Scoped Environmental Impact Study

Bahá'í National Centre and Temple, Markham, Ontario

Submitted to:
The National Spiritual Assembly of the Bahá'ís of Canada
7200 and 7290 Leslie Street,
City of Markham

Submitted by:
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Project 8061

Issues and Revisions Registry

Identification	Date	Description of Issued and/or Revision
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1. Introduction

GEI Consultants (GEI) has been retained by The National Spiritual Assembly of the Bahá'ís of Canada and the Association for Bahá'í Studies ("NSA Bahá'í Canada") to complete a Scoped Environmental Impact Study (EIS) for the proposed development of the Bahá'í National Centre (BNC) and Canadian National Temple located at 7200 and 7290 Leslie Street in the City of Markham (herein referred to as the Subject Lands; **Figure 1**, **Appendix A**). The Subject Lands encompass a total of 8.46 ha. The property is generally bounded by German Mills Settlers Park (German Mills Meadow and Natural Habitat) to the north, Bercy Park to the east, Waterloo Court to the south and Bayview Golf and Country Club to the west. 7200 Leslie St. is currently occupied by the existing BNC, while a single detached residence occupies 7290 Leslie St. Access for both properties is provided via a private road near the terminus of Leslie Street, which is also used by the Bayview Golf and Country Club.

The proposed development includes the construction of a Bahá'í National Temple within a portion of the Subject Lands that are currently identified in the City of Markham's Official Plan 2014 (OP) as part of the Greenway System. An Official Plan Amendment (OPA) to the Markham OP and a Zoning Bylaw Amendment (ZBA) is being sought to support the development proposal. This Scoped EIS has been completed in support of this process. The proposed Temple and all associated impacts have been defined for the purpose of confirming the development limit.

NSA Bahá'í Canada also owns an additional 8.1 ha of land at 7015 Leslie Street, located on the northeast corner of Leslie Street and Steeles Avenue East, and bisected by German Mills Creek in a north-south direction (**Figure 1**, **Appendix A**). This property, now known as the Don Valley Education Centre by the Bahá'í Community, was formerly the Mayfair Tennis Club and the Adventure Valley children's day camp. These lands are not assessed within the Scoped EIS; however, the lands have been characterized as part of the broader Study Area to understand the potential for restoration and enhancement of these lands to achieve a net benefit to the landscape in the context of the overall proposed development on the Subject Lands. Additionally, these lands will be impacted slightly to support the proposed raising and redesign of Leslie Street.

GEI understands that pre-consultation with the City of Markham (the City), Regional Municipality of York (the Region) and the Toronto and Region Conservation Authority (TRCA) was initially undertaken in 2019. In addition, a meeting with the City of Markham occurred in January 2020 to discuss the feasibility of the proposed Temple and its location. Following a pause during the Covid-19 pandemic, fieldwork commenced in 2022 along with the submission of the Scoped EIS as part of the OPA and ZPA complete submission in October 2022. Following the first submission of the Scoped EIS and the subsequent agency comments and follow up discussions, the original location of the Temple was revised in size and shifted to the west to an area with fewer encroachments within the buffers. To minimize the impacts associated with the proposed development, a number of changes have been made to the

development plan, including confirmation of the development limit and removal of the proposed stairway trail from the parking area to the Temple. These revisions are reflected within **Section 6**, with the revised impacts reviewed in **Section 7**. Additionally, the proposed compensation and restoration sections have also been revised to accurately reflect the TRCAs compensation guidelines in **Section 8**.

1.1 Background Information

The Subject Lands and the greater Study Area consist of four lots (**Figure 2**, **Appendix A**), these lots and their proposed land uses are described below:

Subject Lands:

- **Lot 1**: This lot encompasses the property at 7200 Leslie Street, located on the west side of Leslie Street and north of Steeles Avenue. The property is home to the existing "BNC and has an area of 1.16 ha. Lot 1 is proposed to house a new BNC and associated infrastructure.
- **Lot 2**: This lot includes a portion of the 7290 Leslie Street property immediately north of 7200 Leslie Street. The majority of this property is classified as woodland; however, there is an existing log house with a detached garage, driveway and manicured lawn that is located on the east side of the property. This property is contiguous with Lot 3 and comprises 7.3 ha between the two lots.
- **Lot 3**: This lot includes the most northern portion of 7290 Leslie Street and was historically part of a landfill. This lot is included within the 7.3 ha as discussed above.

Study Area:

- **Lot 4**: This lot is associated with 7015 Leslie Street and is 8.1 ha in size. German Mills Creek bisects the lands in a north-south direction.

1.2 Purpose of the Report

Consistent with the requirements of Section 3.5 of the City of Markham's OP, this Scoped EIS is required to assess the potential impacts of the proposed development on the natural heritage features and associated functions on the Subject Lands and adjacent lands. The Scoped EIS considers applicable provincial and municipal policies, including the natural heritage policies of the Provincial Policy Statement (PPS; Ministry of Municipal Affairs and Housing; MMAH, 2020) and associated provincial implementation guidance contained in the Natural Heritage Reference Manual (NHRM; MNR 2010). In addition, this EIS considers the policies of the Region, the City), and the TRCA. Both the Terms of Reference (TOR) and the first submission of the EIS received comments that have been reflected in this updated EIS submission, these comments and the Sections that correspond to these revisions are summarized below.

The EIS TOR, specific to the preparation of the EIS for the Subject Lands, was prepared with the Feasibility Letter submitted by MGP in 2022 as part of a Conceptual Development Review Application and circulated to the City and the TRCA. The TOR outlined the purpose, study area and scope of work, in accordance with Section 3.5 of the City's OP and the TRCA's Environmental Impact Statement Guidelines (2014a). A copy of the TOR is provided in **Appendix C**. Minor comments were received on May 18 and 27, 2022 from the TRCA and comments on the first submission of the Scoped EIS were received on February 2 and 13, 2023 and have been incorporated into Scoped EIS (**Appendix D**).

Based on the comments on the TOR, the EIS has considered and includes the following information:

- Completion of baseline Ecological Land Classification (ELC) and invasive species assessments of Lots 2, 3 and 4 to assist in producing specific restoration and enhancement objectives (Section 2.2.1);
- Exploration of species of concern and Species at Risk (SAR) habitat enhancement opportunities (Section 8);
- Technical discussion with TRCA to determine the location of the proposed trail system,
- Inclusion of the proposed trail system within the development descriptions, along with assessment of any associated impacts (Section 6.4);
- Inclusion of additional information on a possible secondary emergency access route (Section 6.5);
- Inclusion of a summary of the Landscape Restoration and Enhancement Strategy (LRES; Schollen & Company 2024a), and discussion in terms of the proposed impacts and compensation requirements (Section 7 and 8).

Based on the comments received by the City (February 2, 2023) and TRCA (February 13, 2023) on the first Submission of the EIS (2022), the following has been incorporated into this submission:

- Additional Living City Policy Discussion (Section 1.3.4.1);
- Basal Area Survey and TRCA Compensation Requirements (Section 3.2.1.4);
- Tree Inventory and Compensation Requirements (Section 3.2.1.5);
- Erosion Hazard Technical Discussion (Section 3.3.3);
- Linkage Assessment (Section 3.4);
- Significant Woodlands (Sectio 4.3);
- Significant Valleylands (Section 4.4);
- TRCA Regulated Features (Section 4.9);
- Greenway Application of Recommended VPZ's (Section 5.1.1);
- Greenway System Amendments (additions) (Section 5.3.1);
- Updated Description of the Development Proposal (Section 6);
- Updated Impact Assessment Calculations and Discussion (Section 7);
- Updated Landscape Restoration and Enhancement Strategy (Section 8).

1.3 Natural Heritage Planning Considerations

The Subject Lands are subject to federal, provincial, and municipal legislation as well as land use policies established by the Region, the City, and the TRCA.

An assessment of the quality and extent of natural heritage features found on, and adjacent to, the Subject Lands and the potential impacts to these features from the proposed development application was completed to address the natural heritage components of the following regulatory agencies, local and regional municipalities, and/or legislation:

- PPS (2020);
- Regional Municipality of York Official Plan (YROP, 2010);
- City of Markham OP (2014);
- Endangered Species Act, 2007;
- Fisheries Act, 1985;
- Migratory Birds Convention Act, 1994; and
- TRCA Ontario Regulation (O.Reg) 166/06 and TRCA's The Living City Policies (2014b).

1.3.1 Provincial Policy Statement

The PPS (MMAH 2020) provides direction on matters of provincial interest related to land use planning and development. It "supports a comprehensive, integrated and long-term approach to planning…" The PPS is to be read in its entirety and land use planners and decision-makers need to consider all relevant policies and how they work together.

This report addresses those policies that are specific to Natural Heritage (section 2.1) with some reference to other policies with relevance to Natural Heritage and impact assessment consideration and areas of overlap (e.g., those related to Efficient and Resilient Development and Land Use Patterns, section 1.1; Sewage, Water and Stormwater, section 1.6.6; Water, section 2.2; Natural Hazards, section 3.1).

Eight types of significant natural heritage features are defined in the PPS, as follows:

- Significant wetlands;
- Significant coastal wetlands;
- Significant woodlands;
- Significant valleylands;
- Significant wildlife habitat (SWH);
- Fish habitat;
- Habitat of endangered and threatened species; and
- Significant areas of natural and scientific interest (ANSIs).

In accordance with Section 2.1 of the PPS, development and site alteration shall not be permitted in significant wetlands, or in significant coastal wetlands. Development and site alteration is also not permitted in significant woodlands, significant valleylands, SWH or

significant ANSIs, unless it is demonstrated that there will be no negative impacts on the natural features or their ecological functions. Development and site alteration shall not be permitted in the habitat of endangered and threatened species or in fish habitat, except in accordance with provincial and federal requirements. Development and site alteration may be permitted on lands adjacent to fish habitat provided it has been demonstrated that there will be no negative impacts on the natural feature or their ecological functions.

Section 3.1.1 of the PPS directs development to areas outside of hazardous lands adjacent to the shoreline of the Great Lakes – St. Lawrence River System (flooding, erosion and dynamic beach hazards), hazardous lands adjacent to river, steam and small inland lake systems (flooding and/or erosion hazards) and hazardous sites. Section 3.1.2 further prohibits development and site alteration within:

a) *the dynamic beach hazard;*
b) *defined portions of the flooding hazard along connecting channels (the St. Marys, St. Clair, Detroit, Niagara and St. Lawrence Rivers);*
c) *areas that would be rendered inaccessible to people and vehicles during times of flooding hazards, erosion hazards and/or dynamic beach hazards, unless it has been demonstrated that the site has safe access appropriate for the nature of the development and the natural hazard; and*
d) *a floodway regardless of whether the area of inundation contains high points of land not subject to flooding.*

The Subject Lands are not adjacent to a lake or connecting channels and, as such, subsections (a) and (b) of Section 3.1.2 are not applicable. Subsections (c) and (d) are also unlikely to be applicable; however, due to the proximity of German Mills Creek the Subject Lands and associated infrastructure will be addressed through the delineation of the Regional Storm floodplain as provided by the TRCA, and the natural hazard limits as defined within the Schedule B Municipal Class Environmental Assessment – Project File: German Mills Settlers Park Sanitary Infrastructure Protection Project (TRCA 2019b). This will allow the Study Team to define the natural hazard limits within the Subject Lands.

1.3.2 Regional Municipality of York Official Plan

The YROP (2010; consolidated 2019) provides policy direction intended to “help co-ordinate and set the stage for more detailed planning by local municipalities” (Section 1.4). The YROP identifies and outlines protections for the Regional Greenlands System. Section 2.2 policies provide protection for key natural heritage and key hydrologic features, which are components of the Regional Greenlands System. Section 2.5 provides direction with respect to water systems, ensuring development is directed away from natural hazards and providing management direction regarding watershed planning and stormwater management (SWM).

The Subject Lands are designated Urban Area as per Map 2 of the Regions OP.

1.3.2.1 Regional Greenlands System

The YROP identifies, and is designed to protect and enhance, the Regional Greenlands System and its functions (YROP Map 2 Regional Greenlands System). The YROP also identifies, in Section 2.2, policies with respect to the protection of key natural heritage and key hydrologic features which are components of the Greenlands System. Section 2.3 provides direction with respect to water systems ensuring development is directed away from natural hazards and providing management direction regarding watershed planning and SWM.

Regarding the Regional Greenlands System, Map 2 does not show Regional Greenlands within the Subject Lands; however, Regional Greenlands are mapped as occurring within portions of Lot 4 within the Study Area. Though the Subject Lands are not identified as Greenland within Map 2, Section 2.1.5 states that the Regional Greenlands System within areas designated Urban Area "*shall be identified more specifically in local official plans and secondary plans and integrated into community design*". It is our understanding from York Region, that determination of Greenlands systems is to be supported through detailed study (Policy 2.17).

1.3.3 City of Markham Official Plan

The City of Markham OP (2014) establishes key policy directions for detailed planning at the site level. The majority of Lot 2 of 7290 Leslie Street is designated as "Greenway" with a small portion designated as Residential Low-Rise per Map 3: Land Use. The majority of Lot 2 is also designated as Natural Heritage Network per Map 4: Greenway System. Specific features within the Greenway System are identified in Map 5: Natural Heritage Features and Landforms and Map 6: Hydrologic Features.

The Residential Low-Rise designation typically applies to existing residential neighbourhoods in the City and is categorized by lower-scale buildings such as detached, semi-detached, duplexes, and townhouse dwelling types that will experience minimal physical changes in the future (Section 8.2.3). This designation is present where the existing administrative centre is located.

As outlined in the sections above, this Scoped EIS actively addresses the policy associated with the proposed green parking area design. Within Section 3.1.2.13 of the City's OP, it states that the City's intent is to protect and enhance valleylands through the following:

a) *prohibiting development, redevelopment and site alteration except:*
    i. *on lands identified as Special Policy Areas on Map 8 – Special Policy Areas and in accordance with Toronto and Region Conservation Authority regulations and provincial requirements; or*
    ii. *on existing developed properties regulated under the Conservation Authorities Act with the approval of the Toronto and Region Conservation Authority; or*
    iii. *where infrastructure is provided in accordance with Section 3.1.2.9; and*
b) *securing vegetation protection zones in accordance with Section 3.1.2.22.*

As the Subject Lands are partially within the identified regulated valleyland and partially developed where the existing residence is located. This revised EIS aims to demonstrate how the proposed green parking area design has duly considered all alternative options (**Section 6.3.1**) and all associated impacts per Section 3.1.2.9 of the OP. Additionally **Sections 1.3.4** and **4.9** discuss the proposed approach while **Section 8** discusses the overall restoration concept, demonstrating no net negative impacts to the ecological function of the NHN thereby maintaining consistency with this/these policies.

1.3.3.1 The Greenway System

The Greenway System is a natural heritage system defined in Policy 3.1.1 of the City's OP. Woodland communities within Lot 2 and 3 are located within the Greenway System. Within the Subject Lands and Study Area, the Greenway System is composed of the Natural Heritage Network (NHN) Lands as shown on Map 4 (City of Markham 2014, replicated in **Figure 2** (**Appendix A**).

Policies 3.1.2.1 and 3.1.2.10 define the NHN being comprised of:

a) Natural heritage and hydrologic features that include:
    i. key natural heritage and hydrologic features:
        a) wetlands;
        b) habitat of threatened and endangered species;
        c) significant portions of the habitat of:
            - special concern species in the Oak Ridges Moraine Conservation Area (ORMCA) and Greenbelt Plan Area; and
            - provincially rare species in the ORMCA;
        d) fish habitat;
        e) Life Science ANSI;
        f) significant valleylands;
        g) significant woodlands;
        h) significant wildlife habitat;
        i) sand barrens, savannahs and tallgrass prairies;
        j) permanent streams and intermittent streams; and,
        k) seepage areas and springs;
b) Vegetation protection zones (VPZ) associated with the features above; and,
c) Hazardous lands and hazardous sites.

The NHN boundary is defined by the greatest extent of these constraint lines. Minimum VPZ requirements are outlined in the City's OP (2014). **Figure 2** (**Appendix A**) illustrates the extent of the NHN on the Subject Lands. The VPZs required are discussed further in **Section 5**.

Greenway designation allows the following land uses:

- Agricultural uses permitted in the Countryside designation;
- Archaeological activity;
- A dwelling unit;
- Secondary suite;
- Ecological restoration;
- Forest, wildlife habitat and fisheries management and conservations;
- Watershed management;
- Trails and nature based public recreational activities;
- Park related uses;
- Transportation or servicing utility infrastructure; and,
- Communications infrastructure.

Within Section 3.1.1.3 of the City's OP, it states that the Greenway System and associated natural heritage features *"reflect the most accurate information available and are to be confirmed and may be refined or modified*". The designation can be confirmed or modified as follows:

> *a) confirmation of the boundaries will be undertaken in the field, in consultation with appropriate agencies, and any corresponding changes to the mapping shall be undertaken without amendment to this Plan;*
>
> *b) refinements to the boundaries may be considered as part of an application pursuant to the Planning Act, without an amendment to this Plan, where supported by a subwatershed study, master environmental servicing plan, environmental impact study or equivalent study; and*
>
> *c) modifications to the boundaries, other than refinements, including the delineation of the boundaries of the Natural Heritage Network Enhancement Lands in accordance with Section 3.1.3.2, may be considered through an amendment to this Plan, where supported by a subwatershed study, master environmental servicing plan, environmental impact study or equivalent study.*

As was previous discussed, this Scoped EIS is in support of the OPA submission to modify the extent of lands identified as "Greenway" within the Subject Lands. This Scoped EIS supports the proposed modifications to the Greenway System as depicted within the City's OP in accordance with the policy directions.

1.3.4 Toronto and Region Conservation Authority

The Conservation Authorities Act, 1990 (amended 2021) provides the legal basis for conservation authorities to undertake watershed planning and management programs that prevent, eliminate, or reduce risk to life and property from flood and erosion hazards and to encourage the conservation and restoration of natural features and resources. The TRCA

administers Ontario Regulation 166/06: Regulation of Development, Interference with Wetlands and Alterations to Shorelines and Watercourses. Through this regulation and in accordance with Section 28.1 of the Conservation Authorities Act, the TRCA has the authority to:

- Prohibit, regulate, or provide permission for straightening, changing, diverting or interfering in any way with the existing channel of a river, creek, stream, watercourse or changing or interfering with a wetland; and
- Prohibit, regulate, or provide permission for development if the control of flooding, erosion, dynamic beaches, pollution or the conservation of land may be affected by the development.

Ontario Regulation 166/06 defines the extent of the regulated area within the TRCA watersheds, with TRCA having prepared mapping of the approximate limit of these areas in association with the valleyland. The mapping shows that the TRCA regulated areas includes the majority of 7290 Leslie Street except for the southwest corner (related to the predicted top of bank). It is noted that the mapping is only approximate, and any lands that fall within the definition of the regulation limit as written within Ontario Regulation 166/06 is considered regulated area. Works within a regulated area require permits from the TRCA for development or site alteration that would affect a river, creek, wetland, floodplain, or valleyland, as noted above.

The Subject Lands have a topographically characteristics that include a slope into the German Mills Creek valleyland that includes multiple stepping down approaches. While the valleyland is defined by the Long Term Stable Top Of Slope ("LTSTOS"), the extent of the erosion hazard limit is variable and associated with the top and toe of slopes near the existing residence, along Leslie Street, and along the creek meander belt. The various regional and recreational infrastructure further east into the valleyland (i.e., the Regional Pumping Station) are also relevant in assessing the reality of the erosion hazard risk, to accurately account for the long-term management of the valleyland.

As stated in **Section 1.3.1**, the natural hazard limits within the Subject Lands are characterized in line with the natural hazard limits as defined within the Schedule B Municipal Class Environmental Assessment – Project File: German Mills Settlers Park Sanitary Infrastructure Protection Project (TRCA 2019b), the findings from Terraprobe (2024). These studies will be used with the additional assessment completed to allow the Study Team to accurately define the natural hazard limits within the Subject Lands, this is discussed in further detail within **Section 4.9.1**.

