected by the MBCA.
- Monarch  
Cultural meadows east and west of the Don River may provide suitable foraging and rearing habitat.
- Snapping Turtle  
The Don River is a moderately flowing river with depths ranging from 0.1 metre to 1.0 metre and may serve as movement corridor for this species to Lake Ontario. However, there are no suitable nesting, or basking habitats present.

There was no candidate or confirmed seasonal concentration areas, rare vegetation communities or specialized habitat for wildlife identified in the OLS Study Area. Although the Don River within the OLS Study Area acts as an important movement corridor for small urban wildlife in a highly urbanized area, it does not qualify as a candidate animal movement (amphibian or deer) corridor based on the criteria described in the Significant Wildlife Habitat Criteria Schedules for Ecoregion 7E (MNR 2015) due to high levels of urbanization, fragmentation, and barriers to animal movements (i.e., railways, roads, construction areas and fences).

## Species at Risk

The following SAR have a high probability of occurring in the OLS Study Area:

- **Barn Swallow**  
This species is described previously in **Section 4.3.3**. According to 4Transit (2018), Barn Swallows were observed foraging in the vicinity of the rail bridge crossing the Don River suggesting that active nests may be present under this bridge. Generally, the buildings in the OLS Study Area were deemed to have limited potential to support nesting barn swallows as these were located more than 200 metres from the nearest waterbody.
- **Chimney Swift**  
This species is described previously in **Section 4.3.3**. Based on review of available online secondary source information, there are two confirmed Chimney Swift sites in the OLS Study Area.

The following SAR have a medium probability of occurring in the OLS Study Area:

- **Bat SAR, including Eastern Small-footed Myotis, Little Brown Myotis, Northern Long-eared Myotis and Tri-coloured Bat**  
These species are described previously in **Section 4.3.3**. Bat SAR are listed as Endangered and receive protection under the ESA. There were no hibernacula identified in the OLS Study Area; however, maternity roosting habitats may be present. Within the OLS Study Area, treed areas, including forest and cultural woodlands within the existing rail corridor may provide suitable maternity roosting habitats for these species. Buildings with potential entry or exit points within the OLS Study Area may also be used by bat SAR for roosting.
- **Butternut**  
This species is listed as Endangered and receives protection under the ESA. This species may occur in the cultural hedgerows in the existing rail corridor.

The remaining SAR have low probability of occurrence due to lack of habitat identified in the OLS Study Area:

- Bank swallow (*Riparia riparia*)
- Bobolink (*Dolichonyx oryzivorus*)
- Eastern meadowlark (*Sturnella magna*)
- Blanding's turtle (*Emydoidea blandingii*)

There is no mapped critical habitat for Federally protected aquatic SAR in the Don River within the entire Ontario Line study area based on review of Fisheries and Oceans Canada's 2020 Aquatic SAR Maps.

There are historical Natural Heritage Information Centre records from 1884 and 1926 of Lake Sturgeon (*Acipenser fulvescens*), Redside Dace (*Clinostomus elongatus*), and American Eel (*Anguilla rostrata*) (4Transit 2018). These species are listed as Endangered under the ESA. In the OLS Study Area the Don River does not provide suitable habitat conditions for Lake Sturgeon and Redside Dace. American eels have been captured in the Lower Don River. The recovery strategy for this species also lists the Don River as potential habitat for this species (MacGregor et al. 2013).

### 4.3.4 Ontario Line North

#### Designated Features and Policy Areas

According to the NDMNRF's GeoHub Mapping (2020a), there are no Provincially Significant Wetlands, Locally Significant Wetlands or provincially significant Areas of Natural and Scientific Interest in the OLN Study Area. However, there is a candidate Regionally Significant Life Science Areas of Natural and Significant Interest in the E.T. Seton Park Area of Investigation, as well as unevaluated wetlands and wooded areas (shown on **Figure 4-5**, **Figure 4-6** and **Figure 4-7**). The City of Toronto does not identify significant woodlands or significant valleylands in their Official Plan (2015).

In addition, the Don River Valley in the OLN Study Area is a valleyland feature consisting of a continuous natural vegetation corridor with a minimum width of 100 metres and containing over 25% of natural cover, fish habitat, and regionally and locally rare species identified in the Candidate Regionally Significant West Don River Valley Life Science Areas of Natural and Significant Interest and an Environmentally Significant Area in E.T. Seton Park. Although there was no mapping available from secondary sources identifying the boundaries of this valleyland specifically, the City of Toronto's Natural Heritage System and Ravine and Natural Feature Protection By-law, and TRCA's regulation limits, generally include the extent of the valleyland in the OLN Study Area. The Don River Valley is also designated as an Urban River Valley under the Greenbelt Plan.

According to the City of Toronto's Interactive Map (City of Toronto 2020a), the natural areas in the Don River Valley located in the OLN Study Area (in both the Millwood Road and E.T. Seton Park Areas of Investigation) are part of the City of Toronto's Natural Heritage System and Ravine and Natural Feature Protection By-law Area, as well as TRCAs Terrestrial Natural Heritage System and regulation limits. There is one environmentally significant area in E.T. Seton Park, located north of Overlea Boulevard in the Don River Valley. The E.T. Seton Park Environmentally Significant Area consists of a mixture of forested, cultural, and wetland communities. Wetlands are groundwater-fed and support important water storage functions (North-South Environmental Inc. et al. 2012). There are three significant flora species, two significant fauna species, and two significant vegetation communities present (North-South Environmental Inc. et al. 2012).

## Vegetation Communities

The majority of the OLN Study Area includes developed residential and commercial areas with vegetation limited to streetscapes (e.g., street trees, City parks, manicured lawns). Field investigations were focused on the natural areas present in the Millwood Road and E.T. Seton Park Areas of Investigation and described in the following sub-sections (shown on **Figure 4-5**, **Figure 4-6** and **Figure 4-7**).

- Legend**
- Ontario Line South
  - Ontario Line North
  - Project Footprint
  - Study Area
  - Sub Study Area (AECOM)
  - Mammal Burrow
- Incidental Observations**
- Monarch
- Thermal Regime**
- Warm
  - Watercourse (Permanent)
  - Environmentally Significant Area (City of Toronto)
  - Natural Heritage System (City of Toronto)
  - RavineByLaw (City of Toronto)
  - ELC
  - Potential Bat Roosting
- Areas of Natural and Scientific Interest**
- Provincially Significant Earth Science Area of Natural and Scientific Interest
  - Regulation Limit (TRCA)
- TRCA Natural Heritage System**
- Existing Natural Cover
  - Potential Natural Cover

- Notes**
1. Coordinate System: NAD27 MTM zone 10
  2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2020.

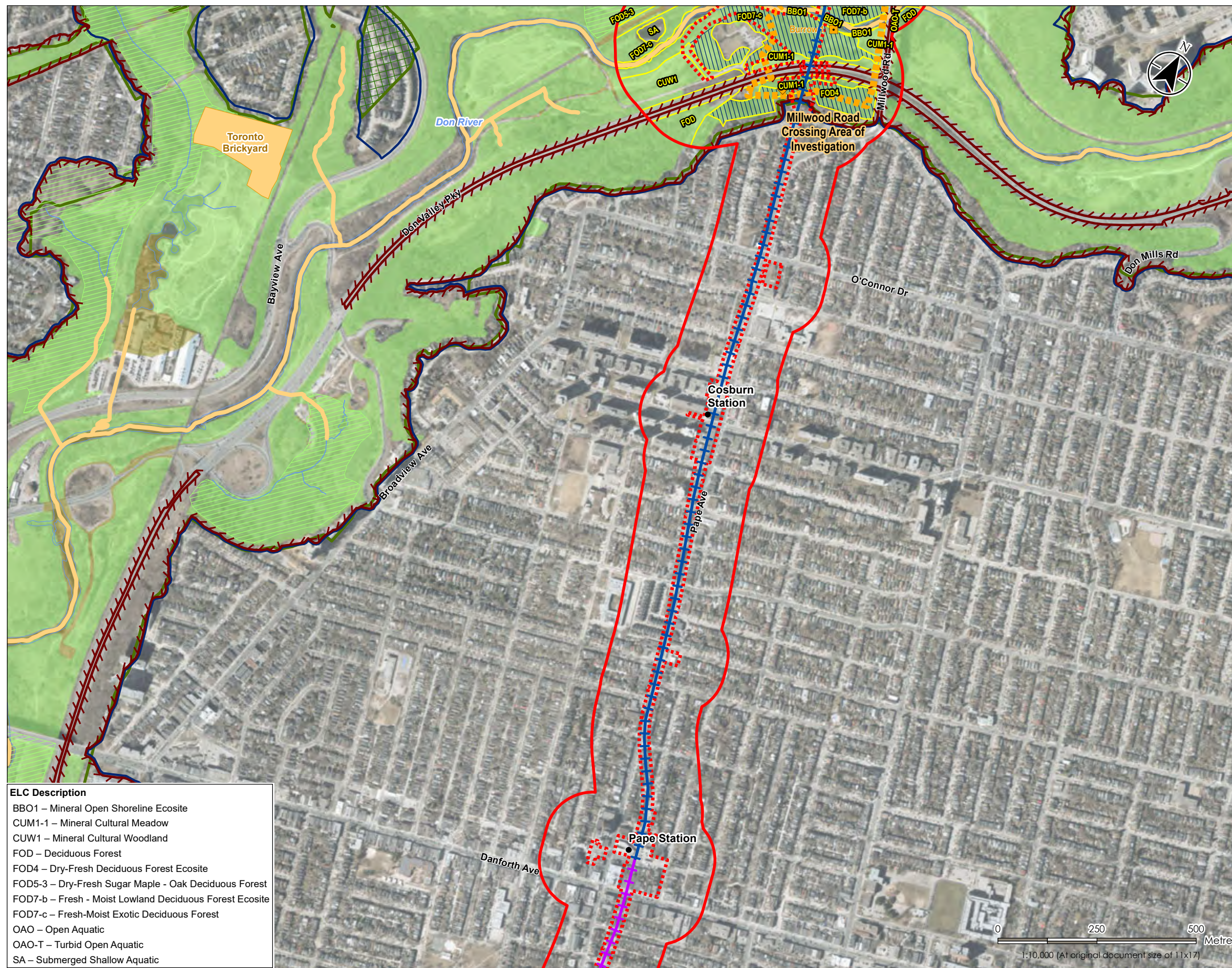


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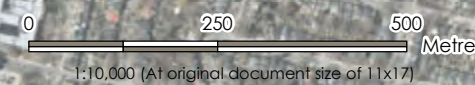
Figure No.  
**4-5**  
 Title

