

6 EXISTING CONDITIONS

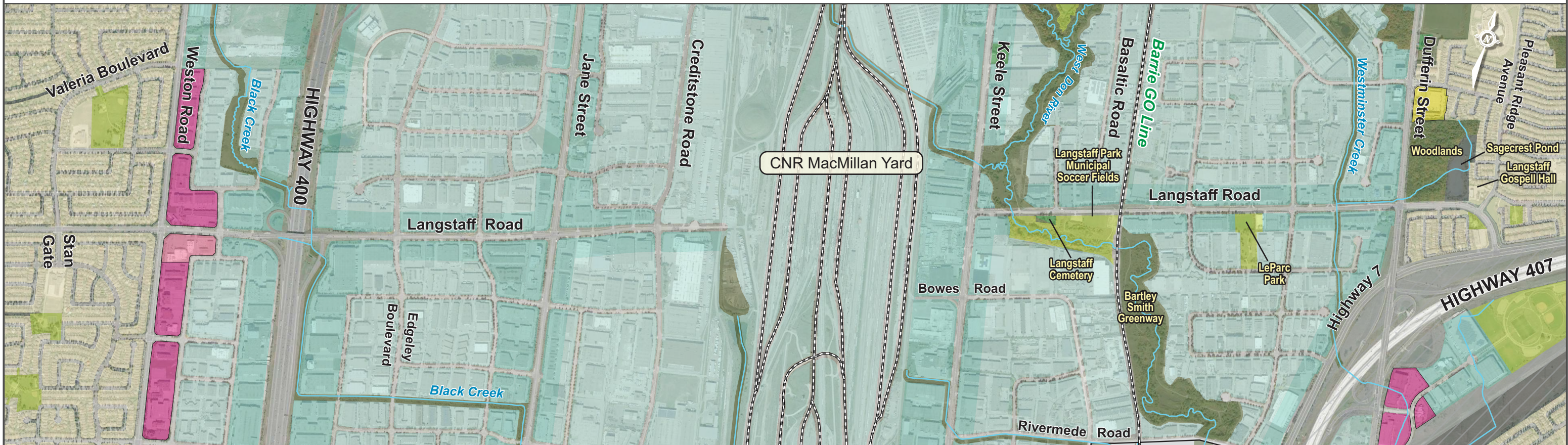
The existing conditions review was based on a review of background and secondary source information augmented by field investigations where appropriate. This work was carried out by a team of technical specialists to address all aspects of the socio-economic, cultural, natural and built environments.

6.1 Socio-Economic Environment

6.1.1 Land Use

Land use along the Langstaff Road between Weston Road and Dufferin Street consists of a dense mix of commercial and industrial businesses. See **Exhibit 6-1** for general land use along Langstaff Road and key community features. East of Dufferin Street and west of Weston Road, land use transitions to residential with some recreational / parkland east of Dufferin Street. Selected City of Vaughan Official Plan Schedules are provided in **Exhibits 3-10, 3-11** and **3-12** and key aspects are summarized below:

- ▶ Lands adjacent to Langstaff Road between Weston Road and Dufferin Street are designated for employment;
- ▶ Lands west of Dufferin Street are designated residential;
- ▶ Core features of the Natural Heritage Network are identified in three locations: within the Highway 400 / Langstaff Road interchange; along the valley crossing just east of Keele Street; and at the woodland located in the northeast quadrant of Langstaff Road and Dufferin Street;
- ▶ Community Commercial Mixed-Use area in the northeast corner of Langstaff Road and Weston Road;
- ▶ Employment Commercial Mixed-Use area in the southeast corner of Langstaff Road and Weston Road;
- ▶ Mainly Prestige Employment area located between Highway 400 and Dufferin Street;
- ▶ Low-Rise Residential area on the south side of Langstaff Road; and
- ▶ Natural Areas on the north side, east of Dufferin Street.



Natural Areas
 Parks
 Private Open Spaces

Low-Rise Residential
 Low-Rise Mixed-Use

Community Commercial Mixed-Use
 Employment Commercial Mixed-Use
 General Employment
 Prestige Employment

Parkway Belt West Lands
 Infrastructure and Utilities



6.1.1.1 Community Features

The following community features are noted within the study area:

- ▶ Cemetery:
 - Langstaff Cemetery, also known as Old St. Stephen's Cemetery (adjacent to Langstaff Park) – south side of Langstaff Road, east of Keele Street
- ▶ Places of Worship:
 - Langstaff Gospel Hall – north side of Langstaff Road, east of Dufferin Street
- ▶ Parks:
 - West Crossroad Park – south side of Langstaff Road, east of Dufferin Street
 - LeParc Park – south side of Langstaff Road, west of Dufferin Street
 - Langstaff Park – south side of Langstaff Road, west of railway track
- ▶ The Bartley Smith Greenway and Vaughan Super Trail along the West Don River
 - The Bartley Smith Greenway is a multi-use trail that connects the intersection of Teston Road and Cranston Park Avenue to the intersection of Steeles Avenue West and Dufferin Street along the West Don River. The trail is a combination of forested area and road connections that make up approximately 15 kilometres of recreational trail opportunities. The trail currently uses Planchet Road to connect across Langstaff Road. The Langstaff Road Class EA study does not preclude the opportunity to create an open space connection and close this gap through Bowes Bridge in the future.

There are no schools or community centres located along Langstaff Road within the study area.

6.1.2 Economic Activity

Langstaff Road has an important strategic location within York Region and City of Vaughan, connecting with Highway 400, the CN MacMillan Rail Yard and Highway 7, and in close proximity to Highway 407. Langstaff Road services many industrial and employment uses in the area and is a major route for goods movement, particularly to the west of the rail yard.

An informal desktop review of existing businesses was conducted at the onset of the study. It is recognized that some of the business operation may have changed since then; however, the inventory highlights the variety of industrial and commercial goods and services providers within the study area, all of which rely on an efficient transportation network to support customer service and goods movement.

Langstaff Road is identified as a Primary Arterial Goods Movement Corridor between Highway 400 and Dufferin Street in the Strategic Goods Movement Network (SGMN) in the York Region Transportation Master Plan (2016). In order to accommodate trucks on Primary Arterial Goods Movement Corridors, the Transportation Master Plan generally considers these roadways to apply freight-supportive street design standards and land use planning policies and are typically future six-lane corridors with inclusion of truck design elements.

The existing partial interchange at Highway 400 and the lack of road network connectivity across the CN MacMillan Rail Yard hinder the function of Langstaff Road in the SGMN and therefore limits the potential of this area for strong economic activity and employment, with the expectation that future traffic congestion will worsen without improvements. The lack of through connection on Langstaff Road between Keele Street and Jane Street also leads to heavier congestion on parallel Regional roads such as Highway 7 and Rutherford Road.

6.1.3 Planned Urban Intensification

Vaughan Metropolitan Centre

As discussed in **Chapter 3** of this report, the Provincial Growth Plan identifies the Vaughan Metropolitan Centre (VMC) as a designated Urban Growth Centre, recognizing its location along the Highway 7 Viva corridor and at the terminus of the Spadina Subway.

The VMC is located just south of the Langstaff Road Class EA study area, extending from Highway 400 in the west, to Creditstone Road in the east, and from Portage Parkway in the north, to Highway 407 in the south (**Exhibit 3-13**) and is located northeast of the Highway 400 and Highway 407 interchange.

In addition to the VMC, the City of Vaughan Official Plan also identifies the Weston 7 Secondary Plan area west of Highway 400 and east of Weston Road as a Primary

Centre; and lands east of Creditstone Road and west of the CN rail lands as an Employment Area.

The VMC is unique amongst the 25 designated Urban Growth Centres (UGC) in the Growth Plan as it has the greatest potential and is the least developed of all the UGCs. It is one of only two UGCs outside of Toronto that is served (or planned to be served) by the subway; has access to two 400 series highways; and it is not directly adjacent to existing low-density residential fabric.

The VMC is transforming into Vaughan's downtown – the highest density node within the City and a focus for civic activities, business, shopping, entertainment and urban living. The VMC can accommodate a significant amount of Vaughan's planned residential and employment growth and it is an appropriate location for major Institutional uses.

Vaughan Mills Centre

The Vaughan Mills Centre Secondary Plan Study Area is bordered on the north by Rutherford Road, on the west by Weston Road, on the south by Bass Pro Mills Drive, and on the east by Jane Street; including the parcels immediately fronting along the east side of Jane Street between Rutherford Road and River Rock Gate. This site has a total area of approximately 146.4 hectares, excluding the Highway 400 right of way which bisects the site and the Rutherford Road interchange.

The Vaughan Mills Centre Secondary Plan Study Area is identified in the Regional Official Plan (2010) as an Urban Area and Jane Street and Rutherford Road are identified as a Regional Rapid Transit Corridor and Regional Transit Priority Network, respectively.