1.3.4.1 TRCA's Living City Policy

The policies for the implementation of TRCA's regulation are contained in The Living City Policies: for Planning and Development in the Watersheds of the Toronto and Region Conservation Authority (2014b). This policy document establishes the TRCA's Vision, Mission, Strategic Objectives, and Principles and provides policy direction for environmental planning.

As stated above, TRCA's regulated area overlaps with a large portion of 7290 Leslie Street (Lot 2; **Figure 2**, **Appendix A**). However, the southwest corner of the cultural woodland is excluded from the regulated area as it is above the crest of slope. The policies reviewed below are largely applicable to the existing residence located outside of the designated Greenway System, and consequentially the proposed green parking area.

The Subject Lands are adjacent to German Mills Creek, a tributary of the eastern branch of the Don River. Due to this, a significant portion of the Subject Lands and Study Area are located within TRCA's Regulated Area. Development within the regulated portion of the site will require a TRCA permit pursuant to O. Reg. 166/06 (as amended), which will be progressed upon completion of the SPA. As the TRCA's Living City Policy 8.4.4 states that *"That TRCA will not permit development, interference, and alteration within a regulated area that proposes to modify watercourses, wetlands, hazardous lands, including such lands within valley and stream corridors … to create additional area to accommodate or facilitate new development or intensification"*.

Within **Section 3.3.3** the analysis completed on the top of slope associated with the existing residence, along with further discussion on the reality of the erosion hazard limit as it related to the existing regional infrastructure has been included in detail. For a more detailed technical policy discussion as it relates to the proposed development, refer to **Section 4.9.1**.

Regarding the implementation of proposed green infrastructure and parking area within the regulated valleyland, several policies were relevant to the proposed land use change. The following policies were reviewed:

a) The relevant text within Policy 7.3.1 (Environmental Protection Policies), includes:
    d. *That notwithstanding policies 7.3.1 a) through c), the following may be permitted within the Natural System, subject to the policies in Sections 7.4 and 7.5 and 8.4 to 8.13:*
        i. *alterations to existing buildings and structures, including those for agricultural use,*
        ii. *infrastructure,*
        iii. *recreational uses, and*
        iv. *conservation projects and conservation related accessory uses.*
b) The relevant text within Policy 7.4.5.1 (Polices for Recreational Use), includes:
    a. *To collaborate with municipal partners, private interests, community groups and the general public to realize a linked regional open space system, as identified in TRCA board-approved plans and strategies, which provides the basis for:*
        i. *a coordinated network of landscape and nature-based accessible recreation areas;*
        ii. *experiencing the distinctive natural and cultural heritage attributes of the watersheds;*
        iii. *compatible employment opportunities for small scale home-based businesses and local residents;*
        iv. *the consideration of cumulative impacts and how to avoid them;*

v. *undertaking comprehensive management plans to restore and enhance the Natural System;*
vi. *trail networks that connect communities, parks and greenspace through landscapes and landforms like the river valleys, the Lake Ontario waterfront and the Oak Ridges Moraine.*

b. *To recommend that lands within the Natural System not be considered for municipal parkland dedication.*
c. *That minor recreational uses may be permitted in the Natural System, in accordance with the policies in this document.*
    i. *Minor Recreational Uses are recreational facilities that require very little modification of terrain or vegetation and few if any, buildings, structures and limited parking. These are low intensity and non-intrusive nature (e.g., non-motorized trails, boardwalks). Proper site planning, scoped environmental studies and the incorporation of best management practices for site construction and future maintenance can generally minimize impacts to negligible levels.*
d. *That major recreational uses not be permitted in the Natural System, except as permitted by provincial plans.*
    i. *Major Recreational Uses are recreational facilities that require large scale modification of terrain, vegetation or both, and usually also require large scale buildings or structures and extensive parking areas (e.g., golf courses, serviced sports fields). These require the same studies and approval process that other infrastructure requires.*
e. *That minor expansions to existing major recreational uses may be permitted within the Natural System in accordance with the policies of this document.*
    i. *Minor Expansions require very little modification of terrain or vegetation and few if any, buildings, structures and limited parking. Proper site planning, comprehensive environmental studies, or equivalent technical reports, to the satisfaction of TRCA, and the incorporation of best management practices for site construction and future maintenance can generally minimize impacts to negligible levels.*
f. *That when minor recreational uses or minor expansions to existing major recreational uses remove a natural feature, or part of a natural feature, that compensation be provided in accordance with policies 7.4.2.1 c) and d) of this document.*
h. *To recommend that trail alignments and other minor recreational uses as applicable:*
    i. *be established conceptually as early in the planning and development process as possible in order for future residents to be aware of where public trails will be situated;*

ii. *follow existing linear disturbances (where ecologically appropriate) such as existing informal trails, sanitary easements, gas pipelines, and other infrastructure, rather than through undisturbed areas;*
iii. *avoid sensitive habitats, floral and/or faunal species;*
iv. *avoid the riparian zone of watercourses;*
v. *not increase risk to public safety from natural hazards by avoiding active erosion zones, such as outside meander bends and valley walls where banks are eroding; and*
vi. *avoid incompatible topography, so that grading or filling is avoided or minimized.*

k. *To recommend that all major and minor recreational use projects, where applicable, meet all of TRCA's stormwater management criteria as outlined in Section 7.4.1 (Water Resources Management) and TRCA's Stormwater Management Criteria Document.*

c) The relevant text within Policy 7.4.6 (Conservation Use), includes:
   a. *To advocate for the inclusion in municipal official plans and zoning by-laws of appropriate policies, permitted uses, activities and standards with sufficient flexibility to allow for the undertaking of a variety of compatible conservation-related accessory uses on public conservation lands.*
   b. *That the development of new facilities and conservation-related accessory uses on publicly-owned conservation lands be undertaken through a comprehensive management plan process, integrated with the broader social needs of the community and based on appropriate environmental studies, provincial and municipal requirements, and opportunities for public consultation.*

d) The relevant text within Policy 8.4.5 (General Regulation Policies: Permission for Development, Interference and Alterations) includes:
   a. *That development, interference or alteration within a regulated area may be permitted where it can be demonstrated to the satisfaction of TRCA, through appropriate technical reports, assessments, site plans and/ or other documents as required by TRCA, that:*
      a) *the control of flooding, erosion, dynamic beaches, pollution or the conservation of land will not be affected;*
      b) *the risk to public safety is not increased;*
      c) *susceptibility to natural hazards is not increased and no new hazards are created;*
      d) *there are no adverse hydraulic or fluvial impacts on rivers, creeks, streams, or watercourses;*
      e) *there are no adverse impacts on the natural coastal processes of the Lake Ontario shoreline;*
      f) *negative or adverse hydrological or ecological impacts on natural features and functions, including wetlands, are avoided or mitigated;*

g) *intrusions on natural features, areas and systems contributing to the conservation of land, including areas providing ecological functions and hydrologic functions, are avoided or mitigated;*
h) *groundwater discharge which supports natural features and areas or hydrologic or ecological functions on-site and other sites hydrologically connected to the site are maintained;*
i) *groundwater recharge which supports natural features and areas or hydrologic or ecological functions on-site and other sites hydrologically connected to the site will be maintained;*
j) *access for emergency works and maintenance of flood or erosion control works is available;*
k) *TRCA's stormwater management criteria (water quantity, water quality, erosion control and water balance for groundwater and natural features) have been met, where applicable, based on the scale and scope of the project;*
l) *pollution, sedimentation and erosion during construction and post construction is minimized using best management practices including site, landscape, infrastructure and/or facility design (whichever is applicable based on the scale and scope of the project), construction controls, and appropriate remedial measures;*
m) *appropriate restoration works of sufficient scale and scope in accordance with TRCA standards will be implemented; and*
n) *works are constructed, repaired and/ or maintained according to accepted engineering principles and approved engineering standards or to the satisfaction of TRCA, whichever is applicable based on the scale and scope of the project in accordance with TRCA standards.*

e) The relevant text within Policy 8.4.8 (Development Setbacks) includes:
   a. *Notwithstanding supplementary policies or stand-alone policies as specified in Sections 8.5 through to 8.12, development within a regulated area shall be set back from the greater of the following:*
      a) *Valley and Stream Corridors: 10 metres from the long term stable top of slope, stable toe of slope, Regulatory flood plain, meander belt and any contiguous natural features and areas that contribute to the conservation of land;*

f) The relevant text within Policy 8.4.9 (Development Setbacks) includes:
   a. *That in recognition of the redevelopment and intensification trends within existing urbanized areas of TRCA's watersheds and Lake Ontario shoreline, development may be set back distances other than those listed in Section 8.4.8 where TRCA determines it to be appropriate and where the following have been demonstrated to the satisfaction of TRCA:*
      a) *the development has regard for the existing development setbacks on the subject property and within the context of existing development patterns and characteristics within the valley and*

stream corridor reach, the Lake Ontario shoreline reach or adjacent to a wetland;

b) *b) there is no increase in risk to life or property; and*
c) *there is no impact to the control of flooding, erosion, dynamic beaches, pollution or the conservation of land, which may need to be demonstrated through a comprehensive environmental study or technical report.*

Of the policies referenced, only the relevant text was listed above. For a more detailed policy discussion refer to **Section 4.9.2**, where the green parking area is discussed in accordance with the policy directions outlined above. Additionally, further discussion on the feasibility of available parking options and the green parking area design, refer to **Section 6.3**.

Regarding the implementation of the conceptual redesign of Leslie Street (refer to **Section 6.5**), proposing the raising of Leslie Street outside of the regional floodline to solve the existing issue of emergency access during a regional storm event, this area overlaps with what would be considered TRCA regulated area, and it is the expectation that that TRCA will be consulted during the design process as the concept continues into detailed design. As the conceptual redesign of Leslie Street progresses into the SPA stage, a more detailed assessment of the potential floodplain mitigation options will be explored.

1.3.5 Endangered Species Act

The Ministry of Environment, Conservation and Parks (MECP) administers the provincial Endangered Species Act, 2007a (ESA; amended 2021), which was developed to:

- Identify SAR, based upon best available science;
- Protect SAR and their habitats and to promote the recovery of species at risk; and
- Promote stewardship activities that would support those protection and recovery efforts.

The ESA protects all Threatened, Endangered, and Extirpated species listed on the Species at Risk in Ontario (SARO) List (Ontario Regulation 230/08; 2007b). These species are legally protected from harm or harassment and their habitats are legally protected from damage or destruction, as defined under the ESA.

1.3.6 Fisheries Act

Fisheries and Oceans Canada (DFO) administers the federal Fisheries Act, 1985 (amended 2019), which defines fish habitat as “spawning grounds and other areas, including nursery, rearing, food supply, and migration areas, on which fish depend directly or indirectly in order to carry out their life processes” [subsection (2)1]. The Fisheries Act prohibits the death of fish by means other than fishing [subsection 34.4 (1)] and the harmful alteration, disruption, or destruction of fish habitat [HADD; subsection 35. (1)]. A HADD is defined as “any temporary or permanent change to fish habitat that directly or indirectly impairs the habitat’s capacity to support one or more life processes” (DFO 2019a).

Some projects may be eligible for exemption from the DFO review process, as specified under Step 3 of the DFO Fish and Fish Habitat Protection Program review process (DFO 2019b). Examples of exemptions include clear-span bridges and bridge maintenance projects where DFO mitigation measures are applied, artificial waterbodies with no hydrological connection to occupied fish habitat, and projects that follow the Standards and Codes of Practice defined by DFO.

All other projects or activities that have the potential to impact fish or fish habitat should be submitted to DFO through the "Request for Review" process. DFO will review the proposed project to determine whether there is potential to:

i) impact an aquatic species at risk;
ii) cause the death of fish; or
iii) result in HADD of fish habitat.

The death of fish by means other than fishing or a HADD of fish habitat can be authorized by DFO under paragraphs 34.4(2)(b) or 35(2)(b) of the Fisheries Act. Authorizations require the preparation and submission of an application package identifying the impacts on fish and fish habitat; the avoidance, mitigation, and offsetting measures that will be implemented; and any monitoring that is proposed.

1.3.7 Migratory Bird Convention Act

Environment and Climate Change Canada (ECCC) administers the Migratory Birds Convention Act (MBCA), 1994 (amended 2017), which protects the nests of migratory bird species from destruction, including incidental take (i.e., the unintentional destruction of a nest), as well as from disturbance. The Migratory Birds Convention Act does not provide a set date where activities, such as tree removal, can be completed without the risk of incidental harm to the nests of birds. The requirement to ensure that there are no bird nests present within the work area rests with the proponent of the activity.

2. Data Collection Approach and Methodology

2.1 Background References

GEI has relied, in part, upon supporting background information to provide additional insight into the overall character of the Subject Lands. These resources included:

- Ministry of Natural Resources and Forestry (MNRF) Land Information Ontario (LIO) Natural Features Mapping;
- Natural Heritage Information Centre (NHIC) database;
- Provincial wildlife atlases (i.e., Ontario Breeding Bird Atlas, etc.);
- Citizen Science Databases (i.e., iNaturalist and eBird); and,
- DFO Aquatic Species at Risk Distribution Mapping

The results of the background review are discussed in the following sections. This information assisted in defining the search effort and target species for studies on and immediately adjacent to the Subject Lands.

2.1.1 Land Information Ontario Natural Heritage Areas

Based on the MNRF LIO geographic database, the following features were identified on or adjacent to the Subject Lands (**Figure 2**, **Appendix A**):

- Woodland
- Watercourse (German Mills Creek)

No ANSIs or Environmentally Significant Areas (ESAs) occur on or within 120 m of the Subject Lands.

2.1.2 Natural Heritage Information Centre

The NHIC database (MNRF 2023) was searched for records of provincially significant plants, vegetation communities and wildlife on, and in the vicinity of, the Subject Lands. The database provides occurrence data by 1 km x 1 km squares, with one square encompassing the Subject Lands (17PJ3052).

A total of two species was recorded in the atlas squares that overlap with the Subject Lands, with the following species of interest noted:

- Species listed as Threatened or Endangered on the SARO list:
    - Redside Dace (*Clinostomus elongatus*) – Endangered; and
    - Eastern Meadowlark (*Sturnella magna*) – Threatened.

2.1.3 Ontario Breeding Bird Atlas

The Ontario Breeding Bird Atlas (OBBA) contains detailed information on the population and distribution status of Ontario birds (Bird Studies Canada et al. 2006). The data are presented on 100 km^2 area squares with one square overlapping the Subject Lands (17PJ35). It should be noted that the Subject Lands are a small component of the overall bird atlas square, and therefore it is unlikely that all bird species are found within the Subject Lands. Habitat type, availability and size are all contributing factors in bird species presence and use.

A total of 84 species was recorded in the atlas squares that overlap with the Subject Lands, with the following species of interest noted:

- Species listed as Threatened or Endangered on the SARO list:
    - Barn Swallow (*Hirundo rustica*) – Threatened;
    - Bank Swallow (*Riparia riparia*) – Threatened;
    - Bobolink (*Dolichonyx oryzivorus*) – Threatened;
    - Chimney Swift (*Chaetura pelagica*) – Threatened; and
    - Eastern Meadowlark – Threatened.
- Species of Conservation Concern (i.e., listed as Special Concern on the SARO list, or identified as an S1-S3 species):
    - Barn Swallow (*Hirundo rustica*) – Special Concern;;
    - Common Nighthawk (*Chordeiles minor*) – Special Concern;
    - Eastern Wood-Pewee (*Contopus virens*) – Special Concern;
    - Peregrine Falcon (*Falco peregrinus*) – Special Concern; and
    - Wood Thrush (*Hylocichla mustelina*) – Special Concern.

2.1.4 Ontario Reptile and Amphibian Atlas

The Ontario Reptile and Amphibian Atlas (Ontario Nature 20120) contains detailed information on the population and distribution status of reptiles and amphibians in Ontario. The database provides occurrence data by 10 km x 10 km squares. The Subject Lands is located within the atlas square 17PJ35, which was used to determine a potential reptile and amphibian species list for the area. The Subject Lands is a small component of the overall atlas square, and therefore all the reptile and amphibian species listed for this atlas square may not be found within the Subject Lands. Habitat type, availability, and size are all contributing factors to reptile and amphibian species presence and use.

A total of 17 reptile and amphibian species were recorded in atlas square 17PJ35, including five turtle species, five snake species, one salamander species, and six frog and toad species. Of these reported species, the following species of interest were noted:

- Species listed as Threatened or Endangered on the SARO list:
    - Blanding's Turtle (*Emydoidea blandingii*) – Threatened.
- Species of Conservation Concern (i.e., listed as Special Concern on the SARO list, or identified as an S1-S3 species):
    - Northern Map Turtle (*Graptemys geographica*) – Special Concern; and
    - Snapping Turtle (*Chelydra serpentina*) – Special Concern

2.1.5 Ontario Butterfly and Moth Atlas

The Ontario Butterfly and Moth Atlases (Toronto Entomologists' Association 2023, 2020) contain detailed information on the population and distribution status of butterflies and moths in Ontario. The database provides occurrence data by 10 km x 10 km squares. The Subject Lands is located within the atlas square 17PJ35, which was used to determine a potential butterfly and moth species list for the area. The Subject Lands is a small component of the overall atlas square, and therefore all the butterfly and moth species listed for this atlas square may not be found within the Subject Lands. Habitat type, availability, and size are all contributing factors to butterfly and moth species presence and habitat use.

A total of 49 butterfly species and 13 moth species were recorded in atlas square 17PJ35. Of these reported species, the following species of interest were noted:

- Species of Conservation Concern (i.e., listed as Special Concern on the SARO list, or identified as an S1-S3 species):
    - Monarch (*Danaus plexippus*) – Special Concern.

2.1.6 Fisheries and Oceans Canada

Aquatic SAR distribution mapping (DFO 2023) was reviewed to identify any known occurrences of aquatic SAR, including fish and mussels, within the Subject Lands.

No aquatic SAR were identified on or within 120 m of the Subject Lands.

2.1.7 iNaturalist (Citizen Science)

The iNaturalist (2023) database is a large citizen science-based identification and data collection app. It allows any citizen to submit observations to be reviewed and identified by other naturalists and scientists to help provide accurate species observations. As the observations can be submitted by anyone, and the records are not officially vetted, the data obtained from this tool should not be used as a clear indicator of species presence, and species may be filtered out based on habitat and target survey efforts.

This online database was examined to identify observations made within the Subject Lands that were research grade. A total of three species of interest were recorded within 120 m of the Subject Lands:

- Species listed as Threatened or Endangered on the SARO list:
    - Eastern Meadowlark – Threatened.
- Species of Conservation Concern (i.e., listed as Special Concern on the SARO list, or identified as an S1-S3 species):
    - Eastern Wood-Pewee – Special Concern; and
    - Monarch – Special Concern.

2.1.8 eBird (Citizen Science)

The eBird (2023) database is a large citizen science-based project with a goal to gather bird diversity information in the form of checklists of birds, archive it, and share it to power new data-driven approaches to science, conservation and education. As the observations can be submitted by anyone, and the records are not officially vetted, the data obtained from this tool should not be used as a clear indicator of species presence, and species may be filtered out based on habitat and target survey efforts.

This online database was examined to identify observations made within the vicinity of the Subject Lands. One hot spot was located in close proximity to the Subject Lands within Markham's German Mills Park northeast of the Subject Lands boundary. A total of 168 species were recorded in the German Mills Park hotspot, with the following species of interest noted:

- Species listed as Threatened or Endangered on the SARO list:
    - Barn Swallow – Threatened;
    - Bank Swallow – Threatened;
    - Bobolink – Threatened;
    - Chimney Swift – Threatened; and
    - Eastern Meadowlark – Threatened.
- Species of Conservation Concern (i.e., listed as Special Concern on the SARO list, or identified as an S1-S3 species):
    - Barn Swallow – Special Concern;
    - Common Nighthawk – Special Concern;
    - Eastern Wood-Pewee – Special Concern;
    - Golden-winged Warbler (*Vermivora chrysoptera*) – Special Concern;
    - Peregrine Falcon – Special Concern; and
    - Wood Thrush – Special Concern.