**Natural Heritage Results**



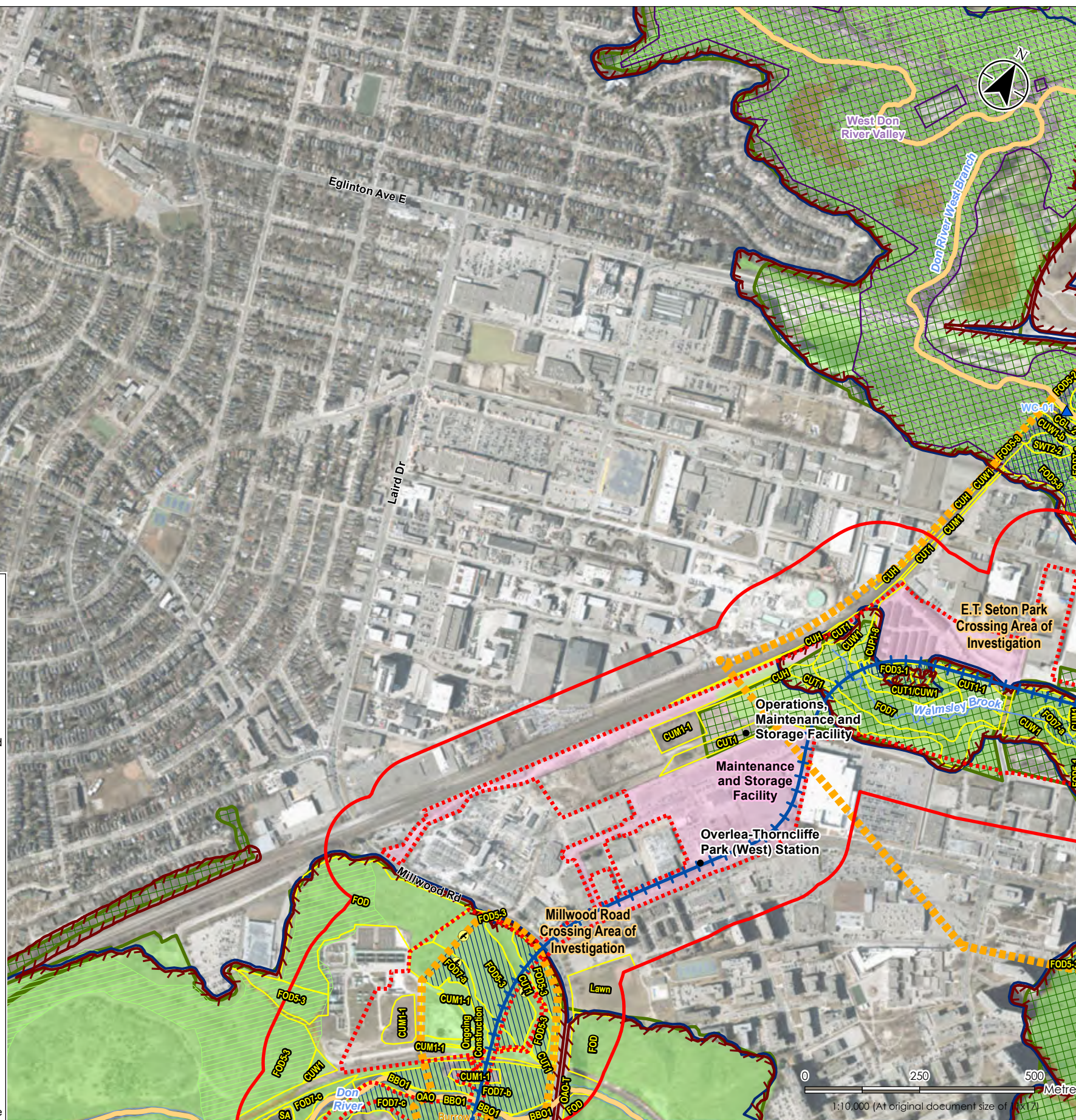
**ELC Description**

BBO1	Mineral Open Shoreline Ecosite
CUM1-1	Mineral Cultural Meadow
CUW1	Mineral Cultural Woodland
FOD	Deciduous Forest
FOD4	Dry-Fresh Deciduous Forest Ecosite
FOD5-3	Dry-Fresh Sugar Maple - Oak Deciduous Forest
FOD7-b	Fresh - Moist Lowland Deciduous Forest Ecosite
FOD7-c	Fresh-Moist Exotic Deciduous Forest
OAO	Open Aquatic
OAO-T	Turbid Open Aquatic
SA	Submerged Shallow Aquatic



- Legend
- Ontario Line North
  - Project Footprint
  - Maintenance and Storage Facility
  - Study Area
  - Sub Study Area (AECOM)
  - Mammal Burrow
- Incidental Observations**
- Eastern Wood-pewee
  - Water Crossing
- Thermal Regime**
- Warm
  - Watercourse (Permanent)
  - Environmentally Significant Area (City of Toronto)
  - Natural Heritage System (City of Toronto)
  - RavineByLaw (City of Toronto)
  - ELC
  - Potential Bat Roosting
- Areas of Natural and Scientific Interest**
- Candidate Regionally Significant Life Science Area of Natural and Scientific Interest
  - Regulation Limit (TRCA)
- TRCA Natural Heritage System**
- Existing Natural Cover
  - Potential Natural Cover

- ELC Description**
- BBO1 – Mineral Open Shoreline Ecosite
  - CGL\_2 – Parkland (2008 ELC Code)
  - CUH – Cultural Hedgerow
  - CUM1 – Mineral Cultural Meadow
  - CUM1-1 – Mineral Cultural Meadow
  - CUP1-8 – Red Oak Deciduous Plantation
  - CUT1 – Mineral Cultural Thicket
  - CUT1-1 – Sumac Deciduous Thicket
  - CUT1/CUW1 – Mineral Cultural Thicket/ Mineral Cultural Woodland
  - CUW1 – Mineral Cultural Woodland
  - CUW1-b – Exotic Successional Woodland
  - FOD – Deciduous Forest
  - FOD1-1 – Fresh Red Oak Deciduous Forest
  - FOD3-1 – Dry-Fresh Poplar Deciduous Forest
  - FOD5-1 – Dry-Fresh Sugar Maple Deciduous Forest
  - FOD5-2 – Dry-Fresh Sugar Maple - Beech Deciduous Forest
  - FOD5-3 – Dry-Fresh Sugar Maple - Oak Deciduous Forest
  - FOD5-8 – Dry-Fresh Sugar Maple - White Ash Deciduous Forest
  - FOD7 – Fresh-Moist Lowland Deciduous Forest
  - FOD7-a – Fresh-Moist Manitoba Maple Lowland Deciduous Forest
  - FOD7-b – Fresh - Moist Lowland Deciduous Forest Ecosite
  - FOD7-c – Fresh-Moist Exotic Deciduous Forest
  - Lawn – Lawn
  - MAM2 – Graminoid Mineral Meadow Marsh
  - OAO – Open Aquatic
  - OAO-T – Turbid Open Aquatic
  - OAO1-T – Turbid Open Aquatic (unvegetated)
  - Ongoing Construction – N/A
  - SA – Submerged Shallow Aquatic
  - SWT2-2 – Missouri Willow Mineral Deciduous Thicket Swamp Type



- Notes**
1. Coordinate System: NAD27 MTM zone 10
  2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2020.