Similarly, the Vaughan Official Plan designates lands within the Vaughan Mills Centre Secondary Plan Study Area, located between Jane Street and Highway 400 as a Primary Centre. Primary Centres are identified to be areas characterized by a mix of land uses, higher density development, enhanced pedestrian activity and environment, and a high standard of urban design. Jane Street and Rutherford Road are identified as Primary Intensification Corridors based on future high order transit planned along these roads.

Within the Vaughan Official Plan, Vaughan Mills Centre is envisioned to evolve as a distinct place of major urban activity. Increased development intensification is directed

towards higher order transit corridors around planned transit/subway stations and the existing regional shopping destination.

Concord GO Centre

The Concord GO Centre Secondary Plan (2015) provides policy direction for the potential new Concord GO Centre station area, located on Highway 7 to the east of the CN MacMillan Yard. The ongoing Concord GO Centre Transportation Master Plan study was initiated to develop a multi-modal transportation network by assessing options for street connectivity, accessibility and mobility. The study also considers the impact of a new potential GO Train Station in the study area.

Weston Road and Highway 7

The Weston Road and Highway 7 area is transforming into an urban destination. As one of the city's primary growth centres, the ongoing Weston 7 Secondary Plan will guide the redevelopment of this area into a complete, vibrant and thriving community, with a mix of land uses. A Transportation Master Plan is being undertaken concurrently with the Secondary Plan, and will recommend a multi-modal transportation network that addresses connectivity, develops a street network, and integrates the transit system while providing opportunities for active transportation to support the anticipated growth of the area.

Carrville Centre

The Carrville Centre is identified in the Vaughan Official Plan as being an emerging Local Centre for Vaughan's newest communities to be developed as a mixed-use, pedestrian-friendly place. Carrville Centre encompasses approximately 57.0 hectares and is planned at the intersection of two Regional Arterial Roads, Rutherford Road and Dufferin Street. The Carrville Centre will evolve to be an urban centre, with a physical form that is compact, human in scale, and design to be 'pedestrian friendly' and transit-supportive. The Carrville Centre Secondary Plan establishes appropriate planning policy for the Centre.

6.1.4 Canadian National Railway (CN) MacMillan Rail Yard

The CN MacMillan Rail Yard is the most prominent feature in the study area; Langstaff Road currently terminates to the east (at Keele Street) and to the west (at Creditstone Road) of the rail yard. The facility is a 'rail classification yard' where incoming rail cars

are classified, formed into blocks according to their destinations, made into trains and sent to their next destination. This yard operates 24 hours a day and handles over a million rail cars (loaded and empties) per year. It is used to transfer liquid and dry bulk, as well as intermodal containers and automobiles between trucks and rail cars.

The CN MacMillan Rail Yard is approximately 1.6 kilometers wide (east-west) and 4.0 kilometers long (north-south). It occupies approximately 1,000 acres of land, bounded by Highway 7 to the south, Keele Street to the east, Rutherford Road to the north, and Creditstone Road to the west.

The CN MacMillan Rail Yard consists of a central core of two classification yards, surrounded by departure yards, a receiving yard and local industrial customer base. It has flat switching capability, as well as dual and single hump operations. Approximately 1,800 to 3,000 rail cars per day are processed through the dual hump and 100 to 200 rail cars over the local hump.

It has five operation yards, a receiving yard, a main classification yard, a local classification yard, an east departure yard and a west departure yard. The receiving yard contains 16 tracks with capacity of 1,500 rail cars on track. The main classification yard contains 71 tracks and is used to sort traffic by specific destination. It consists of two sides, east and west. Each side is associated with its own departure yards. The local classification yard has 33 tracks and is used to sort and store local traffic for over 60 industrial customers in and around the Greater Toronto Area. The east and west departure yards each contain 9 tracks with a capacity of 800 rail cars. The east departure yard handles traffic for eastern Canada. It dispatches five trains daily. The west departure yard handles traffic for western Canada, Ontario and the United States of America (USA).

In addition to the five operating yards, there are 4 industrial yards (A yard, R yard, S yard and west industrial yard); as shown in **Exhibit 6-2**. The trans-load facility, CN Cargoflo, is located within the A and R yard. Liquid Bulk is handled in the A yard on 14 tracks, serving 12 to 15 customers; and Dry Bulk is handled in the R yard on 3 tracks serving 8 to 10 customers. Triple Crown is also located in the A Yard, which operates two specialized Roadrainers five days a week, to and from Midwest USA via the Sarnia Tunnel. The third facility located in the A yard is Autoport Toronto, a 60-acre facility with inventory capacity of 5,500 vehicles. There are 4 tracks designed to hold 60 railcar spots. Autoport also operates a 9,000 square foot service center.

The S yard is a 14-acre site with 1 track with capacity of 12 cars. It serves 2 customers and primarily handles lumber shipped on center beams and containers of dimension lumber from Edmonton. The west industrial yard serves 8 customers with the largest operation being the steel facility.

Exhibit 6-2: CN MacMillan Rail Yard Key Map



6.2 Cultural Environment

6.2.1 Archaeology

A Stage 1 Archaeological Assessment was completed for the Langstaff Road Class EA study. The purpose of the Stage 1 Archaeological Assessment is to provide information about the property's geography, history, previous archaeological fieldwork, and current land condition in order to determine the archaeological potential of the area. The full report is provided in **Appendix E** and key findings are summarized in this section.

The background research resulted in the identification of multiple features of archaeological potential within the study area (i.e., per **Exhibit 1-1**). Most prominent of these features include the proximity to the previously identified archaeological sites located within the study area (including three Late Woodland villages), the presence of

the Don River and its tributaries, and the presence of historic roadways (Langstaff Road, Weston Road, Jane Street, Keele Street, and Dufferin Street), dwellings, orchards, laneways, and the historic Canadian Northern Railway.

Furthermore, Langstaff Cemetery (also known as Old St. Stephen's Cemetery) is located on Langstaff Road, east of Keele Street.

The presence of the above features indicates there is high archaeological potential for encountering archaeological sites associated with the occupation of the study area by both Indigenous peoples and early settlers.

However, the potential for a study area to contain archaeological resources is tempered with a consideration of previous archaeological work already completed within the study area, as well as the presence and extent of past disturbances (e.g. commercial and industrial developments along the Langstaff Road corridor) and other areas of low archaeological potential.

The Region commits to outreach effort with the Indigenous Communities during detailed design where Stage 2 Archaeological Assessment is required. Indigenous Communities may wish to send field liaison representation during the Stage 2 field work. The Region will work with their archaeological consultant in the outreach and engagement at that time.

6.2.2 Built Heritage

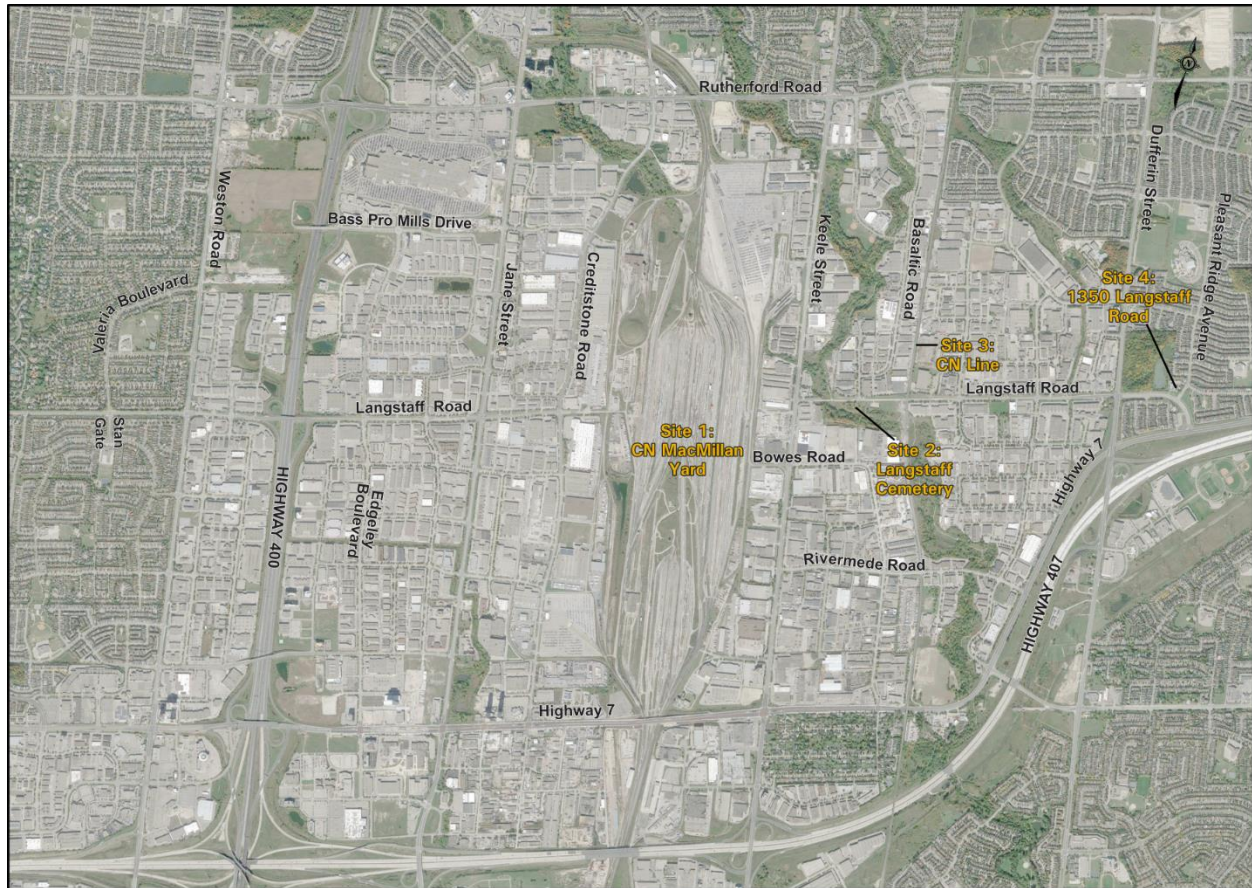
A Cultural Heritage Landscapes and Built Heritage Resources Existing Conditions Report was prepared for the Langstaff Road Class EA study. The full report is provided in **Appendix F** and summarized below.