2.2 Ecological Field Study Methodology

The following ecological field investigations were undertaken to understand potential ecological constraints to development:

- Ecological Land Classification;
- Three-season Botanical Survey (i.e., spring, summer and fall);
- Stem Density Survey;
- Feature Staking;
- Bat Habitat Assessment;
- Bat Acoustic Survey;
- Breeding Bird Surveys; and
- Insect Surveys.

Field surveys in 2019 were focused on initial characterization of the Subjects Lands through ELC, fall botanical survey and a Stem Density Survey. Based on the data collected during the site reconnaissance and the available habitat, a continuation of the botanical survey efforts

was completed along with targeted bat, bird and insect surveys in 2022. No other surveys were recommended within these properties based on the habitat conditions.

A summary of dates when ecological survey works were completed is presented within **Table 1** (**Appendix B**). The proposed work plan, outlined within the TOR, was reviewed with comments provided by reviewing agencies (City of Markham and TRCA) on May 18, 2022 and May 27, 2022, respectively. The TOR can be found in **Appendix C** and the comments received from the City and TRCA can be found in **Appendix D**.

Survey methodology related to each specific survey type is described below in detail.

2.2.1 Botanical Inventory and Ecological Land Classification Methodology

2.2.1.1 Methodology

Vegetation communities were first identified on aerial imagery and then verified in the field. Vegetation community types were confirmed, sampled and revised, if necessary, using the sampling protocol of the ELC for Southern Ontario (Lee at al. 1998). ELC was completed to the finest level of resolution (Vegetation Type) where feasible. Species names generally follow nomenclature from the Flora Ontario – Integrated Botanical Information System (FOIBIS; Newmaster and Ragupathy 2012).

The provincial status of all plant species and vegetation communities is based on NHIC (2023). Identification of potentially sensitive native plant species is based on their assigned coefficient of conservatism (CC) value, as determined by Oldham et al. (1995). This CC value, ranging from 0 (low) to 10 (high), is based on a species' tolerance of disturbance and fidelity to a specific natural habitat. Species with a CC value of 9 or 10 generally exhibit a high degree of fidelity to a narrow range of habitat parameters.

2.2.2 Stem Density Survey Methodology

One initial round of ELC was completed on the Subject Lands in 2019, which identified a variety of woodland ecosites, such as cultural woodlands, and deciduous and mixed forests. Unless explicitly stated in local policy, "woodland" as defined by southern Ontario ELC (Lee et al 1998) is often not used to guide presence/absence of woodland – a classification method that relies on percent canopy cover. This is likely because a broad, all-encompassing definition of "woodland" is not provided in the ELC manual (e.g., the definition does not include forests or treed swamps, but instead refers specifically to cultural woodlands).

The City of Markham's OP (Chapter 11 – Interpretation) and the YROP (Definitions Section) both define woodlands similarly. This definition matches the one included within the Forestry Act (1990):

“Woodlands” means land with at least:

(a) 1,000 trees, of any size, per hectare,
(b) 750 trees, measuring over five centimetres in diameter, per hectare,
(c) 500 trees, measuring over 12 centimetres in diameter, per hectare, or
(d) 250 trees, measuring over 20 centimetres in diameter, per hectare

Woodlands must be at least 0.2 ha in size and do not include cultivated fruit or nut orchard, a plantation established and used for the purpose of producing Christmas trees or nursery stock.

Circular plots of 10 m radius were used to develop a statistically representative estimate of stem density within the Cultural Woodland community in the southwestern portion of the Subject Lands. Plot locations were selected through imagery interpretation and knowledge of on-site conditions; the positioning of these plots was designed to capture variability of density and maturity of woody species within each feature. Plot coverage was 13.8%. As per the Ontario Woodlot Association (2003), a sampling intensity from 2% to 10% is common for the purposes of determining tree stem density, so the sample is considered representative.

Within each plot, all trees that were 1.37 m tall or greater were counted. A tally system was used to count each tree; diameter at breast height (DBH) was used to categorize trees as ≤5 cm, 6-12 cm, 13-20 cm, or >20 cm, following the Forestry Act categorization. The collective plot data was used to calculate stem density within each feature. Tall shrubs, such as European Buckthorn (*Rhamnus cathartica*), Sumac (*Rhus typhina*) and Hawthorn (*Crataegus spp*.) were excluded from this survey.

2.2.3 Basal Area Survey Methodology

A stem density survey was completed for the cultural woodland (CUW1) on October 15, 2019; this assessment, along with the work completed for the Tree Inventory and Protection Plan (TIPP), included a basal area survey as required to determine compensation requirements outlined in the Guideline for Determining Ecosystem Compensation (TRCA. 2018). Basal area refers to the cross-sectional area of existing tree stems. The basal area of a woodland is defined as the total cross-sectional area of all stems in the feature, as measured at breast height (i.e., 1.37 m), expressed as m²/ha. Basal area was surveyed down to trees with 7 cm DBH, and DBH was not included for dead trees.

Basal area assessments are completed using a method known as ‘prism sweep’. The methodology is derived from ELC for Southern Ontario (Lee et al. 1998). For this survey, the prism used has a prism factor of 2 – a value that is later used in calculating basal area. One woodland feature was surveyed using this method within the Subject Lands, the CUW1 discussed above.

The CUW1 present on the Subject Lands is 0.75 ha; however, this community is contiguous with the larger woodland (**Figure 3**, **Appendix A**). Of the 0.75 ha of CUW1, 0.52 ha is proposed for removal to facilitate the development. As per TRCA guidelines, “if only a portion

of the feature is being removed, the average basal area should be calculated based on the entire feature, and not just the portion being removed". The larger woodland has an approximate area of 3.7 ha; therefore, the spacing between each sweep was 23m. Although this distance is less than ideal, the placement of prism sweeps ensured that documentation of trees stems were not duplicated between sweeps.

2.2.4 Tree Inventory Methodology (Schollen & Company 2024b)

Schollen & Company completed a tree inventory on the Subject Lands between February 2020 and November 2021, and an associated Arborist Report and Tree Protection Plan detailing the results of the survey efforts (Schollen & Company 2024b). The study targeted three general areas described below (mapping of these areas can be found within Figure 1 of the Arborist Report and Tree Protection Plan):

- **Study Area 1**: The location of the existing BNC and an at-grade parking lot, that will be demolished and replaced with at-grade and underground parking. This study area is approximately 1.15 ha and consists of approximately 70% open space and tree cover.
- **Study Area 2**: The location of the proposed Temple within the CUW1 community. This study area is approximately 0.77 ha and consists of approximately 90% tree cover.
- **Study Area 3**: The location of the proposed at-grade parking lot, where a one-story log house with a detached log garage and driveway currently exists. This study area is approximately 1.34 ha and includes the above-mentioned house along with the surround woodland edges.

Schollen & Company provided the following methodology for the tree inventory in their report:

- All trees with a DBH of 7cm or larger that are located within or adjacent to the three respective Study Areas were assessed on an individual basis by species, size and condition.
- Some dead trees were assessed as a component of this inventory. The dead trees will not require compensation for removal.
- Each tree that was inventoried was assigned a Tree Inventory Number and affixed with a numbered tag in the field. The tag numbers correspond with the numbers indicated on the Tree Inventory & Assessment Plans and Tree Preservation Plans TI-1 - TI-7 & TP-1 - TP-7 (Refer to Appendices C & D of the Tree Inventory and Assessment Report).
- Each tree between 20 & 40 cm DBH that is proposed for removal will require the compensation planting of 2 trees. Trees proposed for removal that are greater than 40 cm DBH will require financial compensation. Refer to the Tree Valuation & Compensation Matrix (Appendix B of the Tree Inventory and Assessment Report) for the results of the valuation exercise.

Additional information on the survey efforts is included within the Tree Inventory and Assessment Report (Schollen & Company 2024b).

2.2.5 Feature Staking Methodology

Feature delineation was completed with TRCA and the City on June 16, 2022 on the Subject Lands to determine: (i) the boundary of the top of bank, (ii) the limit of the boundary between the Cultural Woodland and the Deciduous Forest community, and (iii) the dripline limit of the Mixedwood Forest community associated with the existing residence. The vegetation delineation exercise focused on the cultural tableland treed feature.

2.2.6 Breeding Birds Methodology

Breeding bird surveys were conducted following protocols set forth by the OBBA (Cadman et al. 2007) the Ontario Forest Bird Monitoring Program (Cadman et al. 1998) and the Marsh Monitoring Program (Bird Studies Canada 2014). These protocols generally follow the Bird and Bird Habitats: Guidelines for Wind Power Projects (MNRF 2010) recommended under the SWH Criteria Schedules for Ecoregion 7E and 6E (MNRF 2015a and b) but have been adjusted, based on professional experience, to implement a more comprehensive approach that combines area search and point count techniques.

Surveys were conducted between dawn and five hours after dawn with suitable wind conditions, no thick fog or precipitation (Cadman et al. 2007). A total of five point count stations were surveyed within the Subject Lands and are illustrated on **Figure 4** (**Appendix A**). Point count stations were surveyed in various habitat types, where present, within the Subject Lands and combined with area searches to help determine the presence, variety and abundance of bird species. Each point count station was surveyed for ten minutes for birds within 100 m and outside 100 m. All species recorded on a point-count were mapped to provide specific spatial information and were observed for signs of breeding behaviour. Surveys were conducted at least seven days apart.

2.2.7 Insect Survey Methodology

Scoped insect surveys were conducted within the Subject Lands to identify the presence and abundance of one insect Order: Butterflies (Order: Lepidoptera; super-family: Papilionoidea). These insects are excellent indicators of habitat diversity and quality (Hall et. al. 2014, Catling and Brownell 2000). As no open water or wetland features are present within the Subject Lands proposed for development, Odonata were not anticipated to be using the habitat present.

Insect surveys do not currently have a set protocol in Ontario. Species detection is dependent on repeated visits during the appropriate flight times for a given species in suitable habitat. Butterflies are conspicuous, easily observed and have plentiful resources to aid in identification of Ontario species and as a result, focus is on these groups during surveying.

Surveys were conducted between mid-morning and noon or late afternoon to sunset with mostly sunny skies, suitable low wind conditions, no thick fog or precipitation. Temperatures were between 18°C and 25°C such that insect activity is optimal. Area searches were placed within all habitats present within the Subject Lands to help determine the presence, variety

and abundance of insect species. In order to provide comprehensive coverage of all insect species flight periods, two survey periods were chosen:

- Mid-May to mid-June
- Mid-June to mid-July

During insect surveys, vegetation and landscape features were assessed for potential presence of SAR habitat.

2.2.8 Bat Habitat Survey Methodology

Bat habitat assessments are used to determine whether identified features are to be considered candidate SWH, or if the habitat provides conditions favourable for SAR bats. The presence of snags is considered an indicator of high-quality bat maternity roost habitat, and these surveys are required as the first step in confirming presence of bat maternity colony SWH (as per the PPS). Snags may also indicate the presence of high-quality SAR bat habitat, however all SAR bat habitat, regardless of quality, is protected under the ESA, 2007a.

Suitable bat roosting tree density surveys were completed in all appropriate ELC communities present on the Subject Lands, including CUW, Deciduous Swamp (SWD) and Deciduous and Mixed Forest (FOD/FOM) communities.

2.2.9 Bat Acoustic Survey Methodology

Survey methods were developed based on guidance from (MECP, professional experience and MNRF survey guidelines as outlined in “Bats and Bat Habitats: Guidelines for Wind Power Projects” (MNR 2011).

Surveys to detect bat species were carried out in June 2022 and were completed using Wildlife Acoustics Song Meter SM4BAT recording devices over a duration of ten consecutive evenings.

Survey stations were selected based on aerial interpretation, bat habitat assessment results, and ELC vegetation community types. A total of four stations were identified on the Subject Lands associated with the woodland communities, as shown on **Figure 5** (**Appendix A**). BAHT1 was situated in the southwestern-most CUW1 community, BAHT2 was situated within the southern-most FOD5-1 community, BAHT3 was situated in the northernmost FOD5-1 community, and BAHT4 was situated in the RES area.

Passive acoustic recorders were programmed to begin recording at sunset and to end recording at sunrise. In addition, the SM4BAT passive recorder microphones were elevated approximately 2 m above the ground to reduce background noise and echo.

All ultrasonic recordings were filtered to eliminate recordings with high levels of noise or with no bat calls, and then further analyzed using SonoBat’s auto-classification tool. Any calls with a positive identification were manually vetted by a wildlife ecologist with training in bat species

identification by sonogram. Calls that were not identifiable to species by SonoBat were manually reviewed by a wildlife ecologist with training in bat species identification by sonogram to identify those calls with characteristics of SAR bats (i.e., calls with frequencies greater than 40kHz). Where recorded, these calls are classified as Unknown Myotis calls in accordance with MECP guidance.

3. Environmental Settings and Characteristics

3.1 Physical Conditions

The Subject Lands are located within the Don River Watershed (TRCA 2009). While Lot 2 of the Subject Lands is primarily designated woodland, the Subject Lands are located within an urban landscape.

3.1.1 Surrounding Land Uses

Broadly, the lands surrounding the Study Area are largely urbanized and primarily comprised of residential subdivisions and a golf course. Two highways are in close proximity to the Study Area; Highway 404 approximately 1.6 km to the east, and Highway 407 approximately 3.2 km to the north.

Immediately north of the Subject Lands is German Mills Meadow and Natural Habitat (also known as Settlers Park). The Meadow and Natural Habitat area is located on top of a former landfill site that is now characterized by meadow habitat and passive park features. East of the Subject Lands is Bercy (Wycliffe) Park, a natural wooded area approximately 10 ha in size and includes German Mills Creek. Outside of the park along Leslie Street, a Region of York Pumping Station is also present. To the south of the Subject Lands there are seven single family detached dwellings which are located along the south side of Waterloo Court. Lastly, to the west of the Subject Lands is the Bayview Golf and Country Club.

The German Mills Creek channel has a history of anthropogenic disturbances that have altered its hydrologic regime. The largest impacts include the straightening of the northern portion of the channel (northeast of the Subject Lands, associated with the historic landfill site) and localized realignment bank armouring (TRCA 2019b). Additional disturbances relate to development and the overall urbanization of the watershed surrounding German Mills Creek, these changes have altered the hydrologic regime along with the vegetation within the valley (TRCA 2019b). In addition to these impacts, the portion of the corridor associated with Lot 4 within the Study Area also included channel realignment in support of the sanitary sewer beneath and alongside the creek in 1970 (TRCA 2019b).

Additional channel realignment is anticipated in support of the German Mills Settlers Park sanitary infrastructure protection project. Realignment of portions of German Mills Creek was proposed in the EA completed by the TRCA to address the risk posed by the creek and its future meander to the regional sanitary system and associated infrastructure. As the EA provided recommendations to solve the issue of the migrating meander and included a detailed geomorphic assessment (Greck and Associates 2015), it is considered a more detailed assessment of the erosion hazard than could be completed with a 1:100 year meander erosion risk assessment. The erosion hazard is discussed in detail within **Section**

3.3.3 and is a factor considered in relation to the proposed safe access route associated with the conceptual redesign of Leslie Street in **Section 6.5** (TRCA 2019b).

3.1.1.1 Don River Watershed Plan (2009)

As was previously stated, the Subject Lands are within the Don River Watershed, a watershed focused mitigating the impacts observed from the intense urbanization and increase in impervious area that has occurred due to urbanization in the Greater Toronto Area (GTA). However, despite the anthropogenically influenced nature of this system, the Don River Watershed Plan notes that German Mills Creek is one of the few remaining areas of natural cover within the broader watershed, along with some headwater reaches of the Upper West Don River and Upper East Don River. Therefore, this is a key area that would benefit from re-naturalizing the valleyland, particularly where impervious cover and maintained lawn are currently present within the floodplain. Therefore, wherever possible, this project has taken the hydrologic regime and the presence of existing impervious pavement and newly proposed paved areas into account. Other restoration aims were included as examples from other projects, where the goal was to increase biodiversity within the valley, to protect sensitive environmental areas (i.e., German Mills Meadow – SAR Birds), the maintenance and improvement of existing habitat (i.e., bat foraging habitat), and increasing public outreach and ecological understanding of the valley (i.e., educational signage). This is explored further in **Section 8**.

3.1.1.2 Existing Lake-to-Lake Trail

Within the German Mills Creek corridor, a portion of the Lake-to-Lake trail (connecting Lake Simcoe to Lake Ontario) runs from north to south, within the City of Markham, consisting of a 4.2 km trail and multi-use pathways along Leslie Street (Highway 7 to John Street) and John Street to the existing German Mills Settler's Park. The portion of the trail that runs through the park is also part of a small (approximately 2 km) loop referred to as the German Mills Settlers Park Loop that is used by the surrounding residents as well as new recreational users to the area.

This trail was designed and implemented without consideration for the additional parking needs this new recreational use would bring. Thus, there is an ongoing issue related to haphazard parking on the adjacent streets, as the majority of users park along the end of Leslie St. which provides the closest access to the trail.

The proposed enhancements to Leslie Street to provide safe access will aim to assist in solving this issue and supporting the more general visitors to the area visiting the Lake-to-Lake trail. This is discussed further in **Section 6.4** and within the Traffic Report as prepared by BA Consulting (2024).

3.1.2 Physiography and Soils

The Subject Lands are located within the Peel Plain physiographic region, which contains deposits of silt and clay (Chapman and Putnam, 1984). The underlying bedrock is mapped as

Upper Ordovician Georgian Bay Formation (Armstrong and Dodge, 2007), which consists of blue and grey shales and limestone interbeds. The Soil Survey of York County (Hoffman and Richards, 1955) identifies soils on the Subject Lands as stone-free clay underlain by clay till.

3.2 Biological Environment

The Subject Lands occur within the Carolinian or Deciduous Forest Zone (also referred to as the mixed wood plains), an area characterized by a relatively warmer climate that supports plant species typical of more southern areas. This zone is referred to by the Province as Ecoregion 7E. Broadleaved trees, including American Beech (*Fagus grandifolia*), Sugar Maple (*Acer saccharum*), Basswood (*Tilia americana*), Red Maple (*Acer rubrum*), White Oak (*Quercus alba*) and Bur Oak (*Quercus marcrocarpa*), dominate natural upland forest cover in this region (Rowe 1972). This region also contains Canada's main distribution of Black Walnut (*Juglans nigra*), Sycamore (*Platanus occidentalis*), Swamp White Oak (*Quercus bicolor*) and Shagbark Hickory (*Carya ovata*).

Figure 2 (**Appendix A**) depicts the broader landscape and potential linkage corridors surrounding the Subject Lands for abiotic and biotic movement of organisms, matter and energy. Linkages are discussed further in the Linkage Assessment detailed in **Section 3.4**. While the lands surrounding the Subject Lands are primarily dominated by residential and recreational (i.e., golf course) land uses, several natural heritage features are present within the greater landscape. The primary linkages in the area are associated with the German Mills Creek system before eventually connecting to the Don River.

Nearby road and train networks serve as partial barriers to wildlife movement. Two Canadian National Railway Lines, Steeles Avenue East, and John Street are likely partially obstructing terrestrial wildlife movement. This obstruction could become more prominent in the future as these roads are widened and urbanized to accommodate increasing population numbers within York Region.