Project Location: Coily of Toronto, ON  
 140560009 REV4  
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 ONTARIO LINE TA  
 NATURAL ENVIRONMENT TECHNICAL REPORT

Figure No.  
**4-6**

Title  
**Natural Heritage Results**

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- Legend**
- Ontario Line North
  - Project Footprint
  - Maintenance and Storage Facility
  - Study Area
  - Sub Study Area (AECOM)
  - Mammal Burrow
  - Water Crossing
- Thermal Regime**
- Warm
  - Watercourse (Permanent)
  - Environmentally Significant Area (City of Toronto)
  - Natural Heritage System (City of Toronto)
  - RavineByLaw (City of Toronto)
  - ELC
  - Potential Barn Swallow Habitat
  - Potential Bat Roosting
- Areas of Natural and Scientific Interest**
- Candidate Regionally Significant Life Science Area of Natural and Scientific Interest
  - Regulation Limit (TRCA)
- TRCA Natural Heritage System**
- Existing Natural Cover
  - Potential Natural Cover

- ELC Description**
- BBO1-A – Open Riparian Sand / Gravel Bar
  - BLT1-B – Deciduous Treed Bluff
  - CGL\_2 – Parkland (2008 ELC Code)
  - CUH – Cultural Hedgerow
  - CUM1 – Mineral Cultural Meadow
  - CUM1-1 – Mineral Cultural Meadow
  - CUM1-b – Exotic Cool-season Grass Graminoid Meadow
  - CUM1-c – Exotic Forb Meadow
  - CUP1-c – Locust Deciduous Plantation
  - CUP2-A – Restoration Mixed Plantation
  - CUP3-1 – Red Pine Coniferous Plantation
  - CUP3-2 – White Pine Coniferous Plantation
  - CUP3-H – Mixed Conifer Coniferous Plantation
  - CUS1-1 – Hawthorn Successional Savannah
  - CUS1-b – Exotic Successional Savannah
  - CUT1 – Mineral Cultural Thicket
  - CUT1-1 – Sumac Deciduous Thicket
  - CUT1-b – Buckthorn Deciduous Thicket
  - CUT1-c – Exotic Deciduous Thicket
  - CUT1/CUW1 – Mineral Cultural Thicket/ Mineral Cultural Woodland
  - CUW1 – Mineral Cultural Woodland
  - CUW1-b – Exotic Successional Woodland
  - FOD – Deciduous Forest
  - FOD1-1 – Fresh Red Oak Deciduous Forest
  - FOD4-b – Dry-Fresh Deciduous Forest Ecosite
  - FOD5-1 – Dry-Fresh Sugar Maple Deciduous Forest
  - FOD5-2 – Dry-Fresh Sugar Maple - Beech Deciduous Forest
  - FOD5-3 – Dry-Fresh Sugar Maple - Oak Deciduous Forest
  - FOD5-8 – Dry-Fresh Sugar Maple - White Ash Deciduous Forest
  - FOD7 – Fresh-Moist Lowland Deciduous Forest
  - FOD7-3 – Fresh-Moist Willow Lowland Deciduous Forest
  - FOD7-a – Fresh-Moist Manitoba Maple Lowland Deciduous Forest
  - FOD7-c – Fresh-Moist Exotic Deciduous Forest
  - FOD8-1 – Fresh-Moist Poplar Deciduous Forest
  - Lawn – Lawn
  - MAM – Meadow Marsh
  - MAM2 – Graminoid Mineral Meadow Marsh
  - MAM2-7 – Horsetail Graminoid Mineral Meadow Marsh
  - MAM2-a – Common Reed Mineral Meadow Marsh
  - MAS2-1b – Cattail Mineral Shallow Marsh Type
  - MAS2-e – Graminoid Mineral Shallow Marsh Ecosite
  - Manicured Park – Manicured Park
  - OA01-T – Turbid Open Aquatic (unvegetated)
  - SWT2-2 – Missouri Willow Mineral Deciduous Thicket Swamp Type



**Notes**

1. Coordinate System: NAD27 MTM zone 10
2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2020.



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Figure No.  
**4-7**  
 Title

**Natural Heritage Results**

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### *Millwood Road Area of Investigation*

Nine vegetation communities were identified in the Millwood Road Area of Investigation, including Cultural Meadows, Cultural Thickets, and Forests. None of these vegetation communities are provincially significant. A total of 125 plant species were recorded in the area investigated. Of the 125 species that could be identified to species level, 68 (54%) were native and 57 (46%) were non-native species.

One SAR, butternut, was incidentally observed in two locations during ELC surveys; this species is listed as Endangered and protected under the ESA. Six Regional Species of Conservation Concern plants were recorded.

### *E.T. Seton Park Area of Investigation*

Forty vegetation communities were identified in the E.T. Seton Park Area of Investigation. It appears that natural vegetation communities dominated the landscape, particularly forest communities which represented 33.69 hectares or 54% of the of the Study Area. Dry-Fresh Sugar Maple – White Ash Deciduous Forest and Fresh-Moist Lowland Deciduous Forest were the largest vegetation communities while Fresh-Moist Manitoba Maple Lowland Deciduous Forest was the most frequently occurring community type. A total of 166 plant species were recorded in the area investigated. Of the 166 species that could be identified to species level, 106 (64%) were native and 60 (36%) were non-native species.

One SAR, butternut, was incidentally observed in three locations during ELC surveys; this species is listed as Endangered and protected under the ESA. Twenty-seven Regional Species of Conservation Concern plants were recorded.

### *Walmsley Brook Valley*

The vegetation communities in the area are considered provincially common and include a variety of non-native species that are found in urban areas where development pressure is occurring. A total of 98 plant species were recorded, of which 64 (65%) were native and 34 (35%) were non-native species. These communities and flora are considered tolerant to various disturbance. The vegetation in the valley provides important slope stability to valley slopes. Plants encountered that are considered locally rare plants by the TRCA and identified by AECOM during field surveys include dwarf scouring-rush (*Equisetum scirpoides*; L3), blue cohosh (*Caulophyllum thalictroides*; L3), white oak (*Quercus alba*; L2) and broad-leaved sedge (*Carex platyphylla*; L3).

### **Aquatic Habitat**

The general watershed characteristics of the Don River as described in the OLS Study Area (see **Section 4.3.3**) also apply to the reaches of the Don River and Don River West Branch located in the OLN Study Area.



Field investigations of the general aquatic habitat conditions occurred in the Millwood Road and E.T. Seton Park (Don River and Walmsley Brook) Areas of Investigation in the OLN Study Area. The results of these field investigations are summarized below.

### *Millwood Road Area of Investigation – Don River*

The assessed reach of the Don River in the Millwood Road Area of Investigation provides habitat for general life processes (i.e., feeding, migration, refuge) and is non-limiting throughout. No barriers to fish passage or groundwater indicators were observed. No habitat classified as critical by the *Species at Risk Act* and no aquatic SAR identified in desktop review or agency correspondence that are afforded protection under the ESA were identified in the surveyed reach.

### *E.T. Seton Park Area of Investigation – Don River West Branch*

The assessed reach of the Don River West Branch provides habitat for general life processes (i.e., feeding, migration, refuge) and is non-limiting throughout. No barriers to fish passage or groundwater indicators were observed. No habitat classified as critical by the *Species at Risk Act* and no aquatic SAR identified in desktop review or TRCA sampling data that are afforded protection under the ESA were identified in the surveyed reach.

### *E.T. Seton Park Area of Investigation – Walmsley Brook*

Walmsley Brook is a tributary of the Don River West Branch in the Lower West Don River Subwatershed. Historically, the tributary originally commenced near Yonge Street, but has since been piped through much of its headwaters with the open portion of the channel now originating near the rail line southwest of the OMSF. The remaining lower reaches of the tributary from the rail line to the confluence with the Don River West Branch are open as it meanders through a deep wooded valley surrounded by commercial and industrial properties on both the north and south sides. Although the quality of the tributary has been compromised by the piping, it is recognized as one of the few coldwater systems in the Don River watershed and is mapped as a coldwater system in the Don River Watershed Plan Aquatic System Report on Current Conditions (TRCA 2009). However, consistent temperature data at the nearest water monitoring station are limited.

### *Fish Species Composition*

#### **DON RIVER WEST BRANCH**

Fish records for the Don River West Branch in and upstream of the OLN Study Area were obtained from the TRCA (2020). Five fish species, with a mixed assemblage of cool and warm water species, have been identified in the Don River West Branch. No habitat classified as critical by the *Species at Risk Act* and no aquatic SAR have been recorded in the OLN Study Area (Fisheries and Oceans Canada 2020), except historical records.

## WALMSLEY BROOK

There are limited data on the fish community in Walmsley Brook. Fish species are anticipated to be the same as, or a subset of those found in the Don River West Branch. Species collected from the West Branch by TRCA (2020) and NDMNRF (2020b) include Western Blacknose Dace (*Rhinichthys atratulus*), Common Shiner (*Luxilus cornutus*), Creek Chub (*Semotilus atromaculatus*), Fathead Minnow (*Pimephales promelas*), Longnose Dace (*Rhinichthys cataractae*) and White Sucker (*Catostomus commersonii*). These species are a mix of common forage fish that are generally tolerant of disturbance. The tributary likely offers habitat for life process - feeding, refuge, and migration for these species. The tributary and the downstream portions of the Don River West Branch are not known to provide critical habitat for *Species at Risk Act* protected species or species that would be protected under the ESA.

## Wildlife and Wildlife Habitat

### *Millwood Road Crossing Area of Investigation*

A total of 37 species of birds were recorded in the Millwood Road Area of Investigation during the breeding bird surveys completed in 2019. The most abundant species recorded was the Red-winged Blackbird (*Agelaius phoeniceus*), followed by Yellow Warbler (*Dendroica petechia*) and American Goldfinch (*Carduelis tristis*). Two area-sensitive species were also recorded including Hairy Woodpecker (*Picoides villosus*) and Blue-grey Gnatcatcher (*Polioptila caerulea*). The majority of the species recorded are common throughout southern Ontario; however, many of the recorded species are protected under the MBCA. One bird SAR, Barn Swallow, and one bird Species of Conservation Concern, Eastern Wood-pewee (*Contopus virens*), were recorded during the breeding bird surveys. No nests were observed under the Millwood Road Overpass Bridge. There were two sites along the Don River where several burrows were noted in the eroded, undercut banks. No Bank Swallows were observed at these locations during 2019 field investigations.