Principal cultural heritage landscapes and aboveground built heritage features older than 40 years of age and located within and adjacent to the study area were identified. A total of four (4) heritage resources were identified from the November 6, 2016 survey. These are summarized below, also see **Exhibit 6-3**. The full report (**Appendix F**) includes a site number, resource category, resource type, location, description and digital photograph.

- ▶ Cultural Heritage Landscape – Transportation: CNR MacMillan Yard. Not included on the Listing of Buildings of Architectural and Historical Value in accordance with Part IV, Subsection 27 of the *Ontario Heritage Act* (OHA).

- ▶ Cultural Heritage Landscape – Cemetery: Langstaff Cemetery (Old St. Stephen's Church Cemetery). Not included on the Listing of Buildings of Architectural and Historical Value in accordance with Part IV, Subsection 27 of the OHA. The site includes a stone cairn with tombstones mounted on the wall. A plaque notes the "Pioneer Cemetery of Old St. Stephen's Church for the German Episcopal Congregation established by rights of the Church of England-1833. Restored by the Township of Vaughan 1965".
- ▶ Cultural Heritage Landscape – Transportation: Metrolinx GO Transit Barrie Line. Not included on the Listing of Buildings of Architectural and Historical Value in accordance with Part IV, Subsection 27 of the OHA. Has its origin in the early 1850s when it was opened as the Northern Railway through Vaughan Township. The Grand Trunk Railway acquired in the late 19th Century followed by CN in the early 1920s.
- ▶ Built Heritage Resource – Residential: 1300 Langstaff Road (located off Thornhill Woods Drive). Designated Part IV, OHA, By-law 374-90, included in the Listing of Buildings of Architectural and Historical Value in accordance with Part IV, Subsection 27 of the OHA, June 27, 2005. Isaac Baker built a Four Square style residence in concrete block in 1929. The Langstaff Gospel Hall acquired the property in 1994 and the new hall was completed in 1999. The site also includes Baker's harness workshop, a one storey wood frame structure that housed the Langstaff Gospel Hall congregation from 1994 to 1999.

Exhibit 6-3: Cultural Heritage Landscapes and Built Heritage Resources



6.3 Natural Environment

A Natural Environment Report is provided in **Appendix G** and the existing conditions are summarized below. A comprehensive assessment of background information and field surveys in 2016 (fall season) and 2017 (fall season) were carried out to understand the existing natural environment conditions.

6.3.1 Review of Background Information and Field Review

Background information sources were reviewed to develop an understanding of the general character of the natural features in the study area, identify potential constraints and sensitivities, and assess the general connectivity of natural features in the study area to features within the surrounding landscape.

The natural environment assessment included background review included the following sources:

- ▶ Topographic mapping and Google satellite mapping (over the timeframe of 2002 to 2020);
- ▶ Liaison with the Aurora District Ministry of Northern Development, Mines, Natural Resources and Forestry (NDMNRF) and Toronto and Region Conservation Authority (TRCA) staff to gather and confirm existing natural environment including Species at Risk (SAR) and Species of Conservation Concern (SCC) presence / potential;
- ▶ NDMNRF's Natural Heritage Information Centre (NHIC) database;
- ▶ Ontario Breeding Bird Atlas (OBBA);
- ▶ Ontario Reptile and Amphibian Atlas (ORAA);
- ▶ Ontario Mammal Atlas (Dobbyn, 1994); and
- ▶ Fisheries and Oceans Canada (DFO) Distribution of Fish SAR mapping (2020 mapping).

The natural environment review also included the following field studies to characterize existing natural heritage features and functions: an aquatic survey, conducted in 2016 and 2017, a vegetation survey, and a wildlife survey.

The existing aquatic and terrestrial natural environment features are illustrated in **Exhibits 6-4a through 6-4h**.

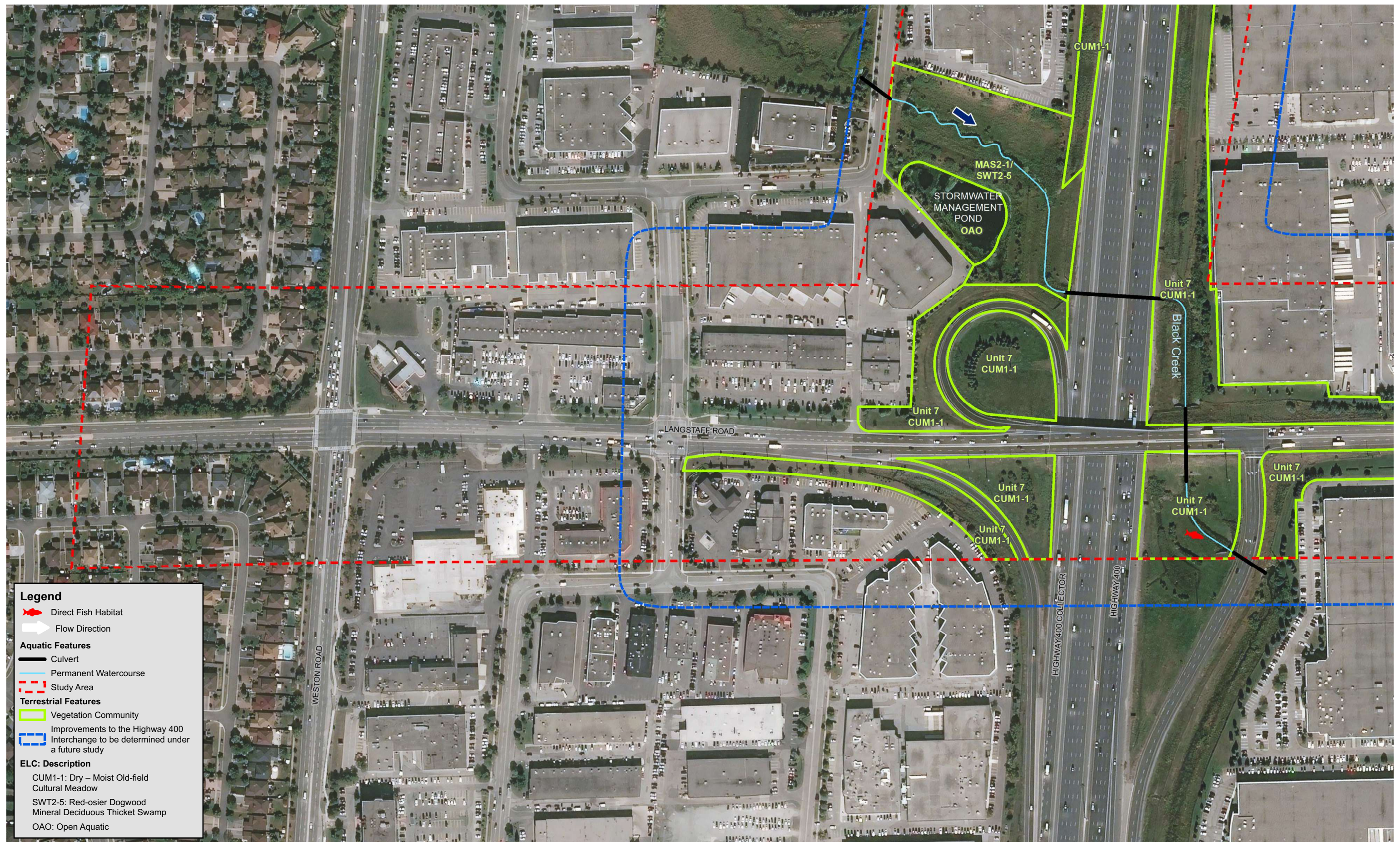
Aquatic Survey Approach

Reconnaissance surveys were conducted on November 1, 2016 and detailed aquatic surveys, including fish community sampling, were undertaken on October 4 and 5, 2017. Although three TRCA-regulated surface water features may be present within the CN MacMillan Rail Yard, access was not granted by CN to review these areas.