3.2.1 Vegetation

As previously discussed within **Section 1.1**, the overall Study Area is categorized into Lots 1 through 4. The Subject Lands only include Lots 1, 2 and 3. Development is proposed in Lots 1 and 2 only with conceptual trails proposed in Lot 3. Lot 4 will be generally discussed for the restoration opportunities it provides, however, as it may be impacted by the proposed safe access conceptual redesign of Leslie Street additional survey effort is may be warranted for the conceptual plan to move forward.

3.2.1.1 Ecological Land Classification Results

Generally, the Study Area consist of rolling upland, bottomland, and tableland topographic features. The rolling upland and bottomland features contain primarily natural vegetation communities, while most of the tablelands consist of open meadow. The features within each Lot include:

- **Lot 1**: This portion of the Subject Lands is classified as an anthropogenic community, with the presence of the existing BNC and the associated parking lot and lawn;
- **Lot 2**: This portion of the Subject Lands largely consists of woodland ranging from cultural woodlands to deciduous and mixed forest community types;
- **Lot 3**: This area encompasses the lands north of the woodland features where a cultural meadow community has established over the historic landfill; and,
- **Lot 4**: Lot 4 is associated with the Adventure Valley Lands and includes a mix of anthropogenic land uses and the German Mills Creek corridor and associated riparian vegetation communities.

To summarize, 15 ELC community types were documented within the overall Study Area; six were classified to vegetation type, and nine were classified to ecosite (i.e., Mineral Cultural Woodland); ecosite codes were generally used where the species assemblage did not match any available vegetation type codes. The ELC community types include:

- ANTH - Anthropogenic
- CUM1 – Cultural Meadow
- CUM1-1 – Dry – Moist Old Field Meadow
- CUW1 – Mixed Cultural Woodland
- CUW1-3 – Black Locust Cultural Woodland*
- FOD5-1 – Dry – Fresh Sugar Maple Deciduous Forest
- FOD7 – Fresh – Moist Lowland Deciduous Forest
- FODM7-7 – Fresh-Moist Manitoba Maple Deciduous Forest
- FOM – Mixed Forest
- FOM2-2 – Dry – Fresh White Pine – Sugar Maple Mixed Forest
- FOM3-2 – Dry – Fresh Sugar Maple – Hemlock Mixed Forest
- HR – Hedgerow
- MAM2 – Mineral Meadow Marsh Ecosite
- OA – Open Aquatic
- RES – Residential

(*) denotes an ELC type not listed in the Southern Ontario ELC Guide.

Of these 15 communities, eight ELC community types were documented within the Subject Lands; five were classified to vegetation type, and three were classified to ecosite.

ELC mapping of the Study Area and Subject Lands is shown on **Figure 3a** and **3b** (**Appendix A**). A description of each ELC unit is provided in **Table 2a** and **2b** (**Appendix B**). No provincially rare vegetation communities were present in the Study Area or on the Subject Lands (NHIC, 2023).

3.2.1.2 Botanical Results

Botanical inventories completed on the Subject Lands identified a total of 118 species of vascular plants. Of that number, 71 (60%) are native and 47 (40%) are exotic. A full species list is included in **Table 3 (Appendix B).**

The majority of the native species (90%) are ranked S5 (secure in Ontario), while seven species (10%) are ranked S4 (apparently secure in Ontario; NHIC, 2023). Seven regionally rare plants were observed, as per the York Region rarity rankings (Varga et al. 2005). None of the regionally rare species are considered rare in Ontario. None of the species recorded from the Subject Lands had a co-efficient of conservation value of 9 or 10.

No SAR plants were observed on or adjacent to the Subject Lands.

Invasive Species

Invasive species are those that can become (or presently are) a serious problem within a defined location. These species reproduce and spread aggressively, reducing the local biodiversity and threatening ecological function. Depending on existing conditions, some invasive species can outcompete all other species.

Urban Forest Associates (2002) provides a categorical ranking system for species known to be invasive in southern Ontario. Of the 47 exotic species observed on the Subject Lands, nine are ranked as Category 1 by Urban Forest Associates.

Category 1 species are deemed to be the most invasive and can dominate a site to exclude all other species, remaining dominant on the site indefinitely. These are a threat to natural areas wherever they occur because they have very effective reproduction and dispersal mechanisms, allowing them to move long distances. These are regarded as a top priority for control, where eradication and follow-up monitoring are often necessary to ensure effective removal, where sought. The nine Category 1 species observed on the Subject Lands are:

- European Swallowort (*Vincetoxicum rossicum*)
    - Occasional to abundant within cultural meadows and cultural woodlands;
    - Infrequent in the mixed forest types.
- Canada Thistle (*Cirsium arvense*)
    - Occasional within the cultural meadow.
- Garlic Mustard (*Alliaria petiolata*)
    - Occasional to abundant within the cultural woodlands and deciduous forests;
    - Occasional within the mixed forests.
- Dame's Rocket (*Hesperis matronalis*)
    - Occasional within the cultural woodlands;
    - Infrequent in the Sugar Maple Deciduous Forest and occasional in the Manitoba Maple Deciduous Forest.
- Autumn Olive (*Elaeagnus umbellata*)
    - Infrequent in the cultural meadow.
- Purple Crown-vetch (*Securigera varia*)

    - Infrequent in the cultural meadow.
- European Buckthorn (*Rhamnus cathartica*)
    - Occasional to abundant in the cultural woodlands;
    - Infrequent in the Sugar Maple – Hemlock Mixed Forest;
    - Infrequent in the cultural meadow.
- Manitoba Maple (*Acer negundo*)
    - Infrequent in the cultural woodlands and cultural meadow;
    - Abundant in the Manitoba Maple Deciduous Forest (an inclusion south of the CUW1-3* community within the Subject Lands);
    - Infrequent in the Sugar Maple – Hemlock Mixed Forest.
- Exotic Honeysuckle (*Lonicera* x *bella*)
    - Occasional in the cultural woodlands;
    - Infrequent in the cultural meadow.

3.2.1.3 Stem Density Results

The results of the stem density analysis of the southernmost CUW1 community are summarized in **Table 1** below.

Table 1: Stem Density Count Results

Trees/ha	Criteria met? (all trees)	Woodland Criteria
502	No	(a) 1,000 trees, of any size, per hectare,
382	No	(b) 750 trees, measuring over five centimeters in diameter, per hectare,
295	No	(c) 500 trees, measuring over 12 centimeters in diameter, per hectare, or
223	No	(d) 250 trees, measuring over 20 centimeters in diameter, per hectare,

None of the minimum stem density numbers were met, with the closest being 223 tree/ha measuring over 20 cm in diameter.

Based on this analysis, the CUW1 community did not meet the definition of “woodland” as defined by the City’s OP, the RYOP and the definition provided under the Forestry Act. GEI recognizes that the City of Markham noted in their comments on the TOR that they do not support completing stem density analyses for sections of contiguous woodland communities. However, as the location of the CUW1 community in question is at the outer edge of the forest community, this would be consistent with later successional communities that develop along the periphery of woodland communities that should not be considered components of the woodland in accordance with the definition under the Forestry Act. Further it is GEI’s opinion that this assessment provides further information to assist in the characterization and final determination of the potential significance of this CUW1 community.

Despite the outcome of the stem density survey, GEI understands the City’s preferred approach of considering the overall contiguous woodland community and can concede that

the overall wooded feature should be considered as a woodland community in terms of impacts related to the removal. This discussion is continued in **Section 4.3** and **Section 7.1.1**.

3.2.1.4 Basal Area Results

A stem density survey was completed for the CUW1 on October 15, 2019; this assessment, along with the work completed for the TIPP, included a basal area survey as required to determine compensation requirements outlined in the Guideline for Determining Ecosystem Compensation (TRCA. 2018). Basal area refers to the cross-sectional area of existing tree stems. The basal area of a woodland is defined as the total cross-sectional area of all stems in the feature, as measured at breast height (i.e., 1.37 m), expressed as m²/ha. Basal area was surveyed down to trees with 7 cm DBH, and DBH was not included for dead trees.

Each of the sampled communities and the associated basal area prism sweeps and the stem density count are summarized in **Table 2** below.

Table 2: CUW1 Basal Area Assessment Summary

Species	Tally 1
American Elm	1
Apple sp	4
Ash sp	4
Basswood	3
Black Cherry	2
Black Walnut	34
Eastern White Cedar	2
Littleleaf Linden	2
Manitoba Maple	1
Norway Maple	4
Paper Birch	1
Red Oak	1
Red Pine	42
Scots Pine	9
Sugar Maple	34
Swamp White Oak	1
White Spruce	62
Total Trees Tallied	207
Basal Area (m^2/ha)	20.4

To inform ecosystem structure compensation ratios required, as per Table 1 within the Guideline (TRCA 2018), basal area surveys were completed in the woodland community proposed for partial removal (CUW1). **Table 3** summarizes the proposed feature removals,

ecosystem structure compensation ratios and total ecosystem structure compensation area. The final compensation ratios and trees are described below:

- CUW1 (0.52 ha proposed to be removed to support creation of the Temple): Basal area of 20.4 m^2/ha, meaning the required woodland area compensation ratio is 5:1

Table 3: Summary of Ecosystem Structure Compensation Requirements

Community	Area Removed (ha)	Ecosystem Structure Compensation Ratio	Total Ecosystem Structure Compensation Required (ha)
CUW1	0.52	5:1	2.60

The basal area survey effort was completed to determine what the recommended compensation ratio would be for the removal of the CUW1 community. As previously outlined, a total of 0.52 ha of CUW1 is proposed for removal and subsequent compensation efforts. As woodlands are considered complex ecosystems that require a substantial lag time to replicate the existing ecosystem structure, the additional compensation requirements apply, these are summarized within **Table 3**. Due to these additional requirements, the 0.52 ha of CUW1 proposed for removal requires 2.60 ha of ecosystem structure compensation habitat.

3.2.1.5 Tree Inventory Results (Schollen & Company 2024b)

The inventoried trees included eight different species, totaling 1135 individual trees surveyed. Of these, 591 were in good condition, 399 were in fair condition, 83 were assessed as in poor condition and 62 were dead. Of the 1077 live inventoried trees, 80% (850) are native to the TRCA watershed (TRCA, 2017). Following analysis of anticipated impacts to the inventoried trees, the following trees are required for removal to facilitate the proposed development:

- Trees 20 – 40 cm DBH proposed for removal: 131
- Trees 40+ cm DBH proposed for removal: 42

The majority of proposed tree removals are within the CUW1 community, where the Temple is proposed. There are also removals associated with the ANTH community where the existing BNC is located and where the new BNC is proposed. There are also minor removals associated with the proposed green parking area within the RES community.

The tree inventory addressed the areas within the 7200 and 7290 Leslie Street parcels where development/site alteration is proposed. The tree inventory report includes an assessment of the value of the trees that are proposed to be removed utilizing the methodology that is set out in the City's 'Trees for Tomorrow Streetscape Guideline'.

The compensation required was calculated through the number of removal trees with each DBH's associated ratio (Schollen & Company 2022b). Accordingly, a total of 258 trees are required to compensate for those proposed for removal within the development area on the

Subject Lands. The compensation will be completed within the restoration areas identified -in the LRES by Schollen & Company (2024), along with the proposed restoration initiatives focused on reforestation. In addition to the compensation trees identified, a tree valuation was completed for all proposed tree removals larger than 40 cm DBH, the total value for the proposed removals is $283,500.00.

3.2.2 Wildlife

As previously discussed within **Section 1.1**, the overall Study Area is categorized into Lots 1 through 4. The Subject Lands include Lots 1, 2 and 3 which are in the closest proximity to development. Therefore, wildlife survey efforts were concentrated within the Lots associated with the proposed development, which included Lot 1, 2 and 3.

3.2.2.1 Breeding Bird Survey Results

A total of 21 bird species were observed within the Subject Lands. Of this total, 14 are probable and seven are possible breeders on the Subject Lands. Two species, Gray Catbird (*Dumetella carolinensis*) and Tree Swallow (*Tachycineta bicolor*) had observed breeding evidence only within 120 m and not on the Subject Lands. The observed breeding bird species are discussed in the sections below. All species observed on the Subject Lands are listed in **Table 4** (**Appendix B**). Breeding bird point count stations within the Subject Lands are shown on **Figure 4** (**Appendix A**).

A total of 21 (100 %) of the probable or possible breeders are provincially ranked S5 (common and secure), S4 (apparently common and secure) or SNA (species not native to Ontario). No bird species are considered provincially rare (S1-S3; NHIC 2023).

The following SAR were observed on the Subject Lands:

Eastern Wood Pewee: Special Concern in Ontario; one territory was observed, centered on Point Count 5 in suitable breeding habitat. Probable breeding evidence for this species, observed over 10 days apart at the same location in mature deciduous and mixed forest habitat, was recorded on the Subject Lands.

Barn Swallow: Special Concern in Ontario: one individual was observed in flight at Point Count 1 over open habitat during round one. No further evidence of breeding was noted during the survey period. No Barn Swallow nests were observed on any of the human structures/buildings within the Subject Lands.

In addition to the results of the breeding bird survey, German Mills Park is known to support grassland SAR species, Bobolink and Eastern Meadowlark, both threatened in Ontario. Though the targeted point counts did not result in any breeding evidence or incidental observations for either of these species within or immediately adjacent to the Subject Lands, it is acknowledged that the larger meadow community present to the north does support breeding habitat for Bobolink and Eastern Meadowlark.

3.2.2.2 Insect Survey Results

No insect species (butterflies) were observed within the Subject Lands, despite survey effort.

3.2.2.3 Bat Habitat and Acoustic Results

Bat Habitat Assessment Results

The results of the qualitative assessment are presented in **Table 4** (below).

Table 4: Suitable Bat Roosting Tree Density Survey Results from the Subject Lands

ELC Community Type	Approx. Area Size (ha)	No. of snag trees observed ≥10 cm DBH	No. of snag trees observed ≥25 cm DBH	Density (No. of snag trees/ha at ≥25 cm DBH)	Candidate SWH for Bat Maternity Colonies (Y/N)	Potential SAR Habitat (Y/N)
CUW1	0.91	13	13	14	NA	Y
FOD5-1 (A)	0.40	7	7	17.5	Y	Y
FOD5-1 (B)	0.87	14	14	16.1	Y	Y
FOM2-2	1.16	27	27	23.3	Y	Y
FOM3-2	0.22	4	4	18.2	Y	Y
RES	0.65	9	9	13.8	NA	Y

A total of six bat habitat polygons were assessed within the Subject Lands as summarized above. Five of the polygons assessed are woodland communities within the current Greenway System to get an understanding of the habitat these communities provide. The one additional polygon assessed included the trees surrounding the open RES community. Based on the results above, it was determined that candidate bat maternity colony SWH was identified within four of the surveyed polygons on the Subject Lands, where the ELC community aligned with the required community types from the SWH Ecoregion Criteria Schedules (MNRF 2015; **Figure 5, Appendix A**).

With regards to SAR bat habitat considerations, all six polygons contained a minimum of one snag and were therefore, considered to provide candidate habitat for SAR bats.

Bat Acoustic Survey Results

Six bat species were confirmed to be present within the surveyed polygons: Big Brown Bat (*Eptesicus fuscus*), Silver-haired Bat (*Lasionycteris noctivagans*), Hoary Bat (*Lasiurus cinereus*), Eastern Red Bat (*Lasiurus borealis*) and Small-footed Myotis (*Myotis leibii*). During 20 detector evenings of acoustic surveys, a total of 1283 call were recorded.

Of the 1013 calls that were identifiable to species, 571 were Big Brown Bat, 103 were Silver-haired Bat, 131 were Hoary Bat, 114 were Eastern Red Bat, and 1 was Eastern Small-footed Myotis (**Table 5**, **Appendix B**). An additional 1 call showed Myotis characteristics (i.e., calls with frequencies greater than 40 kHz), but was unable to be identified to species. These species and their associated passes are discussed in further detail below.

The following Significant Wildlife Habitat indicator species were observed on the Subject Lands:

Big Brown Bat: The majority of the 571 passes picked up during the 20 evenings of acoustic surveys were observed within the RES opening at station BAHT4, accounting for 454 of the call data. This opening in wooded community likely provides foraging habitat for bat species which is supported by the data collected. As the additional three stations total 117 passes between them, they are discussed based on community type below:

- CUW1 (BAHT1): This community accounts for 4 passes by Big Brown Bat over the 20 evenings surveyed. This community type along with the low level of activity confirms that this community does not meet the criteria for SWH.
- FOD5-1 (BAHT2 and BAHT3): This community totaled 113 passes by Big Brown Bat over the 20 evenings surveyed. Though this level of activity is more substantial, these passes occurred between two surveyed stations (one with 33 passes and the other accounting for 80 passes), it is not indicative of supporting threshold numbers to meet the SWH criteria specified.

Silver-haired Bat: The majority of the 103 passes picked up during the 20 evenings of acoustic surveys were observed within the RES opening at station BAHT4, accounting for 40 of the call data. This opening in wooded community provides foraging habitat for bat species which is supported by the data collected. As the additional three stations total 63 passes between them, they are discussed based on community type below:

- CUW1 (BAHT1): This community accounts for 6 passes by Silver-haired Bat over the 20 evenings surveyed. This community type along with the low level of activity confirms that this community does not meet the criteria for SWH.
- FOD5-1 (BAHT2 and BAHT3): This community totaled 58 passes by Silver-haired Bat over the 20 evenings surveyed. This level of activity is low and these passes occurred between two surveyed stations (both with 29 passes), it is not indicative of supporting threshold numbers to meet the SWH criteria specified.

Little Brown Myotis, Northern Myotis, Eastern Small-footed Myotis and Tricolored Bat are listed as Endangered on the SARO List. In terms of SAR presence within the Subject Lands, one recording of Eastern Small-footed Myotis was detected at station BAHT1 associated with the CUW1 community on the Subject Lands. The remaining one recording with Myotis characteristic were detected at station BAHT2, associated with the FOD5-1 community. The Eastern Small-footed Myotis recording is discussed further below:

Eastern Small-footed Myotis: A single pass was recorded by this species, within the CUW1 community present within the Subject Lands. Though the recording of this species is indicative of Eastern Small-footed Myotis being present within the landscape, a single pass over 20 evening of survey effort does not support the designation of SAR habitat within the Subject Lands. This observation will not be discussed further in this report.

3.2.2.4 Incidental Wildlife Results

Incidental wildlife species observations are summarized in **Table 6** (**Appendix B**). In summary, one reptile, and two mammals species were recorded incidentally during surveys conducted on the Subject Lands. All incidental species observed are provincially ranked S5, S4 or SNA, and locally common and secure (NHIC 2023).

3.2.3 Aquatic Ecology

As no aquatic features are present within the Subject Lands, no specific aquatic surveys were completed on the Subject Lands. However, as German Mills Creek is present adjacent to the Subject Lands and flows through the Study Area (Lot 4), this feature has been generally characterized below.

3.2.3.1 Watercourse Characterization

German Mills Creek flows into the East Don River just south of Steeles. The upper portions of the East Don River and German Mills Creek subwatersheds are susceptible to localized thunderstorm flooding (TRCA 2009).

The German Mills Creek subwatershed extends over 3,880 ha, with the majority of the subwatershed located in the Town of Richmond Hill, with significant portions in the City of Markham and City of Toronto, and a very small area in the City of Vaughan (TRCA 2009). Within the Don River Watershed Plan (TRCA 2009), German Mills Creek is encompassed in Fish Management Zone 4. The Don River Watershed's dominant land use is described as being 55% residential based land use, with corridors of natural cover along the watercourses. Generally, the thermal stability is considered "moderate" throughout the zone, with portions of the headwaters of German Mills Creek, which were rated "stable" with cold-water conditions in the upper-most section of the Creek (TRCA 2009). The habitat conditions range from fair (at the confluence of German Mills Creek and the Upper East Don River) to poor.