The following incidental wildlife were recorded during the 2019 field investigations:

- Red Admiral Butterfly (*Vanessa atalanta*)
- Eastern Cottontail (*Sylvilagus floridanus*)
- Monarch (*Danaus plexippus*)

These are common wildlife tolerant to urban disturbances; however, Monarch is listed as Special Concern under the ESA and therefore is considered to be a Species of Conservation Concern. The Monarch was observed flying over the Mineral Cultural Meadow in the RoW of the Don Valley Parkway. There were no large patches of Common Milkweed identified in the Mineral Cultural Meadow; however, this meadow may act as foraging habitat for this species.

### *E.T. Seton Park Crossing Area of Investigation*

The majority of the species recorded in the E.T. Seton Park Area of Investigation are common and secure in Ontario and tolerant to urban disturbances. The E.T. Seton Park Area of Investigation provides habitat for many urban wildlife species, including migratory breeding bird

species protected under the MBCA (Ramsay-Brown 2015). An additional two sites along the Don River in the E.T. Seton Park Area of Investigation were identified to have burrows in eroding, undercut banks. No Bank Swallows were observed at these locations during 2019 field investigations.

The following incidental wildlife were recorded during the 2019 field investigations: 1 species of amphibian, 13 species of birds, 3 species of butterflies, and 3 species of mammals. The majority of the wildlife observed are considered to be urban wildlife common to downtown Toronto. Two Chimney Swifts were observed flying over the circle parking lot south of Overlea Boulevard. Eastern Wood-pewee was recorded vocalizing in the Dry-Fresh Sugar Maple – White Ash Deciduous Forest located west of the Don River. In addition, anecdotal evidence was provided by a member of the public that there was an active Cooper’s Hawk nest in the Red Oak Deciduous Plantation Community in previous years.

### **Significant Wildlife Habitat**

Based on review of the Significant Wildlife Habitat Criteria Schedules for Ecoregion 7E (MNR 2015) and field investigations completed within the Millwood Road and E.T. Seton Park Areas of Investigation, the following Significant Wildlife Habitat types occur or may occur in the OLN Study Area.

#### Seasonal Concentration Areas:

- **Confirmed Turtle Wintering Areas**  
Based on records received from TRCA and Ontario Nature, the ponds in E.T. Seton Park behind the Ontario Science Centre support Painted Turtle and Snapping Turtle and provide confirmed turtle wintering area habitat.
- **Candidate Bat Maternity Colonies**  
Deciduous Forests, Mixed Forests, Deciduous Swamp and Mixed Swamp communities are considered to be candidate bat maternity colony habitats. Suitable snag trees were observed.
- **Candidate Reptile Hibernacula**  
Reptile hibernacula sites for common snakes may be present in burrows or rock outcroppings in dry areas.
- **Candidate Colonially – Nesting Bird Breeding Habitat (Bank and Cliff)**  
There were four separate locations where several burrows were observed at each location in the vertical eroded banks along the Don River.
- **Candidate Landbird Migratory Stopover Area**  
According to Migratory Birds in the City of Toronto (North-South Environmental Inc. 2009), the natural areas in the City of Toronto, specifically along the shoreline and those associated with ravine systems such as the Don River act as an annual stopover for migratory birds.

### Specialized Habitat for Wildlife:

- **Candidate Turtle Nesting Areas**  
Sandy or gravel shorelines along the Don River may provide suitable nesting habitat for turtles.
- **Confirmed Amphibian Wetland Breeding Habitat**  
The ponds in E.T. Seton Park behind the Ontario Science Centre and associated marshes provide amphibian breeding habitat as confirmed through records received from Ontario Nature, including records of American toad, green frog (*Rana clamitans*) and American bullfrog (*Lithobates catesbeianus*). According to the Significant Wildlife Habitat Criteria Schedules for Ecoregion 7E (MNRF 2015), wetlands with breeding American bullfrogs are considered significant.
- **Confirmed Marsh Breeding Bird Habitat**  
Green herons with probable breeding were observed in June 2020 and trumpeter swans in 2019 in the ponds behind the Ontario Science Centre based on records reviewed from eBird (2020). The pond and associated shallow marsh communities are considered significant marsh breeding bird habitat.

### Habitats of Species of Conservation Concern:

- **Confirmed Habitat for Species of Conservation Concern**
  - Eastern Wood-pewee  
The forested areas provide breeding habitat for eastern wood-pewee. This species is protected by the MBCA.
  - Monarch  
The Mineral Cultural Meadow in the RoW of the Don Valley Parkway in the Millwood Road Area of Investigation provides foraging and rearing habitat for this species. Large patches of common milkweed were not noted but the Mineral Cultural Meadow provides foraging habitat.
  - Snapping Turtle  
The ponds in the E.T. Seton Park provide overwintering habitat for this species. Snapping turtle was recorded by TRCA in these ponds in 2013.
- **Candidate Habitat for Species of Conservation Concern**
  - Western Chorus Frog (*Pseudacris maculata pop. 1*)  
The ponds in E.T. Seton Park behind the Ontario Science Centre may provide suitable amphibian breeding habitat.
  - Black-crowned Night Heron (*Nycticorax nycticorax*)  
This species may forage near the Don River and roost in trees along the forested riparian banks. However, this species likely nests in the Leslie Street Spit (outside the OLN Study Area), where there is a known large rookery. This species is protected by the MBCA.

- Common Nighthawk  
This species may nest on flat, gravel rooftops of buildings in urban areas (Brigham *et al.* 2011). Several buildings in the OLN Study Area were identified to have flat rooftops. This species is protected under the MBCA.
- Great Egret (*Ardea alba*)  
This species may forage near the Don River and roost in trees along the forested riparian banks. This species is protected by the MBCA.
- Peregrine Falcon  
There were no high-rise buildings identified in the OLN Study Area that are suitable for nesting; however, Peregrine Falcons may be observed flying over the study area preying on abundant supply of pigeons, other small passerines, and occasionally mammals (White *et al.*, 2020).
- Red-headed Woodpecker  
The forested areas in the Millwood Road and E.T. Seton Park Areas of Investigation may provide suitable habitat. This species is protected by the MBCA.
- Wood Thrush (*Hylocichla mustelina*)  
The forested areas in the Millwood Road and E.T. Seton Park Areas of Investigation may provide suitable habitat. This species is protected by the MBCA.
- Monarch  
Cultural meadows may provide foraging and rearing habitat for this species. A dense patch consisting of more than 60 common milkweeds was noted in the OLN Study Area.
- Northern Map Turtle  
The Don River may serve as a movement corridor and provide nesting habitat for this species.
- Snapping Turtle  
The Don River is a moderately flowing river with depths ranging from 0.1 metre to 1.0 metre, with sandy/gravel banks at certain locations and may serve as movement corridor for this species to Lake Ontario, as well as nesting habitat. TRCA provided a record of snapping turtle in the ponds behind the Ontario Science Centre from 2013.

#### Animal Movement Corridors:

- **Candidate Amphibian Movement Corridor**

The Don River and the forested habitats in the E.T. Seton Park Area of Investigation are candidate significant habitat due to the presence of significant amphibian breeding habitat in the ponds behind the Ontario Science Centre.

There were no rare vegetation communities identified within the OLN Study Area.

## Species at Risk

The following SAR have a high probability of occurring in the Ontario Line North Study Area:

- **Barn Swallow**  
This species is described previously in **Section 4.3.3**. This species was observed foraging within the Millwood Road Area of Investigation. It is anticipated that the buildings associated with the Ontario Science Centre and Go Green Youth Centre located within the E.T. Seton Park Area of Investigation may have higher probability of nesting Barn Swallows than other buildings within the OLN Study Area because they are within 200 metres of the Don River.
- **Chimney Swift**  
This species is described previously in **Section 4.3.3**. Chimney swift was recorded foraging in the Millwood Road and E.T. Seton Park Areas of Investigation, suggesting that they may be nesting nearby.
- **Butternut**  
This species is listed as endangered and receives protection under the ESA. A total of five butternuts were identified in the OLN Study Area, including two in the Millwood Road Area of Investigation and three in the E.T. Seton Park Area of Investigation.

The following SAR have a medium probability of occurring within the Ontario Line North Study Area:

- **Bank Swallow**  
This species listed as threatened and receives protection under the ESA, as well as the MBCA. There were four separate sites where several burrows (ranging from 6 to 30) were observed in the vertical eroded banks of the Don River; two sites were in the Millwood Road Area of Investigation and the other two sites were in the E.T. Seton Park Area of Investigation.
- **Bat SAR, including Eastern Small-footed Myotis, Little Brown Myotis, Northern Myotis and Tri-coloured Bat**  
These species are described previously in **Section 4.3.3**. Bat SAR are listed as Endangered and receive protection under the ESA. There were no hibernacula identified in the OLN Study Area; however, maternity roosting habitats may be present. Within the OLN Study Area, forested areas associated with the Don River Valley where cavity trees are available may provide suitable maternity roosting habitats for these species. Buildings with potential entry or exit points within the OLN Study Area may also be used by bat SAR for roosting.

The remaining SAR recorded in the Ontario Line North Study Area have low probability of occurrence due to lack of habitat:

- Bobolink;
- Eastern meadowlark; and,
- Blanding's turtle.

Lake Sturgeon (*Acipenser fulvescens*), Redside Dace (*Clinostomus elongatus*), and American Eel (*Anguilla rostrata*) appear in historical records but are not found in the OLN Study Area.