Habitat surveys included all typical physical and biological attributes including:

- ▶ Channel dimensions, general gradient and profile, bank character (e.g. height and erosion);
- ▶ General flow characteristics (permanent, intermittent, dry, pooling) including evidence of groundwater discharge;
- ▶ General morphology (flats, pools, riffles);
- ▶ Substrates;
- ▶ Instream / overhead cover opportunities (e.g. woody debris, undercut banks, boulders, vegetation);
- ▶ Riparian vegetation;
- ▶ Physical barriers to fish movement;
- ▶ Identification of potential critical or specialized habitat areas or features (e.g., potential spawning areas, nursery cover);
- ▶ Observations of habitat alterations / land use (e.g., channel modification, potential pollutant point sources); and,
- ▶ Potential habitat enhancement opportunities.

All conceptual crossing corridor locations were assessed and documented; photographs were also taken.



LANGSTAFF ROAD ENVIRONMENTAL ASSESSMENT Natural Environment Features

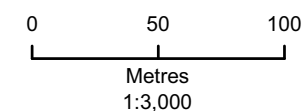
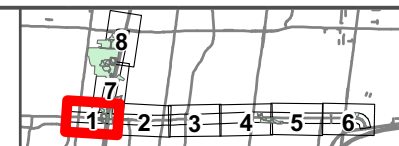
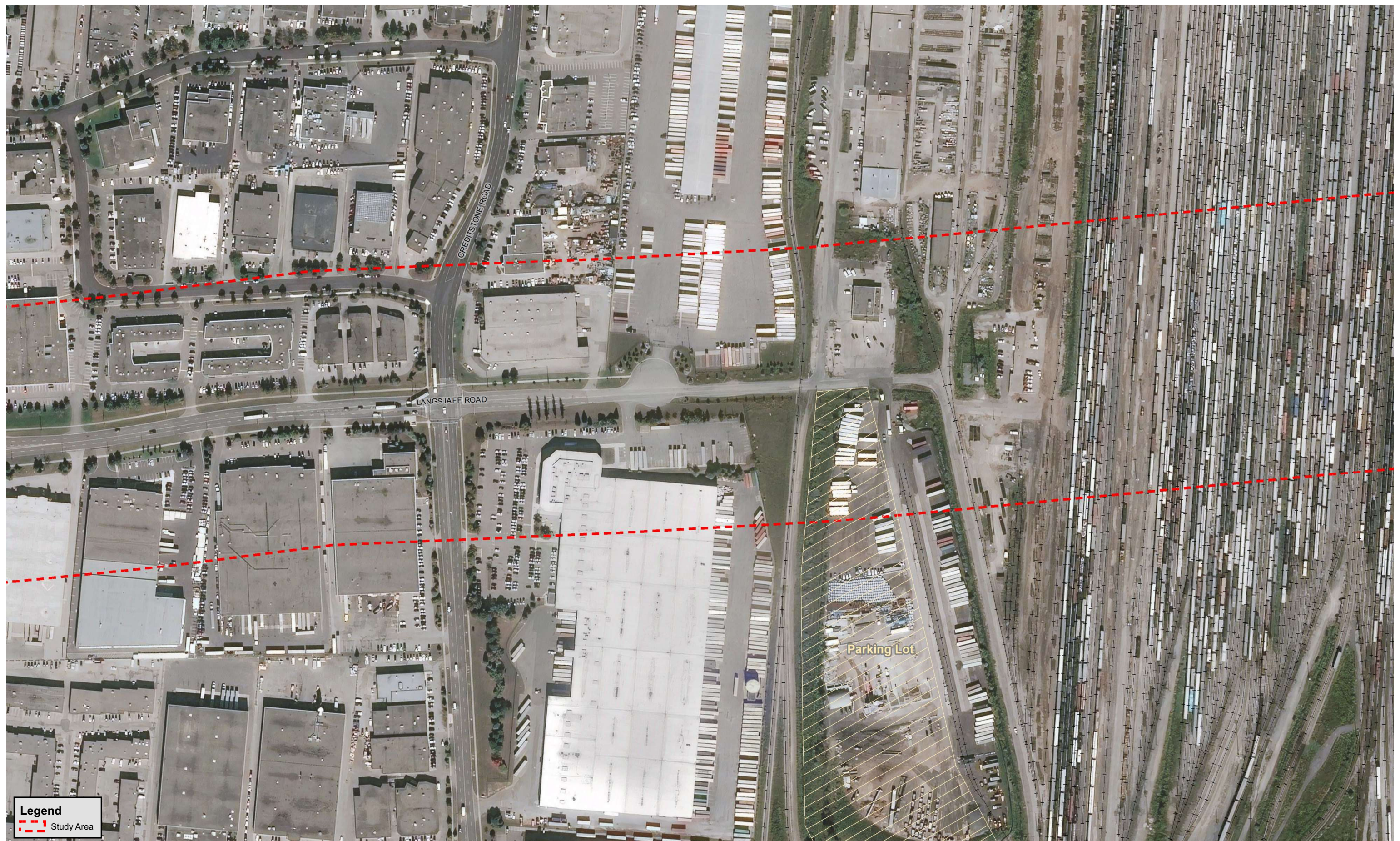


Exhibit
6-4a



LANGSTAFF ROAD ENVIRONMENTAL ASSESSMENT Natural Environment Features

Exhibit
6-4b



Legend
--- Study Area



LANGSTAFF ROAD ENVIRONMENTAL ASSESSMENT
Natural Environment Features

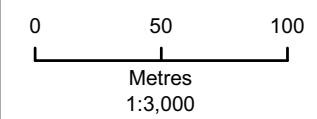
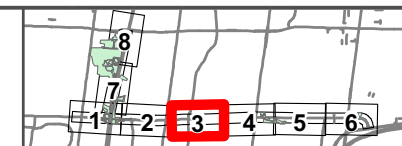
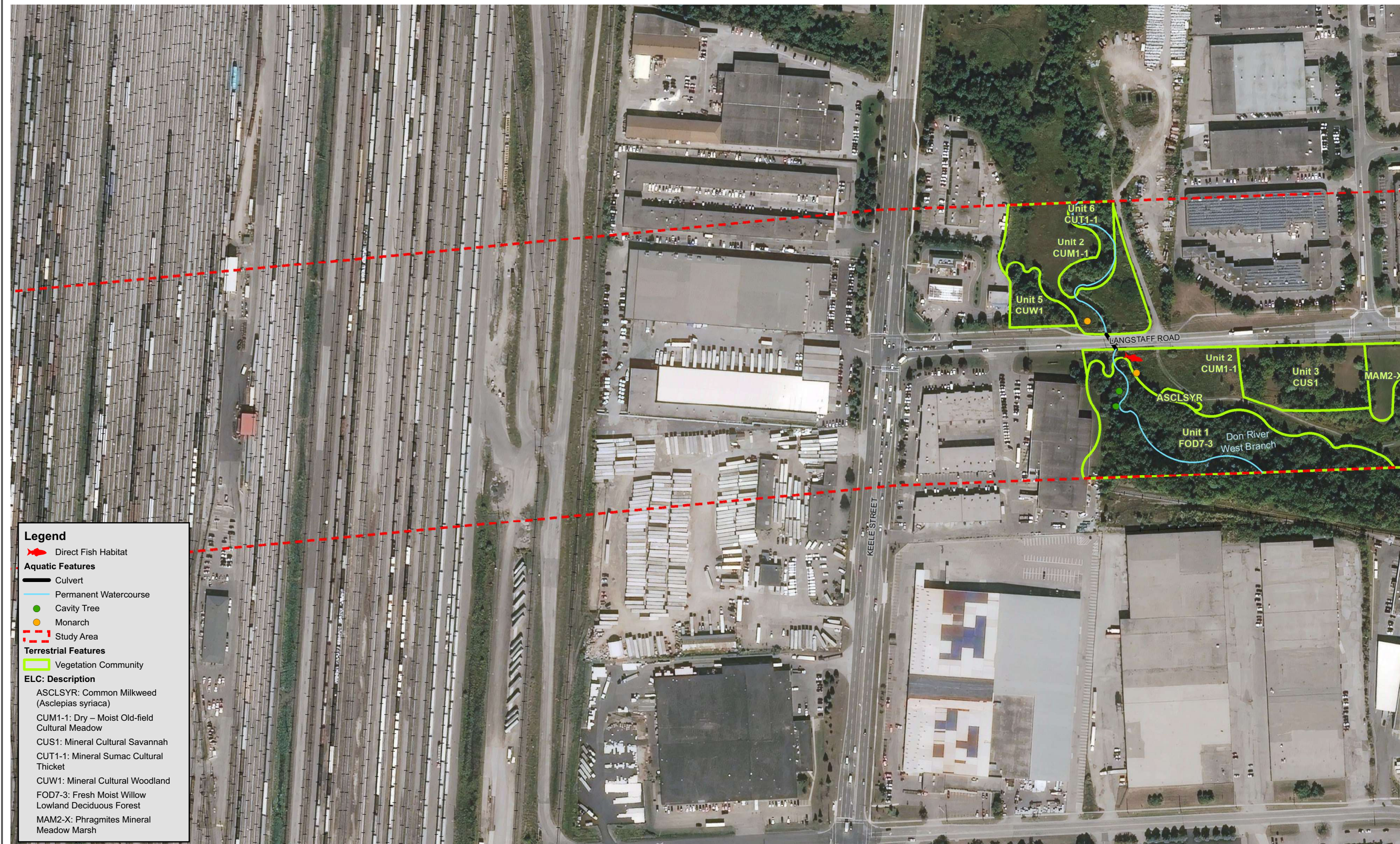