3.3 Slope and Erosion Conditions

As previous discussed, the Subject Lands overlap with the valleyland associated with German Mills Creek, which is considered a regulated area by the TRCA. As per the TRCA's Living City Policy 8.4.8, development proposed within a regulated area shall be set 10 m back from the largest constraint (between the long term stable top of slope, stable toe of slope, Regulatory flood plain, meander belt etc.). A slope stability analysis and geotechnical investigations were completed to establish the long-term stable top of slope (LTSTOS).

As discussed in **Section 1.3.1** and **1.3.4**, the Subject Lands are topographically configured in a multiple step-down approach to the German Mills Creek. While the valleyland could be defined by the top of bank and the final LTSTOS on the west side of the Subject Lands, when assessing the erosion hazard limit for with the existing residence, Leslie Street and the various regional and recreational infrastructure further east into the valleyland (i.e., the Regional Pumping Station), the toe and top of slopes as well as the meander belt are relevant in assessing the reality of the erosion hazard risk and to accurately account for the long-term management of the valleyland.

The existing conditions have several anthropogenic influences between the LTSTOS of the Subject Lands and the German Mills Creek corridor, the most significant of which is the Regional Sanitary System and the associated infrastructure (i.e., the existing unopened Leslie Street ROW associated with the Regional Pumping Station). These existing uses and the stepping back valleyland characteristics provide important contextual information for understanding the erosion hazards of the Subject Lands. This is discussed in further detail in the text below, as well as in **Section 4.9** and **6**.

3.3.1 Slope Stability Analysis and Long Term Stable Slope

The slope stability analysis and geotechnical investigations were completed by Terraprobe Inc. (Terraprobe; 2024). This report provides a detailed overview of the slope stability analysis and the geotechnical investigations conducted within the Subject Lands. The investigations were completed to determine the subsurface soil and groundwater conditions, and provide geotechnical design recommendations for the building foundations, basement floor slab, basement drainage and earth pressure and seismic design parameters. The text below is a summary of the relevant findings, for additional details, refer to Terraprobes slope stability analysis and geotechnical investigations report (2024).

A number of field investigation were conducted between May 24 to 27, 30, 31, and June 1, 2, 6, and 8 2024 by a senior geotechnical engineer from Terraprobe. The survey efforts consisted of drilling and sampling a total of twenty-six boreholes, with depths varying from about 2.0 to 17.2 m depth below grade, detailed borehole information can be found in the slope stability analysis and geotechnical investigations report (Terraprobe 2024), however the general descriptions of the areas surveyed include:

- **Area 1**: BNC (Boreholes 1 to 7);

- **Area 2**: Temple and Visitor's Centre (Tableland – Boreholes 8 to 14);
- **Area 3**: Parking Lot Area Developments (Boreholes 16 to 23).

Within the Subject Lands, Terraprobe derived seven slope cross-sections (Sections A-A' to E-E') from the topographic information for slope stability analysis, two additional sections (Section F-F' and A1-A1') were derived along the proposed emergency access route alignment (refer to Figure 2, Terraplan 2024). The sections selected extended through the tableland across the slope surface, down to the slope toe.

Terraprobe concluded that the valley slope is approximately 12 to 31 m high and characterized by relatively gentle overall inclinations varying from about 2.4 to 6.0 horizontal to 1.0 vertical, with locally relatively steeper inclinations at the lower slope varying from about 1.7 to 2.6 horizontal to 1.0 vertical (Terraprobe 2024). Terrprobe also identified German Mills Creek to be more than 100 m from the Subject Lands toe of slope. Generally, the visual slope inspection did not identify any obvious signs of slope instability (slump, scar, tension cracks etc.) and erosion features and appeared to being stable condition.

The scope of the slope stability analysis was focuses on the main valleyland slope associated with the proposed Temple and parking area in Lot 2. Of the seven prepared slope cross-sections, two (Sections C-C' and E-E') were selected for slope stability analysis. These cross-sections were selected on the basis of the slope height, inclination and fill depth to represent the critical slope conditions present within the Subject Lands.

Based on the borehole information and site observations, the soil parameters used in the slope stability analyses are given in **Table 3** below.

Table 3 - Soil Parameters for Long Term Slope Stability Analyses

Soil Type	Soil Density (kN/m)	Cohesion c' (kPa)	Friction Angle (degree)
Earth Fill	19	0	29
Clayey Silt to Silt and Clay Till	21	10	32
Clayey Silt to Clay and Silt	20	10	30
Sand	20	0	38

TRCA policy guidelines require a 1.5 minimum factors of safety for slope stability for land development and planning (1.5 is required for normal ground water condition and a minimum factor of safety of 1.3 is required for elevated, short term and infrequent ground water condition).

Terraprobe calculated the minimum factors of safety for the slope profiles C-C' and E-E', which were 2.07 and 1.53 for normal groundwater levels, and 1.81 and 1.41 for elevated

groundwater levels. These factors of safety are considered adequate and are in conformance to the MNR and TRCA Policy Guidelines (Terraprobe 2024).

3.3.2 Long Term Stable Top of Slope (LTSTOS)

The MNR Guidelines "Geotechnical Principles for Stable Slopes" (1998) recommend an erosion setback where the watercourse is located within 15 m of the slope toe. The Subject Lands and the German Mills Creek corridor are separated from the slope toe by a broad floodplain (> 100 m) and no evidence of slope toe erosion was observed, therefore, the slope toe within the Subject Lands are not subjected to erosion risk and a toe erosion setback is not required. This is also supported by the Provincial Guidelines "Understanding Natural Hazards" (2001), the creek bank erosion will not affect the long-term stable top of slope where the creek is more than 15 m away from the toe of the slope.

The staked top of bank is considered to be stable in the long-term with respect to potential slope slides, and stability and erosion setbacks are not required. Therefore, the existing slope crest position as staked by TRCA on June 16, 2022 can be taken as the LTSTOS location for the site. The LTSTOS and the associated 10 m setback are shown on Figure 8 (Appendix A). As the site slope height is relatively high (~12 to 31 m) and all proposed buildings (tableland and within the valleyland) would be setback more than 10 m from the LTSTOS and the slope toe. Therefore, the proposed development within the Subject Lands should not have an adverse impact on the long-term stability of the slope, this will be further explored at the SPA stage.

3.3.3 Erosion Hazard Limit

Erosion hazards include two types of hazards, the erosion potential of the creek bank, and the erosion or slope stability issues associated with valley walls associated with the watercourse bank (i.e., German Mills Creek). As was previously discussed the Subject Lands are topographically configured in a multiple step-down approach into the German Mills Creek valleyland which as described as a broad valley corridor with several anthropogenic influences between the edge of the Subject Lands and the German Mills Creek corridor.

As the TRCA does not permit development/alternation in hazardous lands, the following two studies were reviewed to confirm the erosion hazard risk and to accurately account for the long-term planning and management of the valleyland and its associated regional functions:

- Schedule B Municipal Class Environmental Assessment – Project File: German Mills Settlers Park Sanitary Infrastructure Protection Project (TRCA 2019b); and,
- Geotechnical Investigation and Slope Stability Assessments – 7200 and 7290 Leslie Street (Terraprobe 2024).

3.3.3.1 Schedule B Municipal Cass Environmental Assessment

As part of the review associated with completing the assessment for the predicted 1:100-year erosion limit of German Mills Creek, a detailed review was done on the Schedule B Municipal

Class Environmental Assessment – Project File: German Mills Settlers Park Sanitary Infrastructure Protection Project (TRCA 2019b) report. This Environmental Assessment (EA) was completed to assess the migration of the German Mills Creek watercourse, and the exposure risk to the sanitary main and associated infrastructure. This report was reviewed in detail as one of the risk areas (#I-152) and the associated meander is in the vicinity of the unopened Leslie Street ROW (i.e., the previous proposed emergency access road and existing park trail) which is one of the main anthropogenic uses between the Subject Lands and the German Mills Creek corridor.

The goal of the TRCAs sanitary infrastructure protection project is to assess the historical, present and anticipated future geomorphic trends of the German Mills Creek watercourse to ultimately select the best option for sanitary infrastructure protection measures. The preferred protection measure involves the re-alignment of portions of the German Mills Creek channel, to avoid eroding stream banks from impacting the existing sanitary sewer infrastructure. The most relevant Figures from the EA have been included in **Appendix E**: Erosion Hazard Limit, the online link to the report has also been included for ease of agency review.

Within the EA, a portion of the German Mills corridor was identified as a high priority risk area that could have future impacts to the existing sanitary system and access from the unopened Leslie Street ROW access route. Therefore, the high priority risk area identified within the EA report referred to as I-152 (Figure 1 and 2, **Appendix E**), where Maintenance Hole 9 (MH9) Cutoff was identified and is discussed further, as it's related to the overall protection of the ROW, and subsequently any concerns on the possible erosion risks in the future. The EA identified that the loss of maintenance access and the future position of MH9 on the outside of the meander will increase the risk to the sewer system and therefore, I-152 was identified as a high priority hazard (Figure 10, **Appendix E**). Within the EA, the TRCA identified a preferred solution to the risk associated with I-152 (Option 3; Figure 18, **Appendix E**), that confirms the proposed artificial meander cut-off as the preferred option. As this means that the natural hazard limits and any high-level assessments are not going to accurately reflect the erosion hazards associated with the confined valley based on the measures proposed to protect the sanitary infrastructure and access from the unopen Leslie Street ROW to MH9. The proposed meander cutoff would decrease any possible future erosion risk between the Subject Lands and the German Mills Creek corridor. Based on this, along with the detailed geomorphic assessment completed by Greck and Associates in 2015, the final erosion hazard is sufficient in determining the erosion extent. The relevant text is discussed further below.

Bercy Wycliffe Park Sanitary Infrastructure Protection Project Geomorphic Assessment and Preliminary Design Alternatives (Greck 2015).

In support of existing and future sanitary infrastructure protection projects, a geomorphic assessment was completed by Greck in 2015 (Appendix A; TRCA 2019b). Figure 4 (**Appendix E**) shows the previous and current (as of 2014) meander belt, as well as the reach identification associated with the assessment. The portion of German Mills Creek east of the Subject Lands is identified as being part of Reach 2. This assessment included identifying erosion hazard zones along the portions of German Mills Creek associated with the overall Study Area. The erosion hazard zones identified were immediate (<10 yrs), short-term (10-25

yrs) and long-term (25-100 yrs), these zones can be reviewed within Figure 5 (**Appendix E**). As shown on Figure 5, the erosion hazard zones do not show any areas of erosion risk that overlap with the boundary of the Subject Lands. However, as noted by Greck, the erosion hazard zone limits defined may mean that the actual bank erosion limit may be an addition 5.5 m outward than shown on Figure 5 (**Appendix E**). As the unopen Leslie Street ROW is greater than 50 m from the German Mills Creek channel, the Subject Lands are well outside of the erosion hazard limit. In addition to this, the meander cutoff proposed to the channel (i.e., Option 3; Figure 18, **Appendix E**) also decreases the erosion risk to the bank associated with the unopen Leslie Street ROW.

Based on the geomorphic assessment and subsequent plan for the modifications to the channel, it is a reasonable conclusion that the existing ROW and subsequently, the entirely of the Subject Lands are outside of the erosion hazard areas related to the German Mills Creek corridor. As this work has been proposed to protect the existing sanitary infrastructure, it is also a reasonable conclusion that the ROW and meander of German Mills Creek will be maintained to continue protect the infrastructure as necessary.

3.3.3.2 Geotechnical Investigation and Slope Stability Assessments

As was previously discussed in the sections above, Terraprobe completed a geotechnical and slope stability analysis for the Subject Lands, along with the details provided above, Terraprobe specifically studied the toes of slope associated with the proposed green parking area.

Terraprobe also assessed the Toe Erosion Allowance referenced the MNR Guidelines “Geotechnical Principles for Stable Slopes”, where a erosion setback is recommended where the watercourse is located within 15 m of the slope toe. As noted in the sections above, the is separated from the slope toe by a wide valley base (more than 100 m) and there was no evidence of slope toe erosion. Terraprobe therefore concluded, that the slope toe associated with the proposed green parking area is not subjected to erosion risk and a toe erosion setback is not required. Thus, the slope toe position as identified by the survey, and estimated by Terraprobe where required, can be taken as the Long-Term Stable Toe of Slope. The stable toe of slope is shown on Figure 2, and the profiles are shown on Figures 3A to 3D of the Geotechnical Investigation (2024). Terraprobe concluded that the proposed parking area within the valley land is outside of the hazard zone and can therefore be constructed without impacting the long term stability of the slope. Terraprobe also noted that the existing log cabin is 12 m from the slope toe and that generally the watercourse is described as typically being more than 100 m from the subject slope toe of slopes. Between these details and Terraprobe confirming the minimum factors of safety have been met and are in conformance to the MNR and TRCA Policy Guidelines (2022), it was determined that there is no erosion hazard risk associated with the proposed final development limit.

3.3.3.3 Final Erosion Hazard Limit

These studies have been used to accurately define the natural hazard limits associated with German Mills Creek and ensure that the proposed development is outside of the extent of the

erosion hazard. The geomorphic assessment completed by Greck in 2015 demonstrates that the Subject Lands are well outside of the calculated erosion hazard zones or the additional erosion limit associated with the outer bank. This is also supported by the geotechnical assessments completed by Terraprobe, which have confirmed that the Subject Lands and therefore, the proposed green parking area, are not within the erosion hazard risk associated with the Long-Term Stable Toe of Slope. Based on these studies, the proposed green parking lot is considered to be outside of any erosion hazard risk areas associated with German Mills Creek and the valleyland walls.

3.4 Linkage Assessment

A linkage assessment is provided below to assess linkages connecting to the Subject Lands and Study Area on a broader landscape scale to ensure the wildlife movement and ecological function of the German Mills Valleyland can be maintained at a minimum or more broadly enhanced as described in **Section 8**. The linkage assessment follows the Linkage Assessment Guidelines from the City of Hamilton (2015) and will:

- Assess the ecological features and functions of a linkage, including its vegetative, wildlife and/or landscape features or functions;
- Identify its boundaries;
- Describe its ecological function, value, and integrity;
- Identify how its function can be maintained or enhanced within a development proposal;
- Assess potential impacts as a result of development; and
- Make recommendations on how to protect, enhance or mitigate impacts on the Linkage and its functions.

3.4.1 Linkage Area

Ecological linkages support functional corridors linking core areas of the Natural Heritage System (NHS). The degree of connectivity between the Subject Lands and adjacent natural areas is affected by the nature of the local landscape. The areas surrounding the Subject Lands and Study Area are highly urbanized, meaning existing linkages are extremely important to maintain. An assessment of vegetation patches, topography, watercourse systems, and land uses determined that primary linkages in the regional/local area are those associated with woodlands, wetlands, and watercourses. German Mills Creek and its associated valleyland supports a general north-south linkage between natural heritage features on the Subject Lands/Study Area and off-site natural heritage features, such as the Don River, Duncan Woods Creek and German Mills Settlers Park.

3.4.2 Associated Functions

The ecological function of a linkage is contingent upon the size, composition, orientation, and configuration of the linkage. Where possible, priority should be given to maintaining existing linkages; particularly in areas associated with riverine or riparian systems, which tend to be areas of concentration of wildlife movement and important life cycle functions. The presence

of permanent water during periods of drought and/or under frozen winter conditions can take on particular importance for some wildlife, affecting movement patterns.

Functions of linkage features may include, but are not limited to:

- Facilitating wildlife movement and plant dispersal;
- Seasonal movement corridors;
- Supporting core habitats (i.e., increasing their size and habitat diversity, linking habitats, rounding out edge habitats, serving as buffers); and
- Increasing biodiversity by providing habitat for species (e.g., feeding, resting, breeding, dispersal).

Based on detailed ecological field investigations conducted on the Subject Lands, local landscape linkages are expected to support the movement of various amphibian, mammal, and bird species across the landscape. Several amphibian species that likely rely on the corridor routinely move across terrestrial habitats to reach breeding and overwintering sites that may be associated with the riparian habitat along German Mills Creek. Several mammal species have been documented on the local landscape including White-tailed Deer, Racoon (*Procyon lotor*), Eastern Cottontail (*Sylvilagus floridanus*) and Grey Squirrel (*Sciurus carolinensis*). These mammals have a high level of mobility and move broadly across the landscape. Furthermore, linkage areas also support the movement of various bird and insect species. The following species found within the background review and targeted survey efforts are also known to utilize wooded habitats like those present within the Subject Lands and Study Area:

- Eastern Wood-Pewee;
- Wood Thrush;
- Big Brown Bat; and,
- Silver-haired Bat.

3.4.3 Barriers to Connectivity

Roadways present the greatest barrier to wildlife movement. The valleyland associated with German Mills Creek is interrupted by Steeles Avenue to the south and John Street to the north, among other streets along its route through the landscape. Traffic along these streets presents both a physical risk, as well as a visual and auditory deterrent to wildlife movement; however, considering the highly urbanized nature of the areas surrounding the Subject Lands, unbroken linkages are extremely rare in this area. German Mills Creek does continue through the landscape via culverts and where roads are consolidated into overpasses, and, in general, this area does provide important steppingstone linkage functions to facilitate wildlife movement despite barriers to connectivity.

Barriers affect some wildlife more than others. Most wildlife groups are highly mobile and can move across relatively narrow landscape features (e.g., hedgerows). Insects and bird species do not rely upon a specific fixed width of corridor for their movement patterns (Gilbert-Norton

2010), and many medium to larger sized mammals will move through various landscapes, including urban areas, as they forage (e.g., Skunk - *Mephitis*, Racoons, Red Fox - *Vulpes vulpes*, Coyote, Eastern Cottontail).

As noted above, some local wildlife movement is expected to occur through existing culverts and underpasses associated with German Mills Creek adjacent to the Subject Lands. Based on aerial interpretation, the culverts present to the north and south appear to be appropriately sized to facilitate small-medium mammals, amphibians and reptiles and also appear to have moderate to good vegetative coverage (Foresman 2004; Clevenger and Waltho 2005). Wildlife that depends upon broad natural areas will continue to move across the local north-south linkage, including the Subject Lands and Study Area; however, species that require a higher level of contiguous natural and/or agricultural cover (e.g., White-tailed Deer) are not expected to be utilizing the Subject Lands in large numbers, though they are known to be present within the woodland and general valleyland area.

3.4.4 Linkage Evaluation

The value of a linkage area may be assessed based on the linkage's potential to connect core habitats together and allow for the movement of abiotic and biotic matter. As outlined in the City of Hamilton's Linkage Assessment Guidelines, riparian linkages are valuable because the land-water interface can support a high level of biodiversity and meet multiple species needs. German Mills Creek and its associated valleyland meet these criteria. The creek provides a connection between offsite watercourses and woodlands. Connections are somewhat restricted by roads and residential uses; however, as previously discussed, important steppingstone linkage functions are still provided by German Mills Creek and its associated valleyland.

As described in **Section 3.2.1.1**, the Subject Lands and Study Area are generally characterized as consisting of anthropogenically influenced communities, as well as the more naturalized portions of the property that are a part of the Greenway System and broader corridor German Mills Valley.

The broader landscape includes the valleyland associated with German Mills Creek. The German Mills Creek is located outside of the Subject Lands to the east; however, it enters the broader Study Area to the north and are conveyed off-site to the south, further supporting the movement of abiotic and biotic material across the landscape. Overall, the German Mills Creek valleyland is provides linkage and connectivity functions within the landscape, particularly considering the urban nature of the surrounding area.

3.4.5 Linkage Impacts and Improvement

The proposed development will directly impact the existing RES and the southwestern corner of the CUW1 community (**Figure 8, Appendix A**). This plan makes use of existing developed areas or areas on the edge of the NHS with limited ecological function and lower connectivity while maintaining areas with higher ecological value and linkage function, such as the nearby forested communities. As part of the Temple construction, the invasive species will be

removed and managed, with associated restoration and enhancement efforts to return the surrounding area to a healthy and natural landscape. As part of the green parking area construction, the variable buffer will provide diverse enhancements where the mowed lawn is currently present, targeting the specific improvements to the bat foraging habitat in this gap in the contiguous woodland.