## 4.4 Soil and Groundwater

Soil refers to unconsolidated naturally occurring mineral particles and other materials resulting from the breakdown of rock or organic matter by physical, chemical or biological processes that are smaller than 2 millimetres in size or that pass the US #10 sieve, as per the definition of soil in O. Reg. 406/19. Groundwater refers to below-ground water conditions, including the flow of water from the surface into the groundwater, and the presence or absence of drinking water wells.

### 4.4.1 Methodology

A review of available information was conducted to establish existing conditions in the Study Area. The following aspects were examined:

- Geological setting, including physiography and topography, surficial geology, quaternary geology, and bedrock geology
- Hydrogeological setting, including regional groundwater flow
- Groundwater resources, including source water protection features and MECP water well records
- The potential for soil and groundwater contamination

A background review of available desktop information to characterize the existing soil and groundwater conditions used the following sources:

- MECP open data catalogue resources, including the Water Well Records database and Source Water Protection Information Atlas
- TRCA reports and plans, including the Source Water Protection Conceptual Understanding of the Water Budget (Puopolo and Usher 2007), Don River Watershed Plan: Geology and Groundwater Resources (2009), and Toronto and Region Source Protection Area, Approved Updated Assessment Report (2015)
- Ontario Geological Survey resources, including the Physiography of Southern Ontario, Third Edition (Chapman and Putnam 1984), Paleozoic Geology of Southern Ontario (Armstrong, D.K. and Dodge, J.E.P. 2007), and Metropolitan Toronto Bedrock Contours (Rogers et al. 1961)
- Ontario Line Project, Limited Phase I Environmental Site Assessment Report, prepared AECOM, July 2020 (AECOM 2020c)

To assess soil and groundwater baseline quality and future monitoring, the Project will use Ontario's Soil, Groundwater and Sediment Standards for Use under Part XV.1 of the *Environmental Protection Act*.

## 4.4.2 Ontario Line West

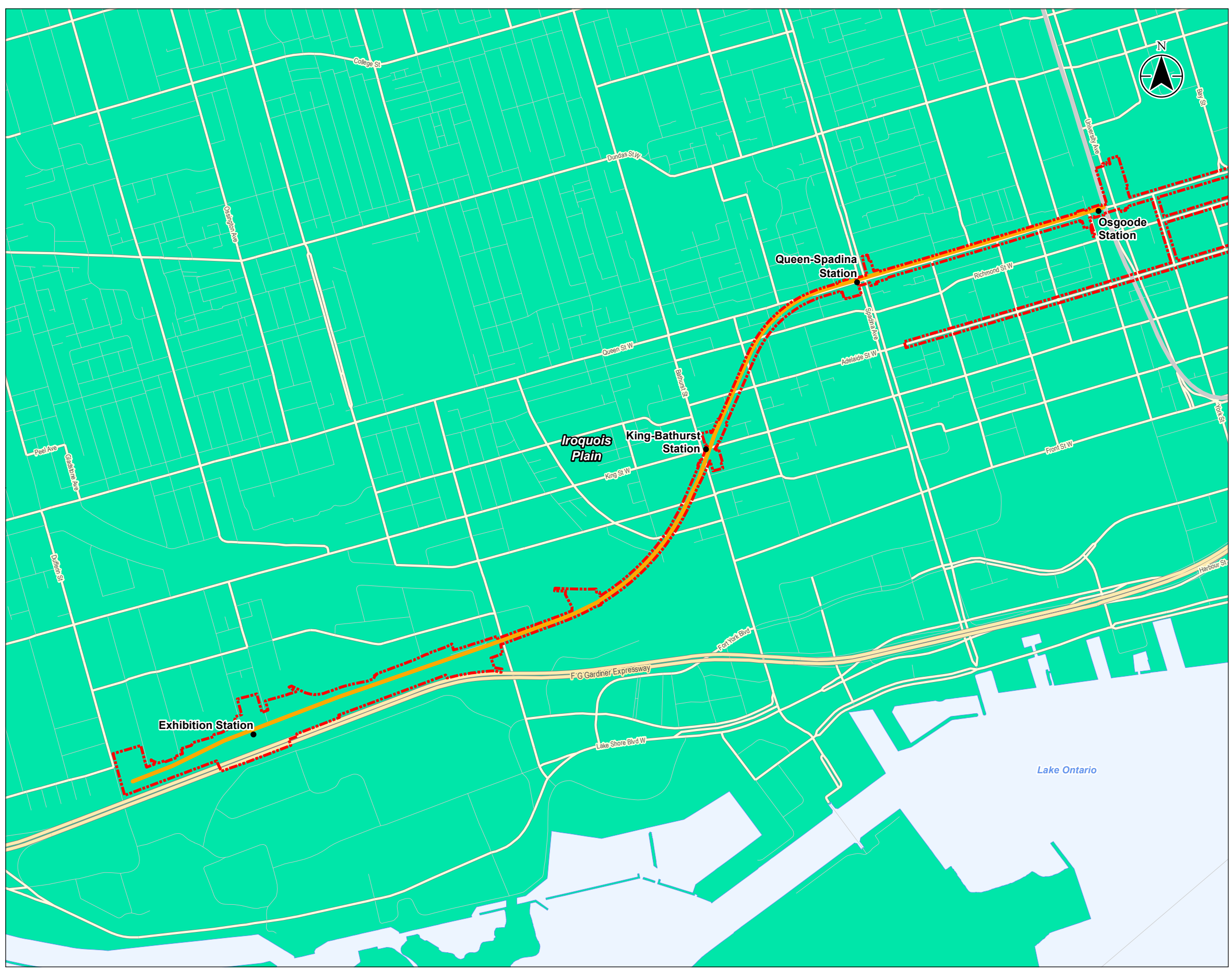
### Geological Setting

#### *Physiography and Topography*

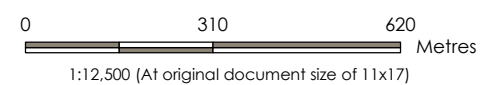
The Project Footprint is situated in the Iroquois Plain physiographic region, as mapped by Chapman and Putnam (1984), as shown on **Figure 4-8**. The Iroquois Plain occurs as a lowland bordering the western component of Lake Ontario, extending from the Niagara River to the Trent River over a distance of approximately 305 kilometres. The Iroquois Plain represents the historic bottom of glacial Lake Iroquois and stands in contrast to the shoreline areas of the former glacial lake situated further inland (Chapman and Putnam 1984). Across its length, the width of the Iroquois plain varies from only a few hundred metres up to about 13 kilometres. In the vicinity of the City of Toronto, the Iroquois Plain is approximately 3 kilometres wide and is cut into previously deposited clay and till, being partly floored with glaciolacustrine sand deposits.



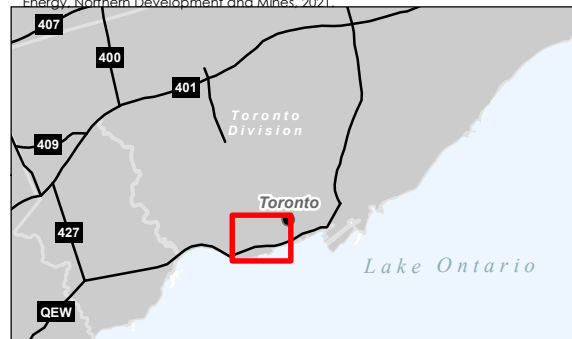
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- Legend**
- Project Footprint
  - Station Location
  - Ontario Line West
  - Expressway / Highway
  - Major Road
  - Minor Road
  - Existing Subway
  - Waterbody
- Physiographic Region**
- 41. Iroquois Plain



- Notes**
1. Coordinate System: NAD27 MTM zone 10
  2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2020.
  3. City of Toronto data licensed under the Open Government. Licence - Toronto, downloaded 2020.
  4. Physiography after Chapman and Putnam (2007). OGS MRD228 © Ministry of Energy, Northern Development and Mines, 2021.