Exhibit
6-4c



Legend

Direct Fish Habitat

Aquatic Features

Culvert

Permanent Watercourse

Cavity Tree

Monarch

Study Area

Terrestrial Features

Vegetation Community

ELC: Description

ASCLSYR: Common Milkweed (Asclepias syriaca)

CUM1-1: Dry – Moist Old-field Cultural Meadow

CUS1: Mineral Cultural Savannah

CUT1-1: Mineral Sumac Cultural Thicket

CUW1: Mineral Cultural Woodland

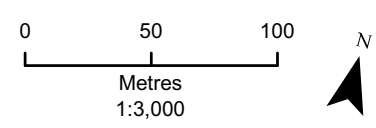
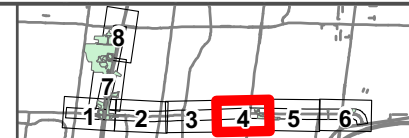
FOD7-3: Fresh Moist Willow Lowland Deciduous Forest

MAM2-X: Phragmites Mineral Meadow Marsh



LANGSTAFF ROAD ENVIRONMENTAL ASSESSMENT

Natural Environment Features





LANGSTAFF ROAD ENVIRONMENTAL ASSESSMENT Natural Environment Features

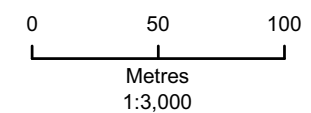
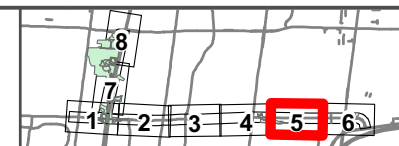
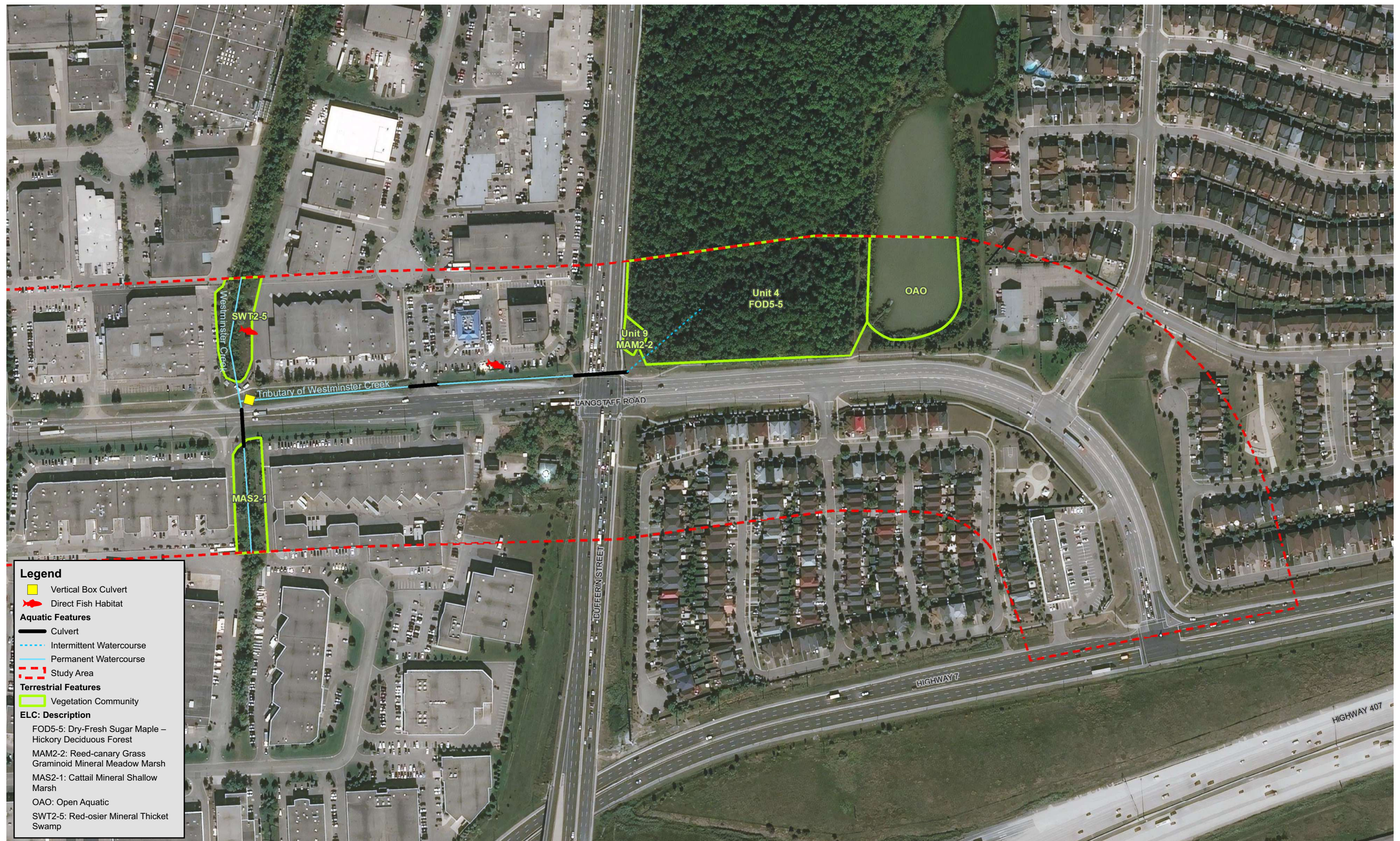
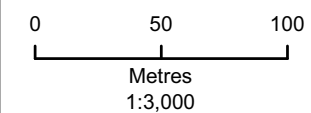
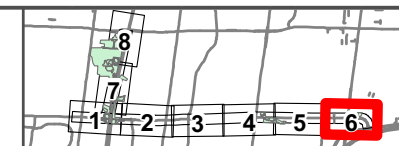


Exhibit
6-4e



LANGSTAFF ROAD ENVIRONMENTAL ASSESSMENT Natural Environment Features





Legend

--- Study Area

Terrestrial Features

--- Vegetation Community

--- Improvements to the Highway 400

--- Interchange to be determined under a future study

--- Vegetation Community Inclusion

ELC: Description

CUM1-1: Dry – Moist Old-field Cultural Meadow

HR: Hedgerow

MAM2-X: Phragmites Mineral Meadow Marsh

MAS2-1: Cattail Mineral Shallow Marsh

OAO: Open



LANGSTAFF ROAD ENVIRONMENTAL ASSESSMENT
Natural Environment Features

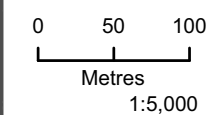
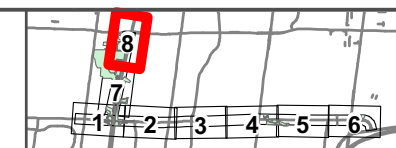


Exhibit
6-4h

Vegetation Survey Approach

A three-season botanical inventory and vegetation assessment was on October 17, 2016 and June 9 and July 26, 2017. These surveys documented the characteristics of the natural and culturally influenced vegetation communities, with a focus on the natural features along and adjacent to the road corridor.

For a discussion on existing street trees, please refer to the tree inventory overview in **Section 6.3.6** and the report in **Appendix H**.