Retained features within the linkage corridor are also proposed for restoration and enhancement efforts to provide compensation for the proposed removals while simultaneously improving the linkage habitat associated with German Mills Creek. For instance, the proposed restoration measures on the Subject Lands and broader Study Area include invasive species removal, reforestation, and the repair and enhancement of previously developed land within the valleyland and floodplain and meadow enhancement measures (see **Section 8** for more details on the proposed restoration approach). In particular, woodland restoration will enhance connectivity by targeting infilling of voids in the forest communities and linking existing woodlands (**Figure 9a** and **Figure 11, Appendix A**). Moreover, converting existing hard surfaces and maintained landscapes to naturalized landscapes that are targeted to become native woodlands or green infrastructure will improve connectivity and linkage functions. Given the anthropogenic nature of the surrounding area, a linkage corridor enhanced through restoration efforts would provide long-term ecological value to the NHS.

4. Analysis of Ecological and Natural Heritage Significance

Eight types of natural features are identified in the PPS (MMAH 2020):

- Significant wetlands;
- Significant coastal wetlands;
- Significant woodlands;
- Significant valleylands;
- SWH;
- Fish habitat;
- Habitat of endangered and threatened species; and
- Significant areas of natural and scientific interest.

The presence/absence of these natural features on the Subject Lands are discussed in the subsequent sections of this Scoped EIS. The NHRM (MNR 2010), City's OP (2014), YROP (2010) and TRCA O. Reg. 166/06 were referenced to assess the potential significance of other natural features, and their associated forms and functions on the landscape.

As was previously discussed within **Section 1**, the submission of an OPA aims to modify the extent of lands identified as "Greenway" within the Subject Lands and to add site-specific policies in Section 9.18 to permit the development of a new Bahá'í National Centre and National Temple. The OPA aims to provide modifications to Map 1, Map 3, Map 4, Map 5 and Map 6 to property reflect the extent of key natural heritage features and the Greenway System within the Subject Lands.

Where natural features are present on the Subject Lands, their sensitivities are discussed in following sections.

4.1 Significant Wetlands

Within Ontario, significant wetlands are identified by the MNRF or by their designates. Other evaluated or unevaluated wetlands may be identified for conservation by the municipality or the conservation authority.

There are no PSWs identified on or adjacent to the Subject Lands.

4.1.1 Other Wetlands

No wetland ecosites were identified within the Subject Lands. However, there are two MAM2 communities within the Study Area (specifically within Lot 4) associated with the German Mills Creek corridor. There may be additional wetland communities outside of the Study Area associated with the watercourse.

4.2 Significant Coastal Wetlands

Similar to significant wetlands, the MNRF or their designates identify significant coastal wetlands present on the landscape. Coastal wetlands are defined in the NHRM (MNR 2010) as:

> a) "any wetland that is located on one of the Great Lakes or their connecting channels (Lake St. Clair, St. Mary's, St. Clair, Detroit, Niagara and St. Lawrence Rivers); or
>
> b) Any other wetlands that is on a tributary to any of the above-specified water bodies and lies, either wholly or in part, downstream of a line located two km upstream of the 1:100-year floodplain (plus wave run-up) of the large water body to which the tributary is connected."

No significant coastal wetlands are identified on the Subject Lands and would not be expected given the distance of the Subject Lands from the waterbodies noted above.

4.3 Significant Woodlands

The woodland communities present within the Subject Lands are all mapped within the existing Greenway System, with the woodland communities being contiguous within the designated NHN. The text below will outline the provincial, regional and municipal significance criteria regarding woodland communities within the Subject Lands.

4.3.1 Provincial Significance Criteria

The PPS (MMAH 2020) notes that significant woodlands should be defined and designated by the planning authority using criteria established by the MNRF, which are outlined in the NHRM (MNR 2010).

Under the NHRM (MNR 2010), woodlands are defined as:

> *"...treed areas that provide environmental and economic benefits to both the private landowner and the general public, such as erosion prevention, hydrological and nutrient cycling, provision of clean air and the long-term storage of carbon, provision of wildlife habitat, outdoor recreational opportunities, and the sustainable harvest of a wide range of woodland products. Woodlands include treed areas, woodlots or forested areas and vary in their level of significance at the local, regional and provincial levels."*

As per the PPS, significant woodlands are to be defined using criteria established by the Province (i.e., NHRM; MNR 2010, recommended criteria). The general guidelines for determining significance of these features are presented in the NHRM for Policy 2.1 of the PPS. Criteria for designating significant woodlands include size, shape, proximity to other woodlands or natural features, linkages, species diversity, uncommon characteristics, and economic and social value. The woodland size criterion is related to the scarcity of forest cover

on the landscape as defined on a municipal basis where differences in woodland coverage among physical sub-units (e.g., watersheds, biophysical regions) is considered.

Contiguous Woodland Community

Most of the woodland communities present within the Subject Lands are native forest communities generally characterized by native cover, with a contiguous connection to the greater forest cover associated with Bercy (Wycliffe) Park. These woodland communities are therefore also associated with the German Mills Creek corridor, meeting both the size criteria and connection to identified fish habitat to be considered significant, therefore, the FOD5-1, FOM2-2 and FOM3-2 communities are considered significant.

In addition to these communities, two cultural influenced woodland communities are also present within the Subject Lands boundary, a Black Locust Cultural Woodland (CUW1-3*) and a Mineral Cultural Woodland (CUW1) along with one community dominated by Manitoba Maple (FODM7-7), a Category 1 invasive species (Urban Forestry 2002). These communities are discussed below.

As was previously stated, a Black Locust Cultural Woodland (CUW1-3*) is located on the northern edge of the contiguous woodland community within the Subject Lands. The CUW1-3* community is a very young community dominated by Black Locust, a Category 2 invasive species that is known to invade meadow communities (Urban Forestry 2002). Due to these factors, this community is not considered to meet the criteria of significance and was not mapped as significant despite it being contiguous with the larger feature (**Figure 6**, **Appendix A**). However, as this community is connected to the larger woodland, it is a prime candidate for invasive control measures to protect the natural forest communities to the south and restoration plantings to reforest the area. Therefore, this community is a ‘candidate’ significant woodland, with the final designation confirmed once restoration measures have had time to take effect.

Additionally, a Fresh-Moist Manitoba Maple Deciduous Forest (FODM7-7) is present immediately southeast of the CUW1-3* within the Subject Lands. As this community is also known to be dominated by an invasive species (Category 1; Urban Forest Associates 2002), it similarly was not considered to meet the criteria for significance and is also not mapped as significant despite it being contiguous with the larger feature (**Figure 6**, **Appendix A**). However, as this community is connected to the larger woodland, it is also proposed for invasive control measures to protect the natural forest communities to the south with targeted restoration plantings to reforest the area post management. Therefore, this community is also a ‘candidate’ significant woodland, with the final designation confirmed once restoration measures have taken effect.

Cultural Woodland

Typically, contiguous woodland communities are assessed as one feature, however the woodlot within the Subject Lands has a clear divide between natural healthy forest communities and a historical orchard and plantation on the edge of the larger woodland

feature that has succeeded into a CUW characterized by a dominant presence of invasive species. This community divide is largely associated with the staked top of bank of the German Mills Creek valleyland, where the FOD5-1, FOM2-2 and FOM3-2 communities are established. The invasive presence within the CUW community was observed to be invading the native forest cover due to their proximity.

Section 7.3 of the NHRM (2010) further defines woodlands by either tree cover greater than 60% or the Forestry Act definition for woodlands. CUW are defined under the ELC Manual (1998) as communities with 35-60% tree cover and would not meet the tree cover requirements. The Forestry Act definition of a woodland means lands with at least:

- 1,000 trees of any size per hectare; or
- 750 trees measuring over 5 cm in diameter, per hectare; or
- 500 trees measuring over 12 cm in diameter, per hectare; or
- 250 trees measuring over 20 cm in diameter, per hectare.

Cultivated fruit or nut orchard or a plantation established for the purpose of producing Christmas trees are not included within the woodland definition. As previously discussed within **Section 3.2.1.3**, the CUW1 community was determined not to meet the minimum stem density requirements to be considered a woodland community under the Forestry Act definition, signifying that a designation of significance is not warranted for this community. Though GEI has conceded to agree to the CUW1 as a woodland for the purposes of the compensation requirements, it is not considered to be a suitable community to define as a significant woodland. Moreover, the CUW1 community previously functioned as an orchard, which provides further evidence to support excluding the community from qualifying as a significant feature on the landscape.

To conclude, the CUW1 community is not considered a provincially significant woodland or part of a provincially significant woodland.

4.3.2 Regional Significance Criteria

As previously discussed within **Section 2.2.2**, the RYOP definition for woodlands is the same as the Forestry Act. As discussed above within **Section 4.3.1**, the CUW1 community does not qualify as a woodland community under the Forestry Act; and thus, does not qualify as a woodland under the RYOP.

The RYOP, Section 2.2.45, states that “significant woodlands be verified on a site-by-site basis and shall include those woodlands meeting one of the following criteria:

a) is 0.5 hectares or larger and:
    i. directly supports globally or provincially rare plants, animals or communities as assigned by the Natural Heritage Information Centre; or,
    ii. directly supports threatened or endangered species, with the exception of specimens deemed not requiring protection by the Province (e.g. as is sometimes the case with Butternut); or,

iii. is within 30 metres of a provincially significant wetland or wetland as identified on Map 4, waterbody, permanent stream or intermittent stream;

b) is 2 hectares or larger and:
   i. is located outside of the Urban Area and is within 100 metres of a Life Science Area of Natural and Scientific Interest, a provincially significant wetland or wetland as identified on Map 4, significant valleyland, Environmentally Significant Area, or fish habitat; or,
   ii. occurs within the Regional Greenlands System;"

Section 2.2.48 states that "within the Urban Area or within the existing settlement areas as defined in the Lake Simcoe Protection Plan, and outside of the Oak Ridges Moraine Conservation Plan and Greenbelt Plan areas, a woodland, or portions thereof, which would be defined as significant woodland in accordance with policy 2.2.45 of this Plan, is not considered significant if all of the following are met:

a) the woodland is located outside of the Regional Greenlands System as shown on Map 2 of this Plan;
b) the woodland is located in an area strategic to the achievement of the community objectives of Section 5.2 and 5.6 of this Plan or is identified within an intensification area detailed in a local municipal intensification strategy, and is evaluated through an official plan amendment process, or other appropriate study;
c) the woodland does not meet the criteria in policy 2.2.45.a of this Plan; and,
d) the woodland is a cultural and regenerating woodland to the satisfaction of York Region, in consultation with the conservation authority and local municipality."

Contiguous Woodland Community

A review was completed to understand whether the FOD5-1, FOM2-2 and FOM3-2 vegetation communities meet the Region's significant woodland criteria. This discussion is provided below.

The contiguous woodland community (FOD5-1, FOM2-2 and FOM3-2) total an area greater than 2 ha. The FOD5-1 and FOM2-2 communities were found to support Eastern Wood-Pewee habitat, and therefore, were found to directly support a provincially rare (Special Concern) species. If this woodland community is considered along with the adjacent woodland communities to the east, it would also be considered within 30 m of a permanent stream, though the woodlands within the Subject Lands boundary are further than 30 m from the German Mills Creek corridor. No other aspects of the significant woodland criteria were met for these communities, but as one was confirmed, it was determined that the contiguous units of FOD5-1, FOM2-2 and FOM3-2 meet the regional significance for woodlands. Additionally, the CUW1-3* and FODM7-7 maintain their designation of candidate significance dependent on the approval of the Draft Plan and associated restoration efforts.

Cultural Woodland

As described previously, the CUW1 community does not meet the definition of woodland in the YROP.

4.3.3 Municipal Significance Criteria

There are five woodland communities present within the boundary of the Subject Lands. Each of these communities have been mapped as being within the Greenway System (per City's OP). As discussed within Chapter 11 of the City's OP, the City defers to the YROP for the significant woodland definition and criteria, as discussed in **Section 4.3.2**.

Contiguous Woodland Community

Based on the Regional significance criteria, and as discussed within **Section 4.3.2**, the FOD5-1, FOM2-2, FOM3-2 vegetation communities are considered regionally significant; thus, they are also considered municipally significant woodlands and afforded municipal protections. The CUW1-3* and FODM7-7 maintain their designation of candidate significance dependent on the approval of the Draft Plan and associated restoration efforts.

Cultural Woodland

As previously discussed within **Section 2.2.2**, the City's OP woodland definition is taken from the Forestry Act. The CUW1 vegetation community did not meet the minimum stem density requirements to be considered a woodland community. Despite the outcome of the stem density survey, GEI understands the City's preferred approach of considering the overall contiguous woodland community and can concede that the overall wooded feature should be considered as a woodland community in terms of impacts related to the removal, this feature is described in detail below and the impacts of the proposed removal is discussed within **Section 7.1.1**.

In terms of the designation of the CUW1 community, despite this community being considered a woodland in terms of establishing an appropriate representation of the impacts associated with the proposed removal, based on the Regional significance criteria, and as discussed within **Section 4.3.2**, the CUW1 does not meet the criteria for regionally significant woodlands; thus, it is not considered a municipally significant woodland.

GEI acknowledges that the City staff do not support the use of a stem density survey for sections of contiguous woodland communities for the purpose of identifying woodland exclusions. Therefore, the fact that the CUW1 does not meet the definition of a woodland is instead used to assist in characterizing the feature and determining if it meets the criteria for significance. This community is described in further detail below.

The CUW1 community does not support globally or provincially rare plants, animals or communities, or the habitat of endangered or threatened species. Additionally, the feature is beyond 30 metres from a permanent stream feature. In addition to this, the CUW1 has a high

number of invasive species present (Common Buckthorn, European Swallowort, Garlic Mustard, Exotic Honeysuckle, Dame's Rocket and Manitoba Maple). These species were most commonly observed as occasional to abundant within the CUW1, while these species are infrequent within the rest of the contiguous woodland. Thus, it is concluded that this CUW1 community is not in good condition and is impacting the remaining native forest communities present past the staked top of bank. Therefore, CUW1 does not meet the definition of a woodland community, nor the test of significance, and the surrounding landscape will benefit from the proposed management associated with the proposed development.

As only 0.52 ha of the CUW1 community is proposed for removal from the Greenway designation, the remaining 0.24 ha will be managed for invasives with all native and healthy trees being kept on the landscape. As stated in **Section 3.2.1.5**, the proposed individual tree impacts result in 131 moderately sized trees (i.e., 20 – 40 cm DBH) and 42 large trees (40+ cm DBH) proposed for removal and a total of 218 trees preserved. Tree cover and ecological function will be maintained wherever possible before the restoration efforts can commence and establish. This community and the management and enhancement plans will be further discussed in the next submission supporting the SPA.

As previously stated, GEI acknowledges that the City staff do not support the use of a stem density survey for discrete sections of a woodland. However, as the area in question is situated at the edge of the agreed upon woodland, and is distinct in nature and origin, it is GEI's opinion that assessment of whether this component meets the definition of woodland remains a valid and important exercise in the determination of significance. Additionally, the accurate ecological characterization of this community is important to providing a detailed understanding of the overall impacts and net benefit proposed within the broader restoration and enhancement conceptual plan (**Figure 9a** and **11**, **Appendix A**).

4.4 Significant Valleylands

Significant valleylands are defined and designated by the planning authority. General guidelines for determining significance of these features are presented in the NHRM (MNR 2010) for Policy 2.1 of the PPS. Recommended criteria for designating significant valleylands includes prominence as distinctive landform, degree of naturalness, and importance of its ecological functions, restoration potential and historical and cultural values.

The German Mills Creek valleyland is a well-defined feature on the landscape and meets the definition of a confined stream valley system in accordance with Section 3.1 of the TRCA's Valley and Stream Corridor Management Program (1994). This feature is considered a stream corridor given the presence of a defined watercourse channel associated with German Mills Creek, and based on the connectivity it provides on the broader landscape as discussed in **Section 3.4**, this is considered a Significant Valleyland. The top of bank was staked with the TRCA on June 16, 2022 and is shown on **Figure 6** (**Appendix A**).

The Subject Lands are not identified as a "valleyland" on Map 6 of the Markham Official Plan.

4.5 Significant Wildlife Habitat

SWH is one of the more complex natural heritage features to identify and evaluate. There are several provincial documents that discuss identifying and evaluating SWH including the NHRM (MNR 2010), the SWH Technical Guide (MNR 2000), and the SWH Eco-Region Criterion Schedule (MNRF 2015a and b). The Subject Lands are located in Eco-Region 7E and were therefore assessed using the 7E Criterion Schedule (MNRF 2015b).

There are four general types of SWH:

- Seasonal concentration areas;
- Rare or specialized habitats;
- Habitat for species of conservation concern; and
- Animal movement corridors.

General descriptions of these types of SWH are provided in the following sections.

4.5.1 Seasonal Concentration Areas

Seasonal concentration areas are those sites where large numbers of a species gather together at one time of the year, or where several species congregate. Seasonal concentration areas include: deer yards, wintering sites for snakes, bats, raptors and turtles; waterfowl staging and molting areas, bird nesting colonies, shorebird staging areas, and migratory stopover areas for passerines or butterflies. Only the best examples of these concentration areas are usually designated as SWH.

The FOD and FOM vegetation communities present within the Subject Lands were identified as meeting the threshold number of snags/ha; however, the abundance of passes detected over the 20 evenings did not support the presence of the threshold numbers of Big Brown Bat or Silver-haired Bat. Therefore, no Bat Maternity Colonies SWH was determined to be present.

No other seasonal concentration areas were identified within the Subject Lands.

4.5.2 Rare or Specialized Habitats

Rare and specialized habitat are two separate components. Rare habitats are those with vegetation communities that are considered rare in the province. SRANKS are rarity rankings applied to species at the ‘state’, or in Canada at the provincial level, and are part of a system developed under the auspices of the Nature Conservancy (Arlington, VA). Generally, community types with SRANKS of S1 to S3 (extremely rare to rare-uncommon in Ontario), as defined by the NHIC (2023), could qualify. It is to be assumed that these habitats are at risk and that they are also likely to support additional wildlife species that are considered significant. Specialized habitats are microhabitats that are critical to some wildlife species. The NHRM (MNR 2010) defines specialized habitats as those that provide for species with

highly specific habitat requirements, areas with exceptionally high species diversity or community diversity, and areas that provide habitat that greatly enhances species' survival.

No rare or specialized habitats were identified within the Subject Lands.

4.5.3 Habitat for Species of Conservation Concern

Species of conservation concern include those that are provincially rare (S1 to S3), provincially historic records (SH) and Special Concern species. Several specialized wildlife habitats are also included in this SWH category, including Terrestrial Crayfish habitat, and significant breeding bird habitats for marsh, open country and early successional bird species.

Habitats of species of conservation concern do not include habitats of Endangered or Threatened species as identified by the ESA (2021 Consolidation). Endangered and Threatened species are discussed in **Section 4.7**.

Confirmed Eastern Wood-Pewee habitat was identified within the central portion of the woodland complex, within two connected woodland communities (FOD5-1 and FOM2-2; **Figure 6**, **Appendix A**). This species is typically associated with the mid-canopy layer of clearings and the edges of woodlands. This habitat will be protected within the woodland feature remaining within the Subject Lands and, therefore, these features will not be directly impacted by the proposed development. Potential indirect impacts are explored in **Section 7.1.3**.

Additionally, one individual Barn Swallow (relisted as Special Concern in Ontario) was observed in flight at Point Count 1 over open habitat during round one survey efforts. No further evidence of breeding was noted during the survey period. No Barn Swallow nests were observed on any of the human structures/buildings within the Subject Lands, and therefore breeding habitat is considered absent from the Subject Lands.