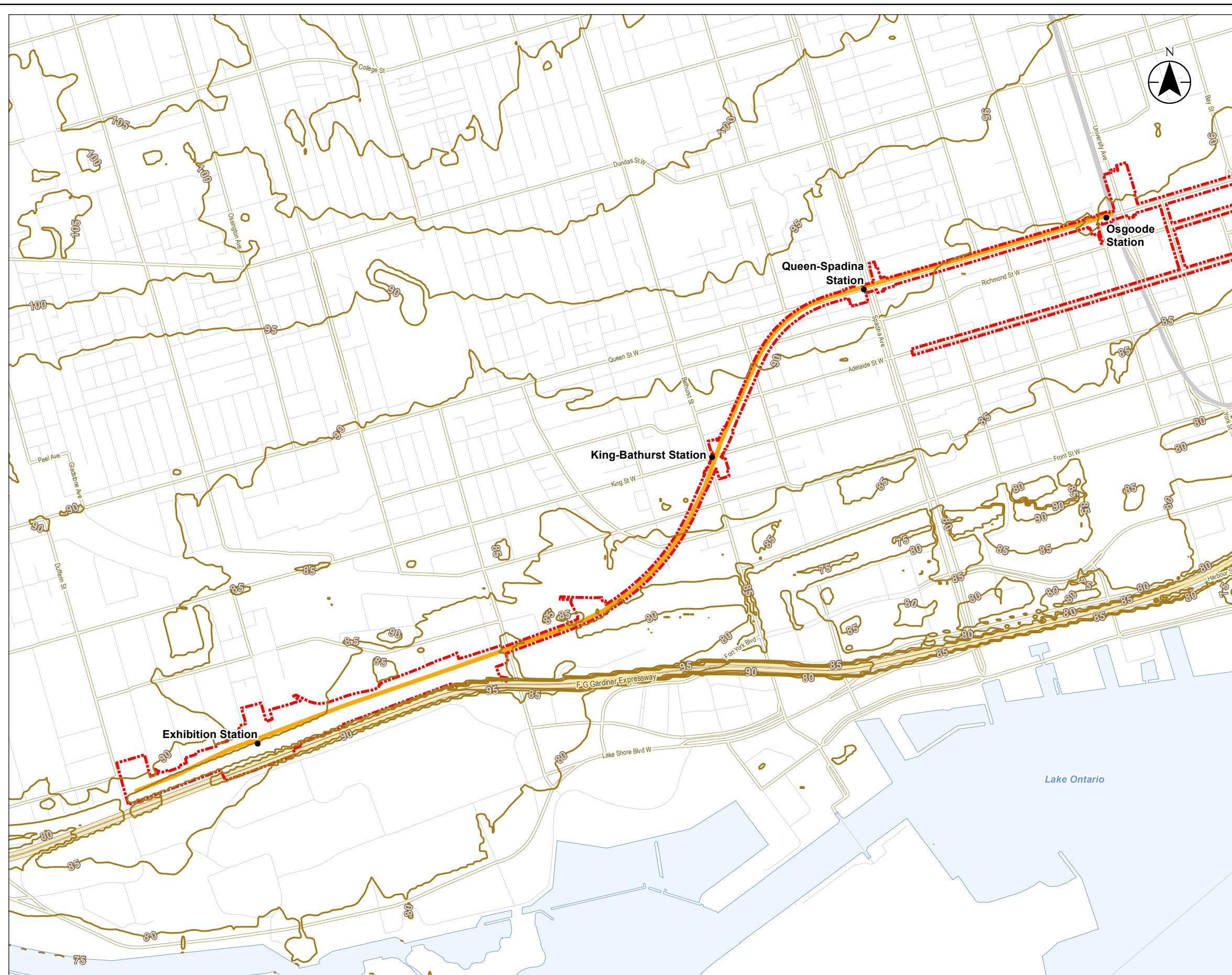
Project Location: Coity of Toronto, ON 16056009 REV4 Prepared by BCC on 2022-01-31

Client/Project: HDR CORPORATION ONTARIO LINE TA

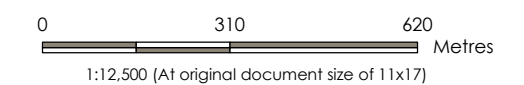
Figure No. 4-8

Title: Physiography - Ontario Line West Section

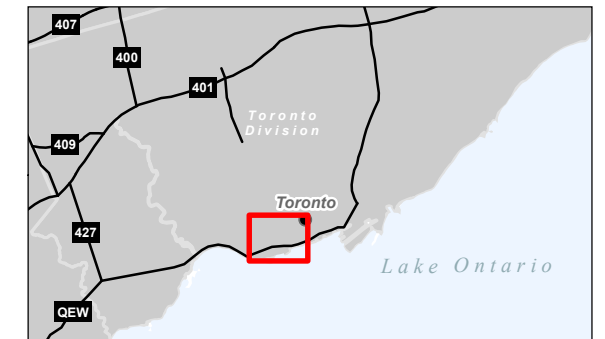
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- Legend**
- Project Footprint
  - Station Location
  - Ontario Line West
  - Expressway / Highway
  - Major Road
  - Minor Road
  - Existing Subway
  - Topographic Contour (5 metre)



- Notes**
1. Coordinate System: NAD27 MTM zone 10
  2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2020.
  3. City of Toronto data licensed under the Open Government. Licence - Toronto, downloaded 2020.
  4. Topographic Contours - University of Toronto Map Library.



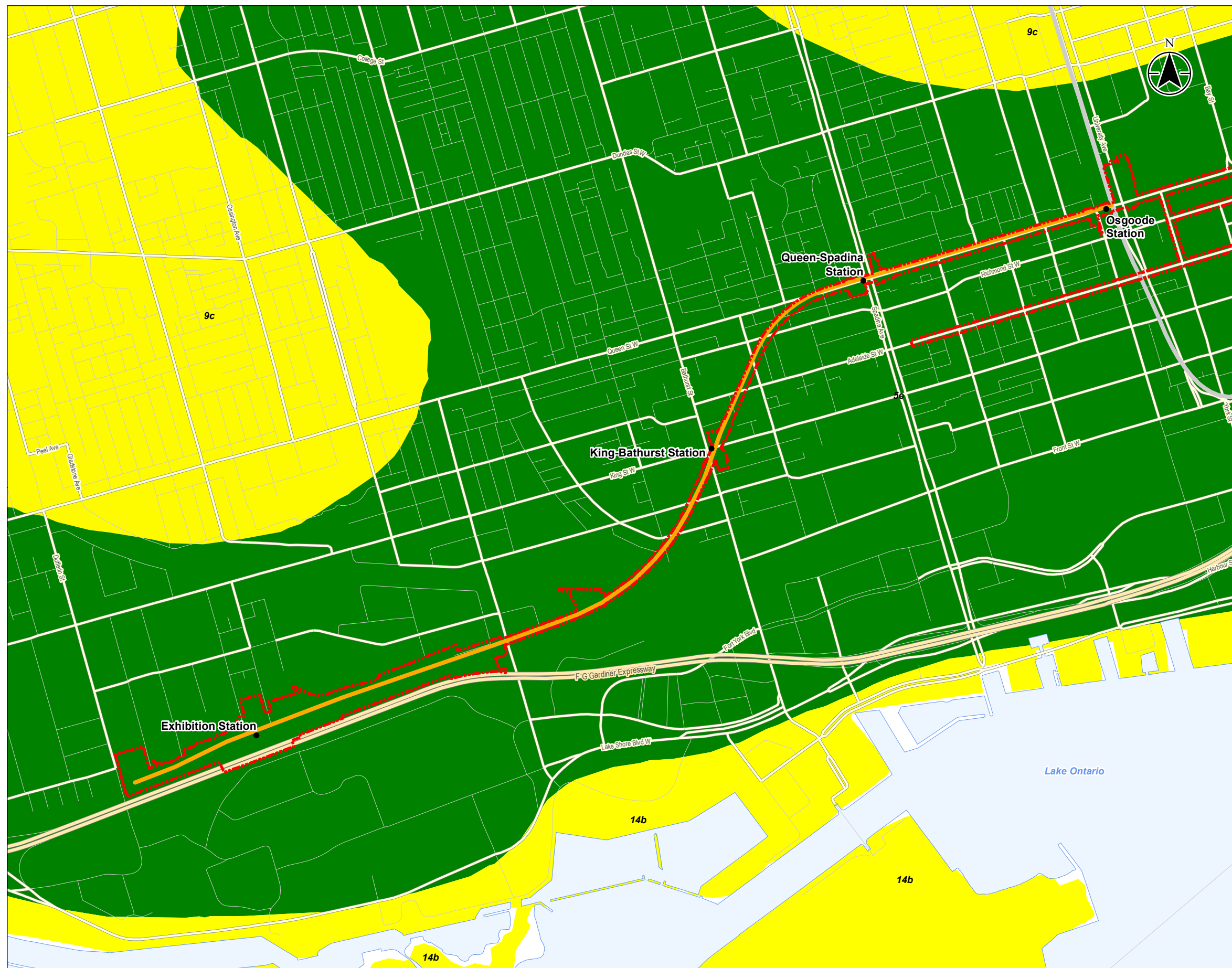
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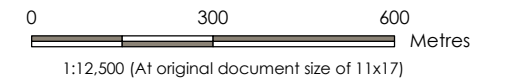
Figure No.  
**4-9**

Title  
**Topography and Drainage –  
 Ontario Line West Section**

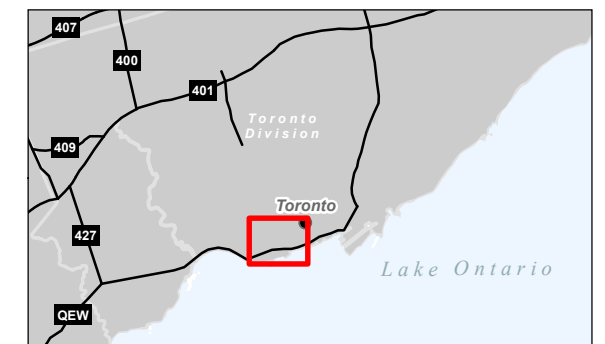
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- Legend**
- Project Footprint
  - Station Location
  - Ontario Line West
  - Expressway / Highway
  - Major Road
  - Minor Road
  - Existing Subway
  - Waterbody
- Surficial Geology**
- 14b: Coarse-textured lacustrine deposits (Littoral-foreshore deposits)
  - 9c: Coarse-textured glaciolacustrine deposits (Foreshore-basinal deposits)
  - 5e: Undifferentiated older till and stratified sediment



- Notes**
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  4. Surficial geology produced by the Ontario Geological Survey 2003, Surficial geology of Southern Ontario; Ontario Geological Survey, MRD 128.