Vegetation field work and associated data assessment involved:

- ▶ Botanical inventory and analysis, including preparation of a vascular plant species list (See **Appendix G** Natural Environment Report, Appendix B);
- ▶ Classifying, mapping and evaluating vegetation communities along the road corridor. Vegetation communities were classified using the Ecological Land Classification for Southern Ontario (ELC) (Lee et al, 1998) and ELC Ecosystem Catalogue: 2008 Version (Lee, 2008), where applicable (See **Appendix G** Natural Environment Report, Appendix A);
- ▶ Vegetation community significance was evaluated using Natural Heritage Resources of Ontario: Vegetation Communities of Southern Ontario (Bakowsky, 1996; NHIC website);
- ▶ Evaluating the sensitivity and significance of vegetation species using the NDMNRF's NHIC database and SAR websites (updated periodically), the TRCA L-Ranks (TRCA, 2003; TRCA, 2010), and the York Region rare species list from The Distribution and Status of the Vascular Plants of the Greater Toronto Area (Varga et al, 2000);
- ▶ Analysis of floristics of all inventoried plant species to determine their Coefficient of Conservatism (CC) 1 and Coefficient of Wetness (CW) 2;
- ▶ Evaluating habitat potential for vegetation SCC, and in particular, SAR known or thought to exist in the general vicinity of the study area; and
- ▶ Noting general vegetation characteristics including age, general habitat features, drainage conditions, as well as any anthropogenic disturbance.

All terrestrial natural areas with landowner permission to access were documented and photographs were taken.

Wildlife Survey Approach

Wildlife surveys were on October 17, 2016 and June 9, June 23 and July 26, 2017. The field surveys completed in June 2017 were focused specifically on breeding birds, while the other surveys dates consisted of a more generalized wildlife assessment. The 2016 / 2017 assessment surveys involved:

- ▶ Breeding bird surveys conducted according to standard protocols established in the OBBA (Cadman et al, 2007). The two survey visits were completed during appropriate timing (early morning during the breeding bird season) and suitable weather conditions (low wind and no precipitation). Breeding bird surveys were conducted by qualified, experienced staff and involved wandering transects through and adjacent to natural features with frequent listening/ observation stops at random locations. Species, abundance and level of breeding evidence were recorded for all avifauna observations;
- ▶ SAR wildlife habitat assessment for species with potential to occur in the study area according to NDMNRF guidance and other background review; and
- ▶ Recording all direct wildlife observations and wildlife signs (including browse, track / trails, animal scat, bird nesting activity, tree cavities, burrows, excavated holes and vocalizations) and identifying potential wildlife usage and habitat functions associated with vegetation communities.

Wildlife field investigations also included assessing the various habitats present in relation to their potential to support SAR and/or SCC.

The breeding bird and wildlife survey results are presented by area (WSU 1-3) in **Appendix G** Natural Environment Report, Appendix C.

6.3.2 Natural Heritage System

Wooded areas associated with the Don River West Branch and the wooded area in the northeast corner at Langstaff Road and Dufferin Street are designated as part of the York Region and the City of Vaughan Natural Heritage System (NHS) and the Greenlands System. These are depicted on **Exhibits 6-4a to 6-4h**.

6.3.3 Fish and Fish Habitat

The assessed watercourses include a Tributary of Westminster Creek, Westminster Creek, the Don River West Branch, and Black Creek. The assessed reaches of these watercourses were generally heavily urbanized, often stabilized by rip rap and gabion baskets. Various warmwater bait and forage fish were found throughout all sites. The natural environment features in this section are described in relation to the crossing design alternatives discussed in **Chapter 7** of the ESR (**Exhibit 7-2**), namely Alternatives 1A, 1B, 2A and 2B. An overview of conditions is provided below with detailed accounts provided in **Appendix G**.

Black Creek

Located in the Highway 400 / Langstaff Road area, Black Creek is a south flowing watercourse that supports nominal, permanent flow throughout the assessed reach. Its headwaters appear to originate from agricultural runoff to the northwest, beyond the study area. As fish were found in this watercourse, it is considered to be direct fish habitat. In the upstream reach, west of Highway 400 and east of Creditview Road, Black Creek has been previously realigned (sometime between 1996-1999) as a result of commercial development within the local landscape. Black Creek traverses under Creditview Road via a 4-cell structural culvert. An overflow structure is located at the inlet. In the upstream reach, north of Langstaff Road and east of Highway 400, Black Creek outlets from a 3 m wide culvert with little to no flow into a densely choked cattail marsh.

Don River West Branch

Located east of Keele Street, the Don River West Branch is a south flowing watercourse that supports permanent flow throughout the assessed reach. Its headwaters originate in the Oak Ridges Moraine, and flows south for 35 km through agricultural, residential, and commercial lands before discharging into Lake Ontario. As fish were found in the downstream reach of this watercourse, it is considered to be direct fish habitat.

Westminster Creek

Located just west of Dufferin Street, Westminster Creek is a south flowing watercourse that supports permanent flow throughout the assessed reach. Its headwaters originate in a woodlot south of Major Mackenzie Drive West between Keele Street and Dufferin Street, and flows south for 25 km through residential and commercial lands before discharging into Lake Ontario. Westminster Creek is considered to be direct fish habitat as no physical barriers were observed in the field or through satellite imagery.

Tributary of Westminster Creek

The Tributary of Westminster Creek supports intermittent flow in its upstream reach in the northeast corner of Langstaff Road and Dufferin Street, and permanent flow throughout the downstream reach, in the northwest corner of Langstaff Road and Dufferin Street. It originates from a stormwater management (SWM) pond east of a woodlot north of Langstaff Road (east of Dufferin Street) and is likely pumped underground to the downstream reach. The watercourse then flows within a ditch for approximately 270 m prior to discharging into Westminster Creek through a vertical box culvert. Two fish were found in the downstream reach of this watercourse; however, permanent barriers up and downstream are present and habitat within the ditch system is unlikely to support permanent populations.

Fish Community

Fish community was assessed within the study limits of Black Creek, and the fish species identified is associated with warmwater thermal regimes and habitat comprising of silt-dominated substrate.

Fish community was assessed within the study limits of the Don River West Branch and the Tributary of Westminster Creek, and the fish species identified are associated with warmwater thermal regimes and habitat comprising of weedy or muddy water. TRCA also provided a list of sample sites and fish species observed within the Don River West Branch. Please refer to **Appendix G** for a detailed list.

6.3.4 Vegetation and Flora

The landscape along Langstaff Road is dominated by manicured commercial and residential areas and associated sidewalks / roadsides, with mown grass and planted landscape trees. Natural areas are mostly limited to three discrete locations along Langstaff Road; a stormwater management (SWM) pond with surrounding naturalized vegetation, including a large 9.3-hectare woodlot in the northeast corner of Langstaff Road and Dufferin Street, a corridor of floodplain vegetation surrounding the Don River West Branch, and the cultural right-of-way vegetation associated with the Highway 400 interchange in the western end of the study area.

The landscape adjacent to Highway 400 north to Rutherford Road consists of a combination of large commercial areas and parking lots, with heavily impacted cultural right-of-way vegetation interspersed with young, naturalized vegetation communities.

The largest area of natural vegetation supports moderate sized pockets of wetland and upland communities.

Flora Overview

A total of 126 vascular plants were identified during the field surveys, all but four of which were identified to species level. Of the species recorded, 77 (62%) are native, and 48 (38%) are non-native. One species, Amethyst Aster, is ranked as vulnerable by the Province. A total of 17 species are considered regionally significant by the TRCA and Varga et al. (2000).

Vegetation

A total of 11 vegetation community types as classified by the ELC system were delineated within the study area. Eleven units consisting of eight of the identified community types, were investigated thoroughly and are described below and depicted on **Exhibit 6-4a** to **6-4h**. Access was not granted to the remaining three units. All vegetation communities present within or adjacent to the study area are considered common in southern Ontario.

Dry-Moist Old Field Meadow (Units 2, 7, 11): These units support a dense layer of herbaceous ground vegetation, consisting of a wide range of common early successional, upland, disturbance-tolerant species. Additionally, patches of wetland species were interspersed within the drainage ditches and depressions. Unit 2 was found to support a lower diversity of species, with a greater percentage of wetland species. These units are regularly subject to human disturbance, maintenance and pollution from the roads and highways (particularly adjacent to Highway 400). A high proportion of invasive species and low botanical quality provide evidence of such disturbance.