4.5.4 Animal Movement Corridors

Animal movement corridors are areas that are traditionally used by wildlife to move from one habitat to another. This is usually in response to different seasonal habitat requirements, including areas used by amphibians between breeding and summer/over-wintering habitats, called amphibian movement corridors.

As woodland amphibian breeding habitat was not identified on the Subject Lands, no amphibian movement corridors were assessed.

4.5.5 Significant Wildlife Habitat Summary

Table 7 (**Appendix B**) discusses all types of SWH relevant to the Subject Lands based on ecological data collected in 2019 and 2022. The following SWH types were confirmed within the Subject Lands:

- Habitat for Special Concern Species (Eastern Wood-Pewee) within a portion of the woodland communities (FOD5-1 and FOM2-2).

This is illustrated on **Figure 6**, **Appendix A**.

4.6 Fish Habitat

Fish habitat, as defined in the federal *Fisheries Act*, c. F-14, means “spawning grounds and nursery, rearing, food supply, and migration areas on which fish depend directly or indirectly in order to carry out their life processes.” Fish, as defined in S.2 of the *Fisheries Act*, c. F-14, includes “parts of fish, shellfish, crustaceans, marine animals and any parts of shellfish, crustaceans or marine animals, and the eggs, sperm, spawn, larvae, spat and juvenile stages of fish, shellfish, crustaceans and marine animals.”

Within the Don Watershed Fish Community and Habitat Management Plan (MTRCA and MNR, 1997) the fish community structure of the German Mills Creek subwatershed is described as previously housing a fair level of species diversity. However, there have been significant changes in ecosystem conditions over time leading to the loss of Northern Redbelly and Redside Dace along with the Common Shiner, the Rainbow Darter and the Mottled Sculpin (MTRCA and MNR, 1997). The loss of these species is again likely tied to the shifts that have occurred in aquatic ecosystem structure and quality as a result of landscape change, which are related to significant impacts from urbanization over the years.

Though German Mills Creek is present within the broader Study Area, it is adjacent to and not within the Subject Lands. The creek is protected in the valleyland and will not be impacted by the proposal and therefore will not be discussed further in this report.

4.7 Habitat for Endangered and Threatened Species

SAR and their habitats are considered provincially sensitive information. Due to the sensitive nature of this information, should any correspondence be required, any communication and outcomes will remain with the MECP and its jurisdiction. One endangered species and one threatened species were recorded within the Subject Lands and are discussed below.

Eastern Small-footed Myotis – Endangered in Ontario: A single pass was recorded by this species, within the CUW1 community present within the Subject Lands. Though the recording of this species is indicative of Eastern Small-footed Myotis being present within the landscape, a single pass over 20 evening of survey effort does not support the conclusion of SAR habitat within the Subject Lands, however, there may be habitat in the broader valley landscape.

As no roosting or breeding habitat was identified for the above species within the Subject Lands, neither species is predicted to be using the Subject Lands and will therefore not be discussed further in the report.

In addition to this habitat, the adjacent German Mills Settlers Park to the north is habitat for two threatened grassland bird species, Eastern Meadowlark and Bobolink. These species

were not observed breeding in the vicinity of the Subject Lands; however they are expected to be nesting in the broader meadow habitat within the park.

4.8 Significant Areas of Natural and Scientific Interest

No ANSIs were identified on or within 120m of the Subject Lands.

4.9 TRCA Regulated Features

Pursuant to Ontario Regulation 166/06, the TRCA has the authority to regulate development within its regulated areas. The TRCA regulates the following features:

- Lands adjacent to or close to the shoreline of the Great Lakes-St. Lawrence River System that may be a river or stream valleys that have depressional features associated with a river or stream, whether or not they contain a watercourse;
- Hazardous lands;
- Wetlands; and
- Other areas where development could interfere with the hydrologic function of a wetland, including areas up to 120 m of all PSWs and wetlands greater than 2 ha in size, and areas within 30 m of wetlands less than 2 ha in size.

German Mills Creek is a regulated watercourse with associated hazards (meander belt, floodline), as such its associated valleyland is within the regulated boundary as defined and mapped by the TRCA.

O Reg 166/06 states that "*Subject to Section 3, no person shall undertake development or permit another person to undertake development in or on the areas within the jurisdiction of the Authority that area,*

(b) river or stream valleys that have depressional features associated with a river or stream, whether or not they contain a watercourse, the limits of which are determined in accordance with the following rules:

> *(i) where the river or stream valley is apparent and has stable slopes, the valley extends from the stable top of bank, plus 15 metres, to a similar point on the opposite side,*
>
> *(ii) where the river or stream valley is apparent and has unstable slopes, the valley extends from the predicted long term stable slope projected from the existing stable slope or, if the toe of the slope is unstable, from the predicted location of the toe of the slope as a result of stream erosion over a projected 100-year period, plus 15 metres, to a similar point on the opposite side,*
>
> *(iii) where the river or stream valley is not apparent, the valley extends the greater of,*

(A) the distance from a point outside the edge of the maximum extent of the flood plain under the applicable flood event standard, plus 15 metres, to a similar point on the opposite side, and

(B) the distance from the predicted meander belt of a watercourse, expanded as required to convey the flood flows under the applicable flood event standard, plus 15 metres, to a similar point on the opposite side;

(c) hazardous lands (means lands that could be unsafe for development because of naturally occurring processes associated with flooding, erosion, dynamic beaches, or unstable soil or bedrock. Conservation Authorities Act, Section 28 (25).

Furthermore, O Reg 166/06 s. 3(1) states that the TRCA may grant permission for development in or on the areas described in subsection 2 (1) if, in its opinion, the control of flooding, erosion, dynamic beaches, pollution or the conservation of land will not be affected by the development.

It should be noted that Bill 23 made changes to the Conservation Authority Act (CAA) that introduced a series of legislative and proposed regulatory changes to affecting conservation authorities. Through Bill 23, each of these regulations will be revoked, and an authority will no longer be able to make its own regulations applicable to its jurisdiction area. Instead, the Province intends to prescribe a single, new regulation to govern all 36 authorities. Notably, this change effectively re-enacts the section 28 permitting process introduced by Bill 139 – Building Better Communities and Conserving Watersheds Act, 2017, which never came into force.

Previously, when conservation authorities evaluated applications and made permitting decisions, the CAA prescribed certain factors that they must consider, which included any effects the development project was likely to have on the control of flooding, erosion, dynamic beaches or pollution or the conservation of land. Bill 23 replaced the consideration of the effects on the "control of pollution" and on the "conservation of land", with the effects on the "control of unstable soil or bedrock". The other criteria remain the same.

No other TRCA regulated features or hazards are identified within or adjacent to the Subject Lands, and the sections below discuss each as applicable.

4.9.1 Hazardous Lands

As outlined in **Section 1.3.4**, TRCA's Living City Policy 8.4.4 states that *"That TRCA will not permit development, interference, and alteration within a regulated area that proposes to modify watercourses, wetlands, hazardous lands, including such lands within valley and stream corridors … to create additional area to accommodate or facilitate new development*

or intensification." As was discussed in **Section 3.3.3**, the proposed development is outside of the identified erosion hazard limit.

Policy 8.4.5 further notes that development or alterations may be permitted where appropriate technical reports demonstrate several criteria. The following list outlines the criteria and how the proposed Parking Area has considered and met each as applicable:

a) *the control of flooding, erosion, dynamic beaches will not be affected;*
    i. The proposed Parking Area is outside of the regional floodline, erosion hazard limit, outside the slope erosion hazards, and is already designated as residential, and will therefore not affect the control of any of the above as listed.
b) *the risk to public safety is not increased;*
    i. The risk to public safety is not increased, additionally, it may be decreased through the Leslie Street redesign and the proposed safe pedestrian pathways planned up Leslie Street.
c) *susceptibility to natural hazards is not increased and no new hazards are created;*
    i. The proposed Parking Area will have no effect on the existing hazards, nor will it create any new hazards, the parking area will not be creating new impervious area and as the permeable pavement will prevent ice from establishing making any salt requirements minimal.
d) *there are no adverse hydraulic or fluvial impacts on rivers, creeks, streams, or watercourses;*
    i. The proposed Parking Area will be designed to have no adverse impacts on the German Mills Creek, this will be further confirmed through detailed design submitted in support of Site Plan Approval.
e) *there are no adverse impacts on the natural coastal processes of the Lake Ontario shoreline;*
    i. N/A, Subject Lands are not near the shoreline of Lake Ontario.
f) *negative or adverse hydrological or ecological impacts on natural features and functions, including wetlands, are avoided or mitigated;*
    i. The proposed Parking Area has been designed to avoid impacting the existing natural features, as the proposed change involves the construction of a permeable green parking area where mowed residential lawn is currently present. The impacts being assessed and compensated for include the encroachment into the valleyland and encroachment into the variable woodland buffers. The impacts are discussed in further detail in **Section 7** and **8** and confirms that negative or adverse hydrological or ecological impacts will be avoided or mitigated.
g) *intrusions on natural features, areas and systems contributing to the conservation of land, including areas providing ecological functions and hydrologic functions, are avoided or mitigated;*
    i. The proposed Parking Area has been designed to avoid and mitigate impacts to existing natural features, as the proposed change involves creating a permeable green parking area where mowed residential lawn is currently

present. Additionally, the existing bat foraging habitat present will be maintained and enhanced.

h) *groundwater discharge which supports natural features and areas or hydrologic or ecological functions on-site and other sites hydrologically connected to the site are maintained;*
   i. N/A, Subject Lands does not have any ground water discharge areas.

i) *groundwater recharge which supports natural features and areas or hydrologic or ecological functions on-site and other sites hydrologically connected to the site will be maintained;*
   i. N/A, Subject Lands does not have any key groundwater recharge areas. Nonetheless, SWM and LID measures like reducing rainwater runoff through targeted gardens and plantings for infiltration and groundwater recharge will be incorporated and designed at the SPA and detailed design stage.

j) *access for emergency works and maintenance of flood or erosion control works is available;*
   i. Safe access is proposed by raising Leslie Street out of the floodplain. Access for emergency of maintenance works related to flood or erosion control will be available within the Parking Area as it is currently available through the open lawn area of the residential use.

k) *TRCA's stormwater management criteria (water quantity, water quality, erosion control and water balance for groundwater and natural features) have been met, where applicable, based on the scale and scope of the project;*
   i. The proposed Parking Area will be designed to confirm to all applicable SWM criteria to ensure the management criteria required have been met. A conceptual SWM design has been provided as part of the FSR by SCS Consulting to confirm the criteria can be met. This will be further confirmed at the SPA submission, and into detailed design.

l) *pollution, sedimentation and erosion during construction and post construction is minimized using best management practices including site, landscape, infrastructure and/or facility design (whichever is applicable based on the scale and scope of the project), construction controls, and appropriate remedial measures;*
   i. The proposed development will use best management practices for all stages of the development and construction process to minimize pollution, sedimentation and erosion during construction and post construction. This is discussed in further detail in **Section 7.2**.

m) *appropriate restoration works of sufficient scale and scope in accordance with TRCA standards will be implemented; and*
   i. The proposed development proposed a Landscape Restoration and Compensation Plan by Schollen and Company (2024) will result in an overall net gain to the ecological function of the area. This is discussed in further detail in **Section 8**.

n) *works are constructed, repaired and/ or maintained according to accepted engineering principles and approved engineering standards or to the satisfaction of TRCA, whichever is applicable based on the scale and scope of the project in accordance with TRCA standards.*

i. The proposed development will be subject to Site Plan Approval and will require a permit from the TRCA. Proposed works will be constructed to accepted/approved engineering standards and/or to the satisfaction of the TRCA.

Based on the criteria confirmed above, the green parking area is considered to be proposed in an appropriate location, this is continued in **Section 6.3**.

Lastly, regarding the conceptual Leslie Street redesign and the proposed work within the floodplain hazard, additional efforts will be completed at the SPA stage to ensure the risks and associated improvements are done to the satisfaction of the TRCA.

4.9.2 Permitted Uses in Regulated Areas

As outlined in **Section 1.3.4**, there are several policies relevant to the infrastructure planned within the proposed green parking area that are within the regulated area (**Figure 10**, **Appendix A**). Based on these policies, alterations to existing structures, infrastructure or recreational uses may be permitted, should they meet the criteria specified in *'Sections 7.4 and 7.5 and 8.4 to 8.13'*.

Policy 7.4.5.1 states that minor recreation uses may be permitted within a natural system, described as *"recreational facilities that require very little modification of terrain or vegetation and few if any, buildings, structures and limited parking".* With this minor use requiring *"scoped environmental studies and the incorporation of best management practices for site construction and future maintenance can generally minimize impacts to negligible levels"* which has been completed with the submission of this report (refer to **Section 7.1.3**). This policy also outlines the allowance of minor expansions to existing recreational uses, with minor expansions having similar requirements to minor recreation uses to minimize any impacts. Policy 7.5 is related to the review of development applications, which is being followed through the Submission of this Scoped EIS and the subsequent applications for the SPA and Draft Plan stage. Policy 8.5 is related to development within hazard zones, however, as discussed above, the proposed development is not within a hazard zone.

In addition to the various policies above, Policy 7.4.5.1 states that the TRCA is encouraged to collaborate where there are opportunities to link the regional open space system though landscape and nature-based accessible recreation areas, considering cumulative impacts and mitigation efforts, restoring and enhancing the Natural System and to connect trail networks (e.g., Lake-to-Lake trail through the conceptual Leslie Street redesign). With the broader conceptual plan drafted in further detail, this EIS is aiming to demonstrate the landscape-based restoration and enhancement efforts planned and the long-term landscape management planned by the Bahá'í Community for an overall net benefit to the valleyland and NHN. Additionally, the parking proposed within the Leslie Street redesign will solve an existing issue created by the presence of the Lake-to-Lake trail, where the parking can be shared by the Bahá'í Community and the broader community to use the existing and proposed trail systems within the NHN. This would improve the accessibility of the area, and improve the connectivity of the trail networks, parks and community spaces.

4.10 Summary of Ecological Components Subject to Impact

The PPS (MMAH 2020) defines the important natural heritage features to consider in terms of impact assessment. The following components were considered for impact avoidance, mitigation and/or potential offsets:

- Significant Woodlands (FOD5-1, FOM2-2, FOM3-2);
- Candidate Significant Woodlands (CUW1-3*, FODM7-7);
- Significant Valleyland (TRCA Regulated Valleyland);
- SWH (habitat for special concern species; Eastern Wood-Pewee);
- TRCA Regulated Lands; and,
- Adjacent Habitat for Endangered and Threatened Species (Grassland Bird SAR).

Moreover, one regulated watercourse and associated valleyland were identified adjacent to the Subject Lands. No other regulated features or hazard lands were identified.

Discussion regarding the Greenway System is provided further within **Section 5**, below.

5. Greenway System

As was previously discussed within **Sections 1.3.3.1**, the Greenway System is a natural heritage system defined by the City's OP, outlined within Policy 3.1.1.2. The Subject Lands and the surrounding Study Area are comprised of NHN lands (**Figure 2** and **7**, **Appendix A**).

5.1 Greenway System Components

The City's OP policies 3.1.2.1 and 3.1.2.10 define the NHN being comprised of:

a) Natural heritage and hydrologic features that include:
    i. key natural heritage and hydrologic features:
        a) wetlands;
        b) habitat of threatened and endangered species;
        c) significant portions of the habitat of:
            - special concern species in the Oak Ridges Moraine Conservation Area and Greenbelt Plan Area; and
            - provincially rare species in the Oak Ridges Moraine Conservation Area;
        d) fish habitat;
        e) Life Science ANSI;
        f) significant valleylands;
        g) significant woodlands;
        h) SWH t;
        i) sand barrens, savannahs and tallgrass prairies;
        j) permanent streams and intermittent streams; and
        k) seepage areas and springs;
b) VPZ associated with the features above; and
c) Hazardous lands and hazardous sites.

The NHN boundary is defined by the greatest extent of these constraint lines. Minimum (VPZ requirements are outlined in the City's OP (2014). **Figure 2** (**Appendix A**) illustrates the NHN on the Subject Lands as shown within the City's OP.

VPZs are buffers that surround a natural heritage feature or a hydrologic feature (Markham OP, 2014). These zones protect the features and their functions from impacts of land use changes. To define the NHN boundary of the Greenway System, each of its components was assessed and mapped. The NHN component definitions, sources and analyses utilized to assess the VPZs for the components are listed in **Table 5** below. The table includes the minimum VPZs defined by the City's OP, Table 3.1.2.23 (2014), as well as the VPZs identified as appropriate for the protection of the natural heritage features within the Subject Lands.

Table 5: Evaluation of Presence of NHN and VPZs Recommendations

NHN Component	VPZ	Presence within the Subject Lands and greater Study Area
a) Wetlands	15 m	No wetland communities were identified within or immediately adjacent to the Subject Lands.
b) Habitat of threatened and endangered species	Determined by EIS	As discussed within **Section 4.7**, no SAR habitat is present within the Subject Lands. Eastern Small-footed Myotis and Barn Swallow were recorded within the Subject Lands; however, it was determined that there was no suitable habitat on site to support the breeding requirements for the species.
c) Significant portions of habitat of Special Concern/provincially rare species in the ORMCA and Greenbelt Plan Area	N/A	Not Present – Subject Lands are located outside of the ORMCA and Greenbelt Plan Area
d) Fish habitat	15 - 30 m as determined by EIS	No fish habitat is present within the Subject Lands; however, German Mills Creek is located within the Study Area (Lot 4) and adjacent lands. This watercourse supports permanent, direct fish habitat, but is located further than 30 m from the boundary of the Subject Lands
e) Life Science Areas of Natural and Scientific Interest	N/A	Not Present
f) Significant Valleylands	10m except where the upper limit of other natural heritage and/or hydrologic features and/or their VPZ's are located between the toe of the slope and the top of bank. Measured from whichever is greater of long-term stable top of bank or limit of the floodplain defined by the TRCA	As discussed within **Section 4.4**, the German Mills Creek valleyland is considered a significant valleyland.
g) Significant Woodlands	10 m	As discussed within **Section 4.3**, significant woodlands are present within the Subject Lands. The significant woodlands consist of the FOD5-1, FOM2-2 and FOM3-2 vegetation communities.
h) Significant Wildlife Habitat	Determined by EIS	As discussed within **Section 4.5**, habitat for special concern species (Eastern Wood Pewee) was identified within the FOD5-1 and FOM2-2 vegetation communities. It is anticipated that the 10 m VPZ for the significant woodland would

NHN Component	VPZ	Presence within the Subject Lands and greater Study Area
		also be effective for this habitat type. This is addressed further in **Section 7**.
i) Sand barrens, savannahs tallgrass prairies	N/A	Not Present
j) Permanent streams and intermittent streams	30m	No permanent or intermittent streams are present within the Subject Lands; however, German Mills Creek is located within the Study Area (Lot 4) and adjacent lands and would qualify as a permanent stream, however, this feature is located further than 30 m from the boundary of the Subject Lands.
k) Seepage areas and springs	30m	Not Present

5.1.1 Application of Recommended VPZ's

In general, the recommended VPZ's were followed, and areas where encroachment could not be avoided are addressed as an impact and compensated for appropriately (refer to **Section 7** and **8**). The proposed buffers are shown on **Figure 8** (**Appendix A**). As shown on **Figure 8** (**Appendix A**), a 10 m buffer was not proposed along the edges of the existing residence associated with the proposed green parking area. A consistent 10 m VPZ was not considered to be appropriate based on the existing conditions observed on site (i.e., the existing mowed lawn and driveway), and the creation of a variable buffer has instead been proposed to provide an overall enhancement from the degraded and anthropogenic state of the existing conditions. A variable buffer is used when the edge of a feature or existing conditions limit the available area to implement a VPZ and/or unreasonably limit the available development area with mitigative options. The variable buffer is considered an overall addition of a buffer where one is currently not present and where non-native species can be observed along the edges encroaching into the surrounding native woodland. Therefore, as shown on **Figure 8** (**Appendix A**), the following approach has been taken:

- Variable Dripline Buffer Additions: Enhancement associated with the proposed green parking area where existing residential (i.e., mowed lawn, driveway) area presently abuts the dripline. This area generally targets a 3.5 m width average buffer with the targeted native plantings. This area directly overlaps with the general treatment planned within the CUW1 community outside of the development limit, both of which have been identified as Degraded Feature Management and Enhancement Areas (**Section 8.2**)

Per the City's OP, the function of a buffer is to "*provide a natural strip of land contiguous and parallel to natural features, that helps alleviate the negative impacts of development on natural features and functions*". As buffers are typically meant to extend the edge of a natural feature to protect its existing conditions, the buffer proposed in this area would essentially be adding a buffer along an existing gap within the feature. Therefore, as the application of the full 10 m

buffer would result in most of the area being undevelopable, while also not providing the community edge protection that VPZ's typically target, the application of a 10 m buffer in this area had limited suitability in this context. Other options were explored to mitigate any impacts from the proposed green parking area and protect the existing features by providing a net gain in the ecological function of the area. This was done through the application of a 5 m management area into the existing significant woodlands to address their degraded edges, outlined below:

- Selective Natural Heritage Management Area: A 5 m buffer within the two identified edges of the significant woodland has been included in association with the temple and green parking area. The edge habitat will be carefully and selectively target appropriate invasive species removal and management (**Figure 9b**, **Appendix A**). This area will be carefully assessed to determine if minor native seeding may be warranted. Specific discussions with the City and TRCA will occur to ensure best practices are used in these sensitive areas.