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Figure No.  
**4-10**

Title:  
**Surficial Geology –  
 Ontario Line West Section**

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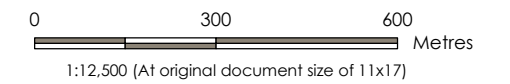


**Legend**

- Project Footprint
- Station Location
- Ontario Line West
- Expressway / Highway
- Major Road
- Minor Road
- Existing Subway

**Quaternary Geology**

- 30 : Lacustrine deposits : sand, gravelly sand and gravel, nearshore and beach deposits
- 25 : Glaciolacustrine deposits : sand, gravelly sand and gravel, nearshore and beach deposits
- 19 : Till : undifferentiated, predominantly sandy silt to silt matrix, commonly rich in clasts, often high in total matrix carbonate content



**Notes**

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4. Quaternary geology produced by the Ontario Ministry of Energy 2011, Geology II EDS014.



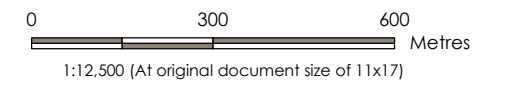
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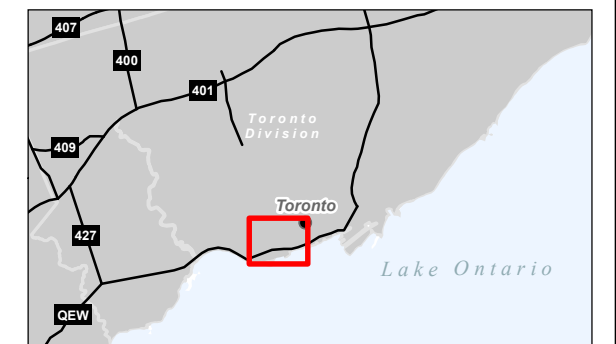
Figure No.  
**4-11**

Title:  
**Quaternary Geology –  
 Ontario Line West Section**

- Legend**
- Project Footprint
  - Station Location
  - Ontario Line West
  - Expressway / Highway
  - Major Road
  - Minor Road
  - Existing Subway
  - Waterbody
  - Bedrock Geology**
  - 14. Georgian Bay



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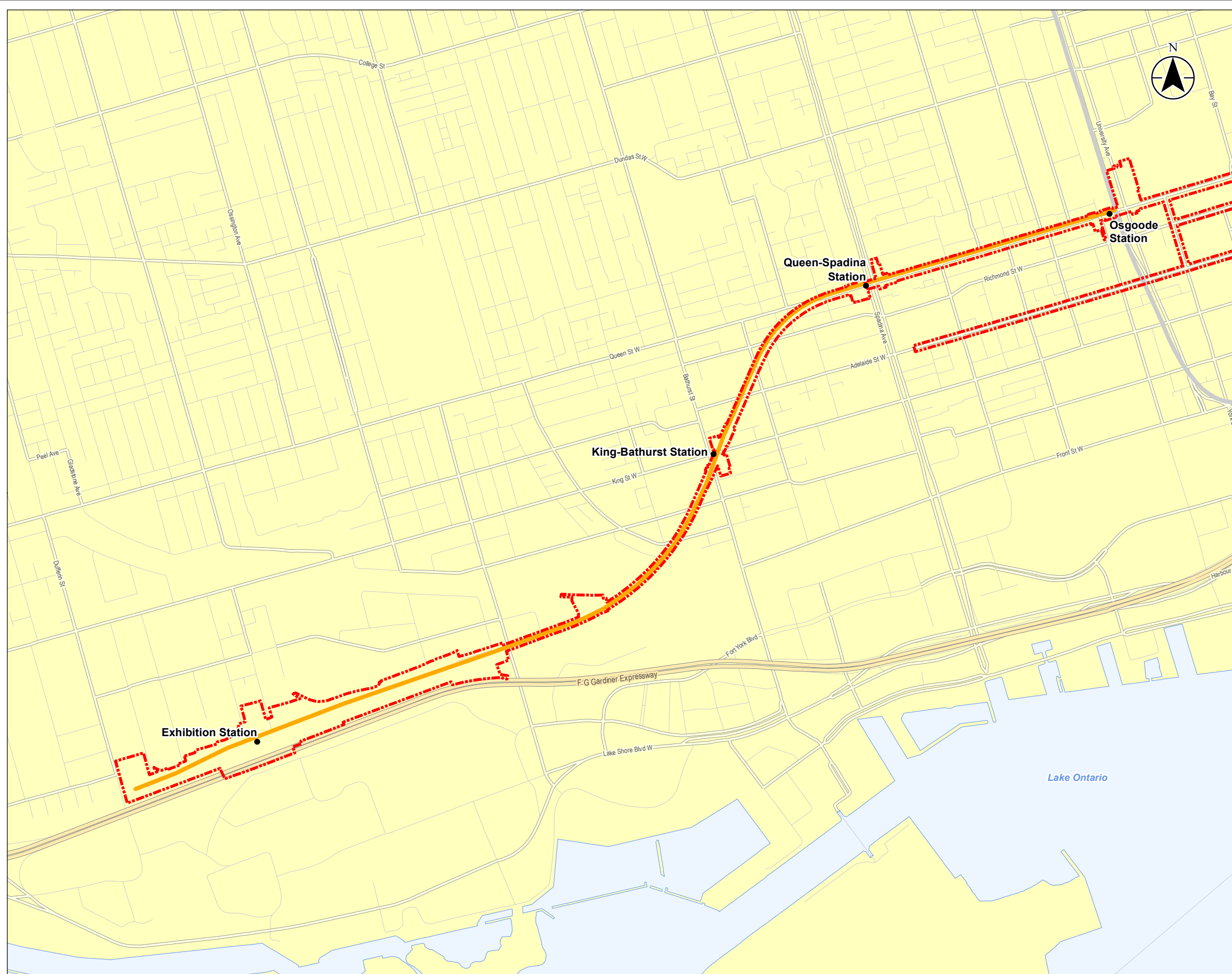


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Figure No.  
**4-12**

Title  
**Bedrock Geology –  
Ontario Line West Section**



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The ground surface topography is shown on **Figure 4-9**. Elevations range from approximately 80 to 90 metres above sea level. The topography is highly affected by the extensive local development and is generally undulating in nature, with a general downward slope in the direction of Lake Ontario.

### *Surficial Geology*

The surficial geology is shown on **Figure 4-10**. The surficial geology is identified as Till Deposits (undifferentiated older tills, which may include stratified deposits).

### *Quaternary Geology*

The Quaternary geology is shown on **Figure 4-11**. The Quaternary geology indicates that the primary surficial deposits are Glaciolacustrine Deposits (sand, gravelly sand, and gravel) and till with sandy silt to silt matrix.

### *Bedrock Geology*

Bedrock geology is shown on **Figure 4-12**. Based on the Ontario Geological Survey regional mapping, the uppermost bedrock is composed of shale and limestone of the Georgian Bay Formation from the Upper Ordovician period (Armstrong, D.K. and Dodge, J.E.P. 2007). The Metropolitan Toronto Bedrock Contours map (Rogers et al. 1961) indicates the surface bedrock elevation ranges from approximately 70 to 84 metres above sea level.

## **Hydrogeological Setting**

### *Hydrogeology*

Where present, surficial aquifer units in the Project Footprint are typically comprised of coarse-textured unconsolidated (overburden) sand and gravelly sediments. Based on the Overburden Thickness map (Toronto and Region Source Protection Area 2015) and a typical north-south cross-section along Yonge Street provided by TRCA as part of the Conceptual Understanding Water Budget Report (Puopolo, J. and Usher, S. 2007), the overburden thickness in the Project Footprint is less than approximately 20 metres, with thinner overburden deposits observed in the southern portion of the Project Footprint.

A review of the MECP water well record database indicates that the overburden geological materials consist of primarily clayey silt, sand, silty clay, and sand silt, and silty sand in localized areas. Bedrock was encountered at depths ranging from approximately 4.2 to 9.1 metres below ground surface.

The Toronto and Region Source Protection Area (2015) identified two Hydrostratigraphic Units in the Project Footprint: Sunnybrook aquitard and Scarborough Aquifer Complex. The Project Footprint is at the approximate boundary of the mapped extent of the Thorncliffe Aquifer. It is unlikely that this unit exhibits significant thickness, if it is present at all in the Project Footprint.

## *Regional Groundwater Flow*

In general, the dynamics of shallow groundwater flow within overburden deposits are related to the surface topography with flow directed to topographic lows, wetlands, and surface watercourses. Deeper aquifer systems, including bedrock aquifer(s), tend to be more uniform and are less influenced by topographic variations. Groundwater flow in shallow aquifer(s) is primarily horizontal with a minor vertical component to deeper units or discharge zones (flow rate depends on the hydraulic conductivity and gradient of the unit). Flow within aquitard units tends to be primarily downward towards deeper units. Flow direction changes depending on proximity to surface watercourses/water bodies and subsurface geology.

The surficial/shallow groundwater system in the Project Footprint is influenced by surface topography and likely flows to the south towards Lake Ontario.

## **Groundwater Resources**

### *Source Water Protection*

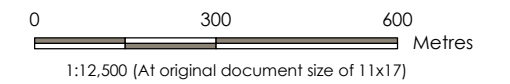
The Project Footprint is in the Toronto and Region Source Protection Area. The presence of source water areas/features is described below and shown on **Figure 4-13**. A summary of source water protection details is included in **Table 4-2** below.