- ▶ Mineral Sumac Cultural Thicket (Unit 6): This unit forms a mosaic with Unit 2 north of Langstaff Road. It supports a dense shrub layer. The ground cover is the same as described above for Unit 2.
- ▶ Mineral Cultural Savannah (Unit 3): This unit is a manicured park area, with a memorial. The canopy is somewhat sparse. The shrub layer is extremely sparse. The ground cover consists of mowed grass and garden escapes on the outskirts of the unit where it is un-mowed.
- ▶ Mineral Cultural Woodland Ecosite (Unit 5, 8): These units are very small successional growth areas. Unit 5 is located directly adjacent to Langstaff Road

and Unit 8 is approximately 50 m south of Langstaff road directly south of a gravel parking lot. The units have sparse canopy layers. The shrub layers are dense and support primarily non-native species. The ground layers are sparse and contain an odd assortment of species. Unit 8 differs from Unit 5 in that in some areas it supports a denser canopy dominated by willow species. These unit are heavily disturbed by the close proximity to Langstaff Road and the presence of invasive species.

- ▶ Dry-Fresh Sugar Maple – Hickory Deciduous Forest (Unit 4): This unit is a large mature woodlot located adjacent to the SWM pond. The canopy contains a variety of native species. There is also a small inclusion of Coniferous forest (FOC). The shrub layer contains native and non-native species. The ground layer is sparse. The edges of this woodlot are disturbed by the proximity to Langstaff Road and Dufferin Street and the presence of invasive species, however the interior is relatively undisturbed.
- ▶ Fresh Moist Willow Lowland Deciduous Forest (Unit 1): This unit is mid-aged and is associated with the Don River West Branch, and located south of Langstaff Road. The canopy is sparse. The shrub layer was observed as well. The ground cover sparse in the interior of the unit, and denser near the edges. Species include upland and wetland plants. This unit is likely a result of disturbance. This unit contains a number of snags that may provide wildlife habitat.
- ▶ Reed Canary Grass Mineral Meadow Marsh (Unit 9): This unit is a very small area of low-lying land that is dominated by non-native Reed Canary Grass and has other ground layer species. Immediately adjacent to the unit is an area of mowed lawn and the busy intersection of Langstaff Road and Dufferin Street, as well as Unit 4. This unit is highly disturbed by the presence of the nearby roads and the invasive species.
- ▶ Cattail Mineral Shallow Marsh (Unit 10): This unit is a relatively large sized wetland characterized by dominant Broad-leaved Cattail vegetation. The unit also contains an Open Water (OAO) Inclusion, as well as multiple patches of Common Reed, some of which are large enough to be inclusions. The species diversity in this unit is extremely limited, with very few other ground layer species. The unit is divided by a berm dominated by Cultural Meadow vegetation and sparsely planted with mid-aged species. Although this berm divides much of the unit, it does dip in the middle, resulting in the hydrological connection of the two sections. The unit is far enough from the highway to be only indirectly affected.

The presence of extensive invasive Common Reed is the greatest disturbance to the unit.

No Butternut were observed within the study area. No direct impacts to this species are anticipated, and species-specific mitigation measures are not warranted.

6.3.5 Wildlife

Habitat features present within the study area and broader landscape include urban environments, semi-natural features (e.g., cultural meadows, SWM ponds, planted trees, thickets and hedgerows) and natural vegetation features (e.g., riparian corridor and forest). Habitats within the study area show varying levels of previous disturbance. With the exception of one SAR (Monarch), the suite of wildlife species found was common and expected of cultural and open field habitats and small natural forest patches. During the 2017 and 2018 field investigations, a total of 25 avifauna, four mammals and five insect species (total of 34 wildlife species) were recorded within the study area. Lists of breeding birds and incidental wildlife observed within the study area are presented in **Appendix G** Natural Environment Report, Appendix C.

6.3.5.1 Birds

During the 2016 and 2017 field investigations, a total of 25 avifauna were recorded within the study area with 24 species showing breeding evidence (possible, probable or confirmed according to OBBA protocol). Turkey Vulture was the only species with no breeding evidence.

Most of the bird species recorded are common throughout southern Ontario and expected given the types of habitat available (forest, forest edge, cultural meadow and urban / semi-urban environments). High numbers of urban tolerant bird species were recorded, such as American Robin, Black-capped Chickadee, American Goldfinch, European Starling and Song Sparrow. Species associated with deciduous forest habitats (ELC Unit 4) were recorded including, American Redstart, Red-eyed Vireo and Downy Woodpecker in addition to species associated with riparian forest / floodplain habitats (Unit 1), including Common Yellowthroat, Red-winged Blackbird and Warbling Vireo.

No nests were observed within surveyed vegetation areas at the time of the surveys. However, given that these surveys were undertaken within the Regional Nesting Period

identified by Environment Canada, and suitable nesting habitat exists within the study area, nesting activity and nests were likely present but undetected.

One bridge and several culverts were surveyed for signs of nests or other bird nesting activity, and none were found. Most of the culverts are small and the openings are surrounded by vegetation, making them less desirable for nesting. Two of the culverts and the Bowes Bridge on Langstaff Road over the Don River West Branch provide suitable nesting habitat, however no signs of nesting were observed at these locations. The Bowes Bridge, which provides particularly good habitat for Barn Swallow, should be surveyed at detailed design to confirm the absence of nesting.

No SAR birds, nor provincially significant species were recorded within the study area during field investigations. The study area has some potential for supporting a number of other SAR birds.

6.3.5.2 Mammals

Observations and / or signs of four mammal species were recorded within the study area during the field surveys: Eastern Chipmunk, White-tailed Deer, Grey Squirrel and Coyote. However, the general area likely supports a range of other mammals often found in similar habitats, including: Groundhog, Raccoon, Eastern Cottontail, Red Squirrel, Striped Skunk, Red Fox, and a number of small mammals that often go undetected such as Meadow Vole, White-footed Mouse and Woodland Jumping Mouse (Dobbyn, 1994).

None of the recorded mammal species are SAR or SCC and all have a provincial S-Rank of 5 (Secure). Forested habitats within the study area exhibit potential to support SAR mammals, specifically Small-footed Bat, Little Brown Bat, Tri-colored Bat and Northern Long-eared Bat.

6.3.5.3 Herptiles

No herpetofauna (e.g., amphibian and reptile) species were observed during the field surveys. However, the general area contains habitat for, and may support, several herpetofauna species found in similar habitats. No specialized habitat features (e.g., amphibian breeding, or reptile overwintering habitat) were observed or are likely to occur in the study area.

6.3.5.4 Species of Conservation Concern

For the purposes of the Natural Heritage Report, the term SAR refers to those species listed as Endangered, Threatened and Special Concern, under the *Species at Risk Act* (SARA) and / or listed on the Species At Risk in Ontario (SARO) List (Ontario Regulation 230/08) and protected under Ontario's *Endangered Species Act*, 2007 (ESA, 2007). The term SCC encompasses: both SAR and additional species designated by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) and/or species designated by the Committee on the Status of Species at Risk in Ontario (COSSARO), as well as provincially rare species (NDMNRF S-Rank of S1 to S3), NDMNRF "Area Sensitive" species (SWH Criteria Schedules; NDMNRF, 2015) and locally / regionally significant species (TRCA rank of L1 to L3 and NDMNRF R-ranked species). Specific targeted surveys for SCC were not undertaken as part of the project scope.

Prior to field surveys, a list of SCC with potential to be present within the study area was generated by compiling a 'long list' of SCC known to be present in the general vicinity based on background resources (e.g., NHIC records, NDMNRF Regional SAR species lists and NDMNRF / TRCA consultation). This long list was then screened in relation to the habitats present in the study area to exclude those species with no potential to be present. Observations by WSP during 2016 and 2017 either confirmed presence of these SCC and/or augmented the list.

All SCC found during the field surveys were recorded and are listed below.

Wildlife

Field surveys the presence of one wildlife SCC within the study area:

- ▶ Monarch – Listed as Endangered by COSEWIC and Special Concern by COSSARO, and listed under SARA (2002) and ESA (2007). This species is common within the broader landscape and likely to forage in a variety of cultural meadow habitats found throughout the study area; however, a patch of moderately concentrated Milkweed (*Asclepias*) plants was identified in Unit 2 along the edge of Unit 1, approximately 50 m south of Langstaff Road.