**Table 4-2. Source Water Protection Details: Ontario Line West**

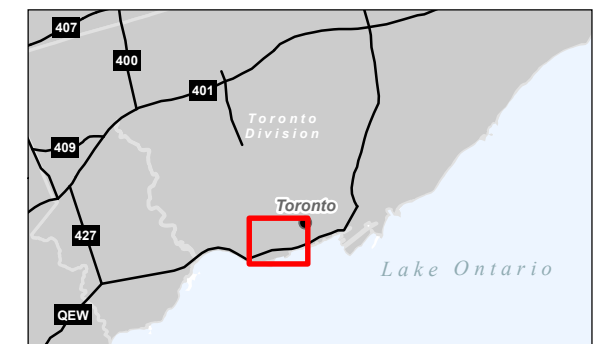
<b>Source Water Protection Feature</b>	<b>Present</b>	<b>Source Protection Plan Polices</b>	<b>Legal Effect of Policy</b>
Highly Vulnerable Aquifer	Yes, Highly Vulnerable Aquifer Score of 6 partially overlaps with Project Footprint	Related Source Protection Plan policies: SAL-10, SAL-11, SAL-12, SAL-13, DNAP-3, OS-3	Listed policies include both legally binding and non-binding examples.

Source: Source Water Protection Information Atlas (MECP 2020).

- Legend**
- Project Footprint
  - Station Location
  - Ontario Line West
  - Expressway / Highway
  - Major Road
  - Minor Road
  - Existing Subway
  - Waterbody
  - Highly Vulnerable Aquifer



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  4. Highly Vulnerable Aquifer - Toronto Region Conservation Authority.

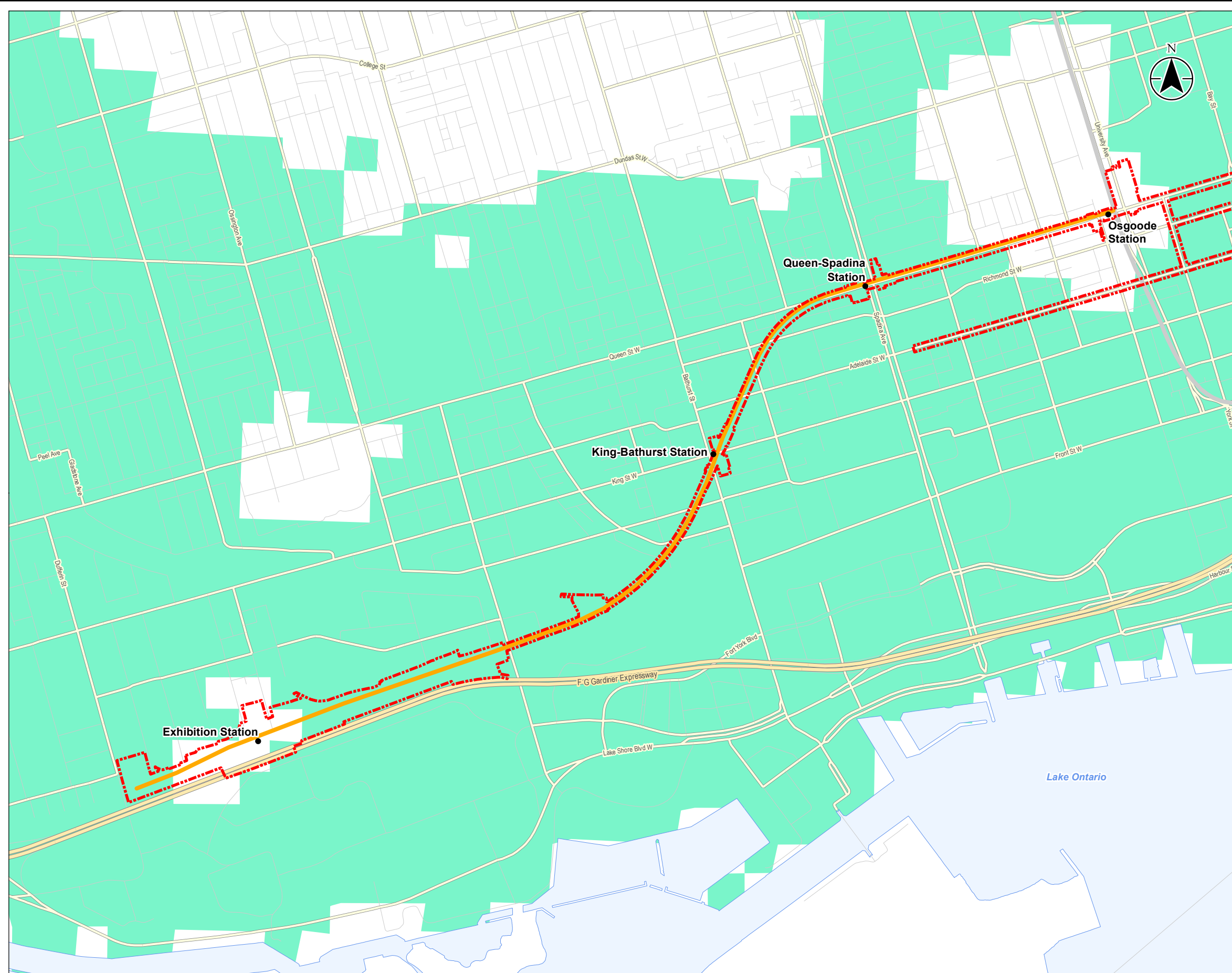


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Figure No.  
**4-13**

Title  
**Highly Vulnerable Aquifer –  
 Ontario Line West Section**



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### *MECP Water Well Records*

An inventory of local private water wells (i.e., domestic, commercial, industrial, etc.) within a 500-metre buffer around the Project Footprint was prepared by searching the MECP Water Wells Information System database. Results are shown on **Figure 4-14**, along with the primary use of each well. A total of 1125 water well records were found. No domestic water supply wells were found in the background data.

As shown in **Table 4-3**, available well records indicate that 72% of known groundwater use is for monitoring and test hole purposes. Approximately 6% of the MECP water well records indicate that the well is not used, accounting for decommissioning records and dry wells. Approximately 22% of the water well records did not specify the well use and therefore are classified as 'Unknown'.

**Table 4-3. MECP Water Well Records: Ontario Line South**

Primary Water Use	Number of Well Records	Well Depth (metres)
Dewatering/Monitoring and Test Hole	818	1.7 to 50.3
Unknown	244	2.4 to 28.4
Abandoned	63	4.1 to 6

### *MECP Summary*

A search of the MECP Permit to Take Water database returned 15 results in the 500-metre buffer around the Project Footprint. Fourteen of these results were expired and one is an active record related to construction dewatering. A search of the MECP Environmental Activity and Sector Registry database returned 26 results, of which 20 were identified for construction dewatering purposes.

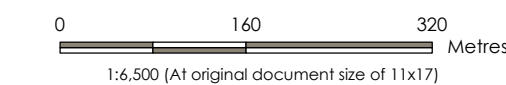
### *Water Level Data*

Twenty-four MECP water well records reported a static water level. These reported water levels represent either the water table position or the potentiometric surface depending on whether a given well is installed in an unconfined or confined aquifer. MECP water well records do not provide sufficient information to confirm aquifer conditions. The static water level was reported on the identified well records ranged between 0.3 and 12.8 metres below ground surface.

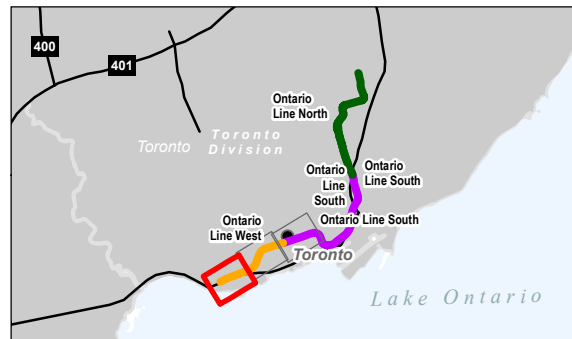
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- Legend
- Ontario Line West
  - Project Footprint
  - Project Footprint 500m Buffer
  - ▲ Environmental Activity and Sector Registry
- Permits to Take Water (PTTW)**
- ★ Dewatering Construction
- MECP Water Well Record, Primary Use**
- Abandoned Monitoring and Test Hole
  - Abandoned
  - Alteration
  - Monitoring or Test Hole
  - Observation Wells
  - Test Hole
  - Unknown



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Figure No.  
**4-14-1**

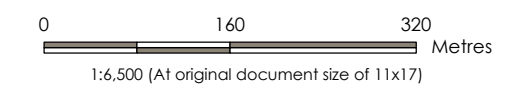
Title  
**Water Wells, PTTW and EASR -  
 Ontario Line West**

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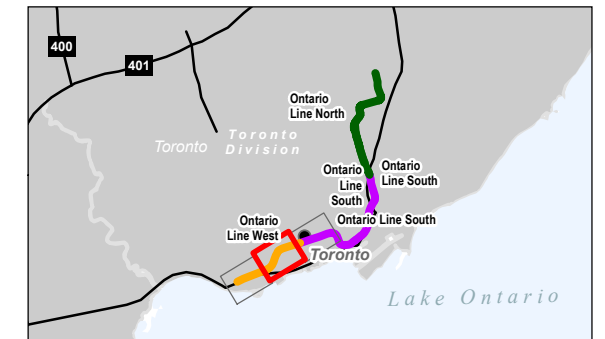
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- Legend
- Ontario Line West
  - Project Footprint
  - Project Footprint 500m Buffer
  - Environmental Activity and Sector Registry
- Permits to Take Water (PTTW)
- Dewatering
  - Dewatering Construction
- MECP Water Well Record, Primary Use
- Abandoned
  - Dewatering
  - Monitoring or Test Hole
  - Observation Wells
  - Test Hole
  - Unknown



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Figure No.: 4-14-2  
Title: Water Wells, PTTW and EASR - Ontario Line West

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