Vegetation

A number of vegetation SCC were confirmed within the study area including four species with an S-Rank of S4, meaning they are Apparently Secure (uncommon but not

rare, but with some cause for long-term concern) in the province, one species with an S-Rank of S3, meaning it is Vulnerable in Ontario, and 15 Regionally Significant species (L1-L3 or R) designated as such by the TRCA (2003)³, or City of Toronto (Varga, 2000)⁴, as follows in **Table 6-2** (also see **Exhibit 6-2a to Exhibit 6-2h** for ELC Unit Location):

Table 6-2: Provincially and Regionally Significant Plant Species in the Study Area

Common Name	Species Name	S-Rank	TRCA Rank	City of Toronto Rank	ELC Unit Location	Likely a Landscaped Species
Broad Waterweed	<i>Elodea canadensis</i>	S5	L3	-	Unit 1	
Balsam Fir	<i>Abies balsamea</i>	S5	L3	-	Unit 4	
Amethyst Aster	<i>Symphyotrichum x amethystinum</i>	S3?	LH	-	Unit 11	

³ Codes are defined as follows:

- L1: Of concern regionally; almost certainly rare in TRCA jurisdiction; generally occur in high-quality natural areas, in natural matrix; unable to withstand disturbance.
- L2: Of concern regionally; probably rare in TRCA jurisdiction; generally occur in high-quality natural areas, in natural matrix; unable to withstand disturbance.
- L3: Of concern regionally; generally secure in natural matrix; able to withstand minor disturbance.
- L4: Of concern in urban matrix; generally secure in rural matrix; able to withstand some disturbance.
- L5: Not of concern; generally secure throughout jurisdiction, including urban matrix; able to withstand high levels of disturbance.
- LX: Extirpated from TRCA region with remote chance of rediscovery. Presumably highly sensitive. Not scored.
- LH: Hybrid between two native species. Usually not scored unless highly stable and behaves like a species.
- L+: Exotic. Not native to TRCA jurisdiction. Includes hybrids between a native species and an exotic. Not scored.

⁴ Codes are defined as follows:

- U: Uncommon native species
 - R: Rare native species
 - + or I: Introduced species
 - X+: Introduced in municipality
-

Common Name	Species Name	S-Rank	TRCA Rank	City of Toronto Rank	ELC Unit Location	Likely a Landscaped Species
Sweet Joe-pye-weed	<i>Eupatorium purpureum var purpureum</i>	S4	L3	R	Unit 2	✓
Red Pine	<i>Pinus resinosa</i>	S5	L1	-	Unit 7	✓
Smooth Oxeye	<i>Heliopsis helianthoides</i>	S5	L2	R	Unit 2	✓
Switch Grass	<i>Panicum virgatum</i>	S4	L3	R	Unit 2	✓
Rough Avena	<i>Geum laciniatum</i>	S4	L3	-	Unit 1	
Balsam Fir	<i>Abies balsamea</i>	S5	L3	-	Unit 4	
Eastern Ninebark	<i>Physocarpus opulifolius</i>	S5	L3	R	Unit 7	✓
American Flyhoneysuckle	<i>Lonicera canadensis</i>	S5	L3	-	Unit 4	
White Spruce	<i>Picea glauca</i>	S5	L3	-	Unit 7	✓
Arrow-leaved Aster	<i>Symphyotrichum urophyllum</i>	S4	L3	R	Unit 1	
Tamarack	<i>Larix laricina</i>	S5	L3	-	Unit 4	
Smooth Blue Aster	<i>Symphyotrichum leave var laeve</i>	S5	L3	R	Unit 7	
Black Spruce	<i>Picea mariana</i>	S5	L2	R	Unit 4	
Black Walnut	<i>Juglans nigra</i>	S4	L5	-	Unit 1, 3, 4, 5	

Provincially, regionally and / or locally rare species are not protected under national / provincial legislation, however opportunities to protect and retain regionally significant species are considered where possible.

SAR With Potential to Occur Within the Study Area

A review of background information sources (OBBA, NHIC and NDMNRF Regional SAR Lists) in combination with the assessment of the available habitat indicated there is some potential for 11 SAR to occur within the study area or in the vicinity of the study area. Only one of these species (Monarch) was actually recorded in the study area during field surveys. However, given the habitat characteristics present in the study area in combination with occurrences of these species in the broader landscape, the following eight wildlife and one plant SAR have moderate - high potential of occurring within the study area:

- ▶ Eastern Wood-pewee (*Contopus virens* - Special Concern, COSEWIC and COSSARO): This species is relatively common, and suitable breeding habitat is present in Unit 4. If present, this species is unlikely to nest within the edges of the forest or to move into the study area to forage or defend territory.
- ▶ Wood Thrush (*Hylocichla mustelina* - Special Concern, COSEWIC and COSSARO): Wood Thrush is relatively common, and suitable breeding habitat is present in Unit 4. If present, this species is unlikely to nest within the edges of the forest or to move into the study area to forage or defend territory.
- ▶ Barn Swallow (Threatened, COSEWIC and COSSARO): This species is widespread, and foraging habitat is present over all natural areas, including the SWM pond, within the study area. There is a possibility for this species to occur as a foraging visitant throughout the study area. However, nesting habitat is limited within the study area.
- ▶ Common Nighthawk (*Chordeiles minor* - Threatened, COSEWIC and Special Concern, COSSARO) – This species may be present breeding on flat topped rooves in the vicinity of the study area, and foraging over all natural areas including wetlands, watercourses and fields.
- ▶ Two Bat Species (Little Brown Bat, Northern Long-eared Bat - Endangered, COSEWIC and COSSARO): Little Brown Bat and Northern Long-eared Bat have some potential of occurring within the study area, while the other two species have a minimal likelihood (Small-footed Myotis typically uses rocky areas / talus slopes, which are not present in the study area, and Tri-coloured Bat are generally less common in the Region). These species have not been confirmed during field surveys; and, targeted acoustic monitoring / exit surveys were not part of the project scope. Suitable foraging habitat is present over natural areas

and there is limited potential for day roosting within natural areas of the study area. Some potential maternity colony habitat may be present in standing snags with cavities observed in Unit 1, and potentially in Unit 4. Consultation with NDMNRF (Bohdan Kowalyk, Management Biologist, pers. comm. Feb 2018) has been undertaken to assess the potential impacts on SAR bats.

- ▶ Butternut (Endangered, COSEWIC and COSSARO): This species is widespread, and known to occur in the broader landscape, and suitable habitat is present within the study area, specifically in Unit 1. However, no Butternuts were observed during field investigations.

Significant Wildlife Habitat

"Significant Wildlife Habitat" (SWH) is identified by NDMNRF in their Significant Wildlife Habitat Technical Guide (NDMNRF, formerly Ontario Ministry of Natural Resources and Forestry 2000), SWH is broadly categorized as:

- ▶ Seasonal concentration areas (i.e., conifer forests for deer wintering);
- ▶ Rare vegetation communities or specialized habitats for wildlife;
- ▶ Habitats of species of conservation concern, excluding the habitats of endangered and threatened species;
- ▶ Animal movement corridors.

Two types of Candidate SWH and one type of Confirmed SWH were identified during field investigations; Candidate Bat Maternity Colonies (Unit 4), Candidate Wetland Amphibian Breeding Habitat and Confirmed Special Concern and Rare Wildlife Species (Monarch and Amethyst Aster).

Consultation with the TRCA will likely be required at detailed design to determine appropriate mitigation for confirmed SWH, in accordance with the PPS.

6.3.6 Tree Inventory

A Tree Protection Report was prepared for the Langstaff Road Class EA study. The full report is provided in **Appendix H** and the existing condition and impact assessment is summarized below. It should be noted that the tree inventory review focused on features along the Langstaff Road corridor only as that is where the proposed roadway improvements will be located.

Vegetation observed in the right-of-way limits consists of planted trees within the limits of retail, commercial, industrial properties and parks that front onto Langstaff Road and naturally occurring vegetation where the Don River and Black Creek cross Langstaff Road. The composition of vegetation varies depending on location; the locations and compositions are summarized below.

Field observations were conducted on November 9 and 21, 2017 within the study area. A total of ±1095 trees were assessed for the Tree Inventory Report consisting of:

- ▶ Weston Road to Creditstone Road: 369 individual trees and 287 trees in 20 tree groupings; and
- ▶ Keele Street to Highway 7: 249 individual trees and 190 trees in 10 tree groupings.

Weston Road to Highway 400

Vegetation between Weston Road and Highway 400 consists of a mixture of native and non-native deciduous and coniferous planted trees within wide boulevards (10 to 20 m wide) that are 8 to 40 cm in diameter. One-hundred and twenty (120) trees were inventoried in this area. Species consistency varied between frequent to rare and are detailed in the Tree Protection Report in **Appendix H**.

Highway 400 to Creditstone Road

Vegetation is a mixture of native and non-native deciduous and coniferous planted trees within wide boulevards (10 to 25 m in width) that are 6 to 48 cm in diameter. Vegetation adjacent to Black Creek is outside of the study area. Two-hundred and eighty-two (282) individual trees and two-hundred and fifty-four (254) trees in groupings were inventoried in this section. Species consistency varied between frequent to rare and are detailed in the Tree Protection Report in **Appendix H**.

Keele Street to Highway 7

Vegetation consists of a mixture of native and non-native deciduous and coniferous trees occurring naturally within the limits of the Don River or planted in parks and boulevards. Trees range in size from <10 to 90 cm in diameter. Two-hundred and forty-nine (249) individual trees and one-hundred and ninety (190) trees in groupings were inventoried in this area. Species consistency varied between frequent to rare and are detailed in the Tree Protection Report in **Appendix H**.