Policy 3.3.3.9 of the City's OP was reviewed as its specific to stormwater infrastructure within VPZs, and details that stormwater facilities may be allowed in VPZs if the following is demonstrated:

i. the function of the vegetation protection zone is not compromised;
ii. natural heritage and hydrologic features shall be protected and enhanced;
iii. there is no unacceptable risk related to hazardous lands and hazardous sites;
iv. the facility is natural in appearance and integrated into the Natural Heritage Network;
v. bird hazard impacts are addressed, where subject to airport regulations; and
vi. the site specific requirements of the applicable provincial plans and regulations are met.

Through the existing conditions and the mitigation described above, the function of proposed variable buffer does not compromise the function of the buffer and will protect and enhance the existing features. As detailed in **Section 3.3**, there is no risk to hazardous lands, and the green design of the parking area is described further in **Section 6.3**.

Finally, Section 3.1.2.25 of the City's OP allows for the consideration of reduced VPZ's within the Urban Area (which the Subject Lands are within) with a supporting EIS demonstrating the limiting site constraints requiring the reduction and the mitigative measures taken to ensure a net gain in habitat and the quality of that habitat. As described above, between the creation of the Variable Dripline Buffer and the 5 m Selective Natural Heritage Management Area mitigative efforts, the proposed plan will provide a net gain in the total area of habitat and the quality of that habitat and therefore is considered an appropriate and overall beneficial buffer to the surrounding significant woodland communities on top of the restoration and enhancement specified within the LRES (Schollen 2024a) and summarized in **Section 8**.

5.2 Feature Surveys

Natural heritage features were staked and surveyed in the presence of the City and TRCA. This included the staked top of bank, divide of CUW and FOD community, and limit of FOM community (woodland dripline staking associated with the FOM and RES communities). **Table 1** (**Appendix A**) identifies the dates the features were staked and surveyed with the agencies.

The staked limits are shown on **Figure 8** (**Appendix A**).

5.3 Greenway System Boundary

Within the City's OP, policy 3.1.1.3 states that "*the boundaries of the Greenway System and Natural Heritage Network… reflect the most accurate information available and are to be confirmed and may be refined or modified as follows:*

a) confirmation of the boundaries will be undertaken in the field, in consultation with appropriate agencies, and any corresponding changes to the mapping shall be undertaken without amendment to this Plan;

b) refinements to the boundaries may be considered as part of an application pursuant to the Planning Act, without an amendment to this Plan, where supported by a subwatershed study, master environmental servicing plan, environmental impact study or equivalent study; and

c) modifications to the boundaries, other than refinements, including the delineation of the boundaries of the Natural Heritage Network Enhancement Lands in accordance with Section 3.1.3.2, may be considered through an amendment to this Plan, where supported by a subwatershed study, master environmental servicing plan, environmental impact study or equivalent study."

The environmental studies for this Scoped EIS included field investigations and analyses to delineate the extent of the Greenway System, which includes lands designated as the NHN in support of the OPA and ZPA applications. The components of the NHN on the Subject Lands include the significant woodlands, SWH (Habitat for Special Concern species – Eastern Wood Pewee), regulated watercourse (German Mills Creek) and regulated significant valleyland, and any associated VPZ.

5.3.1 Greenway System Amendments

Supported by this EIS, the NHN should be revised to not include the portion of the CUW1 community proposed to house the temple and the small portion that overlaps with the mowed lawn associated with the existing residence. The first submission proposed the total CUW1 community be removed from the NHN which resulted in 0.83 ha of Greenway System

proposed to be removed. However, through the various restoration and enhancement efforts proposed, this second submission proposes only the portion of the CUW1 that will be directly impacted be removed from the Greenway System. Thus, the total area proposed to be removed from the Greenway System has decreased from 0.83 ha down to 0.54 ha. In addition to this, 2.23 ha is being added into the Greenway System, with an additional 0.58 ha of enhancement efforts completed to the existing degraded communities. The current limits of the NHN along with the proposed revisions are listed below and are mapped on **Figure 7** (**Appendix A**):

- Proposed Greenway System Removal Area: 0.54 ha;
- Proposed Greenway System Addition Area: 2.23 ha; and,
- Proposed Greenway System Enhancements: 0.58 ha.

The Greenways System amendments as proposed will result in a net gain of 1.69 ha of Greenway System, with that additional 0.58 ha of enhancement efforts. Thus, without this development proposal, the Greenway System would not receive the 2.27 ha of overall Greenway System enhancements efforts being completed within the German Mills Creek valleyland that are associated with the establishment of the BNC and Temple.

6. Description of Development Proposal

As stated in the first submission of the EIS, the development proposal involves the construction of a new BNC to replace the existing one and the construction of a Bahá'í National Temple and associated ancillary buildings, infrastructure (i.e., bathrooms, paths etc.) and a surface parking area. The new BNC building will provide administration functions, institutional functions, learning venues and temporary stay accommodations for those visiting or studying at the BNC. As the BNC is only proposed to be modified within the existing anthropogenic lands, outside of individual tree removals, no direct impacts to natural heritage features are anticipated. Instead, the assessment of impacts has focused on the Temple and the proposed green parking area within Lot 2. The Bahá'í National Temple is proposed at the southwest corner of Lot 2, within lands currently identified within the Greenway System of the City of Markham OP. As such, an OPA to the City of Markham OP and associated ZBA is being sought.

Several options for the development layout were explored by the consultant team to ensure that identified natural heritage features were protected to the greatest extent possible. Based on the site's constraints related to the existing significant woodlands (FOD5-1, FOM2-2, FOM3-2), the location of the temple was selected given that it was beyond the LTSTOS and in a wooded area characterized by invasive species and formerly orchard. This location was chosen to avoid as much encroachment as possible. Additionally, the green parking area has been carefully designed to avoid the staked dripline of the FOM woodland community and has been modified to decrease the number of parking spots to increase the available area to enhance, and to minimize any potential impacts.

Several additional revisions have been made since the initial submission to further explore possible adjustments to decrease any impacts to the existing NHS. This included decreasing the temple size, moving the temple further to the west providing more remove from the 10 m VPZ from the LTSTOS and removing the conceptual stairway included in the original submission. The proposed final development limit is shown on **Figure 8** (**Appendix A**) and is discussed further below. Though the final development limit does include the BNC, for the purposes of this EIS, the proposed temple and green parking area are the focus and account for a total development area of 0.72 ha (0.52 ha associated with the temple and 0.20 ha associated with the proposed parking). **Figure 8** (**Appendix A**) shows the following:

- **Final Development Limit**
  - BNC
  - Temple
  - Green Parking Area
  - Proposed Conceptual Trails
- **Staked feature limits and appropriate Buffers** (refer to **Section 5.1.1)**
  - Staked Limit of CUW Community (i.e., the basis for the 10 m VPZ applied to the significant woodland community to the west associated with the temple)

    - Staked Limit of CUW Community (i.e., the basis for the variable buffer additions associated with the proposed green parking area)
- **Summary of direct Feature and Buffer Encroachments**
    - Feature Encroachments: 0.02 ha
    - Buffer Encroachments Summarized: 0.02 ha
- **Summary of Management and Enhancement Areas Associated with the Proposed Development Limit**
    - Buffer Additions (associated with the variable buffer applied to the green parking area): 0.14 ha
    - Enhancement (also referred to as the Degraded Feature Management and Enhancement Area): 0.50 ha
    - Management (also referred to as the Selective Natural Heritage Management Area): 0.35 ha
    - Maintenance (also referred to as the Maintenance and/or Site Alteration Area): 0.12 ha

Additionally, a conceptual site plan has been prepared (**Figure 9a** and **9b**, **Appendix A**) to illustrate broader concept for the valleyland, specifically focused on the restoration and enhancement of the broader valleyland within 7015 Leslie Street. Although the proposed building locations, landscape features and associated trail systems are identified within this figure, the exact locations of the landscape features and trail will be refined during the SPA stage and will be addressed more fully at that time. In addition, a new conceptual design for the raising of Leslie Street to resolve the issue of safe access.

6.1 Bahá'í National Centre

As discussed above, the existing BNC is proposed to be replaced with a new building which expands upon the capabilities of the current building. The proposed design for the new BNC has remained largely unchanged from the 1st EIS submission, however the impacts to the existing trees along the southern boundary were explored in further detail to ensure they would largely remain as a privacy barrier between the existing residential units along Waterloo Court and the new BNC.

6.2 Bahá'í National Temple and Associated Infrastructure

As has been previously discussed, the Bahá'í National Temple has been proposed within the existing CUW1 (**Figure 9b**, **Appendix A**) above the staked top of bank. The Temple is a self-contained structure designed to highlight the surrounding Canadian landscape and be surrounded by native Canadian gardens and walkways. The national Bahá'í House of Worship will be a focal point for the peoples of Canada. The Temple design will speak to the aspirations of country's diverse inhabitants, as a symbol of the oneness of humankind. It will be designed to highlight and celebrate the Canadian landscape that it is proposed in, this will be further emphasized through the native Canadian gardens planned around the Temple and associated restoration efforts.

When taking the size and anticipated use of the BNC into consideration, the temple itself will be between 22 and 25 metres tall, as to remain in line with or below the existing tree canopy. It is anticipated that the average weekday daily visitors will be approximately 25 people, decreasing the potential disruption of the existing surrounding land uses.

In addition, a separate welcome/reception facility has been included at the most southwestern portion of Lot 2 to support all visitors to the Temple. This building will contain restrooms, reception space and other functional components that are not within the temple structure itself. This part of the master plan sites on approximately 0.52 hectares of the Lot 2. South of the Temple an elegantly landscape pedestrian connection between the BNC and the Temple is proposed, framed by the Visitor Centre to the west. The proposal also anticipates the reuse of the existing residential dwelling to support the parking area and visitors to the Temple and grounds.

6.2.1 Temple Landscaping

Within the initial submission hard landscaping was proposed to encroach into the LTSTOS and significant woodland buffers, this has been modified based on discussions with the TRCA.

This area is now referred to as the Maintenance and/or Site Alteration Area (**Figure 8** and **10**, **Appendix A**), which accounts for a total of 0.12 ha, which 0.06 ha overlapping with the LTSTOS VPZ. This area is proposed to be managed for invasive species and have soft landscaping plans created utilizing native species. Within this area, landscape enhancements are proposed to improve the interface condition between the proposed temple site and the significant woodland. In the present condition, this area is comprised of a number of invasive species that have begun to migrate from the cultural woodland to the broader NHS associated with the significant woodland. The intent of the landscape works that are proposed within this area is to remove the non-native understorey vegetation and replace it with a mosaic of native trees, shrubs and groundcovers that with colonize the area and promote the regeneration of a multi-layered forest ecotone. Plants species will be combined and arranged to form ‘gardens’ that will transition in character from structured to organic in the intervening space between the temple site and the woodland. Interpretive messaging will be provided to describe the components of landscape and interpret the important relationship between the nature and spirituality. This are will be detailed further at the SPA stage.

6.2.2 Stormwater Management

A FSR was prepared by SCS Consulting in support of the applications. As requested by TRCA, the FSR includes a conceptual stormwater management design that explores a number of possible SWM solutions for the Subject Lands, with the final solution to be chosen at the SPA stage. The FSR provided the following examples of Low Impact Development measures (LIDs), at-source, conveyance and end-of-pipe controls that were evaluated for use in the proposed development. All approaches are discussed in length within the FSR, refer to the report prepared by SCS (2024).

6.3 Proposed Green Parking Area Design

Several locations and options have been explored to provide the required temple parking. Parking for the temple is primarily proposed to be provided by utilizing the existing RES community that is currently excluded from the greenway and already managed as an open mowed lawn associated with the residence.

As requested by TRCA, the following section provides a parking analysis to illustrate why there are no other reasonable locations on the Subject Lands to provide the required parking for the temple. The proposed ZBA is requested an exception to the parking requirements for Place of Worship use based on a "first principles" analysis that provides the appropriate amount of parking to support the anticipated demand. The principle is to provide sufficient parking to support the temple anticipated average daily users and not over supply so there is an unnecessary amount of parking siting empty the majority of the time. Details regarding this analysis can be found in the Transportation Report by BA Group prepared in support of this application. The analysis concluded that approximately 100 parking spaces are appropriate to supply the parking demand for the temple (in consideration of a shared parking arrangement with the adjacent BNC).

6.3.1 Parking Feasibility Assessment

North Parking (Lot 3)

In 2019, initial discussions proposed the parking area within Lot 3 in the open meadow area just south of German Mills Settlers Park. However, this option was determined to not be feasible based both on access issues that would rely on either additional impacts to the NHN or public access over the adjacent private golf course lands. Furthermore, there are numerous concerns over impacts to the existing meadow community. With the identification of SAR grassland bird breeding habitat being present directly adjacent to the northern boundary of the Subject Lands, using this area for parking will impact the adjacent habitat. Based on these issues this parking options was considered not appropriate not feasible and was abandoned.

Additional belowground parking associated with the BNC (Lot 1)

While exploring the different parking location options, additional below ground parking was an option assessed. However, the height of the groundwater resulted in the third and potentially second parking level not being viable and being removed from the plan. The current conceptual site plan has identified approximately 49 parking spaces on the west site of Lot 1 in a combination of above and below ground. Based on this the BNC will be required to utilize most if not all its available parking to support the BNC parking requirements.

Parking Around Temple (Lot 2)

The addition of some more surface parking around the temple, in the southwest corner of Lot 2 was explored but given site size and adjacent golf course hazards (which require

appropriately screening), there is limited opportunity for no more than 5-10 parking spaces in this location.

Valleyland Parking (Lot 2)

The valleyland parking is the proposed green parking area as shown on **Figure 8** (**Appendix A**), within the regulated valleyland. The previous conceptual site plan illustrated approximately 50 parking spaces could be located in this area. The concept has been revised to eliminate 3 spaces to limit impacts to adjacent features and support minimal changes to the topography.

GEI understands that the TRCA has two main concerns related to the proposed location that can be summarized as:

- The proposed location establishes a new use and the addition of new impervious surfaces and human activity within the valley system, which could lead to additional impacts; and,
- From an ecological perspective, the proposed location would benefit from conversion into natural cover and the location of these lands are within an erosion hazard. Additionally, there is a concern that the proposed use are likely impairing natural wildlife movements along the main valley corridor.

TRCA Living City Policy 8.4.5 permits development and alteration in regulated areas where it can be demonstrated through appropriate technical reports, assessments, plans that the 14 criteria are or can be met. This EIS has demonstrated that those 14 criteria are met through the proposed design of the parking area. This EIS and the Geotechnical Report and Slope Stability Assessment by Terraprobe confirms that the parking area is not proposed within an erosion hazard.

Furthermore, the proposed parking area will function in a similar manner to other parking areas in valleylands that support recreational uses (ie, trails and conversation areas). Minor recreation uses may be permitted within a natural system, described in the LCP as *"recreational facilities that "require very little modification of terrain or vegetation and few if any, buildings, structures and limited parking".* The proposed parking area will require very little modification to the terrain or existing vegetation and proposes a portion of the parking required for the temple.

To avoid increasing the impervious pavement within the valleyland, previous pavement will be used to maintain the existing hydraulic regime, this will also avoid the need for excessive salt use during the winter. Anticipated impacts have been assessed through the submission of this EIS. Additionally, as this area is proposed to function as both a parking area and a welcome centre, it is an ideal location for educational signage on the valley and how visitors can assist in protecting it (i.e., invasive species identification, pedestrian management, pet control in natural spaces etc.).

The second concern largely involves the ecology of the valleyland, and the benefits of converting the existing uses to natural cover. The removal of the existing gap in tree cover

(i.e., existing residence and mowed lawn) currently functions as bat foraging habitat. Should this area be reforested, it would no longer function as foraging habitat based on the loss of the gap in the woodland. Instead, the proposed parking area would maintain the existing gap, and it would be further enhanced through targeted plantings to encourage increased insects and foraging opportunities.

Leslie Street Parking Expansion

As the conceptual redesign of Leslie Street came together to solve the existing emergence access issue, the potential of parking along Leslie Street was explored. However, Leslie Street is a public right-of-way and cannot be relied upon to satisfy the parking requirements for the proposed development. Nonetheless, formalizing the on street parking with marked spaces is recommended to solve the current issue of hazard parking to utilize the trails in the valley. It is anticipated that between 10 – 20 on street parking spaces could be supplied (BA Group 2024), this is discussed further within **Section 6.5**).

6.3.2 Final Parking Design

As stated above, the proposed parking area (**Figure 8**, **Appendix A**) is the only reasonable solution for providing the parking needed to support the proposed temple. Additionally, one of the larger issues involves the addition of new impervious surfaces and human activity within the valley, this will be mitigated in a number of ways including the following:

- Low Impact Green Parking Area Design: Pervious pavement is proposed to address the issue of increased impervious surface. LID or other bioretention practices will be explored to ensure no erosion or pooling occurs and promotes infiltration. These practices have been implemented to reduce the volume and improve the quality of runoff discharged to German Mills Creek. The proposed parking area will transform an existing mowed area into sustainable parking area that is purposefully designed to increase biodiversity through the management of existing invasives/non-natives and the planting of targeted native trees, shrubs and ground cover.
- Maintenance of Open Foraging Habitat: As was previously discussed within **Section 3.2.2.3**, the open area associated with the existing residence is considered an open space habitat, as it had a very high presence of foraging bats picked up during the targeted survey efforts. Therefore, two targeted buffer enhancement types will be targeted,
    - Bat Foraging Habitat (e.g., tree, shrub and herbaceous species targeting aerial insectivores) and Pollinator Habitat (e.g., flowering nectaring and host species).
    - Educational Signage: As the proposed parking area location will also house the visitors centre (the existing residence) and be used as a linkage point connecting the trails to the Temple over the crest of slope, there is an opportunity to include some educational signage. This signage will provide insight into the green parking area and the habitat creation that has occurred, into the broader valleyland and the key habitats it contains and how all visitors to the German Mills Creek valley can help protect these areas both when they're visiting and enjoying the space as well as when they're home in the surrounding neighbourhoods.

GEI as well as the Bahá'ís of Canada, understand the TRCA's position that returning this portion of the valleyland to natural cover is preferred to increase the natural cover and overall ecological benefit to the valleyland system. However, when considering the area is currently characterized by anthropogenic uses in combination with the various mitigation efforts outlined and additional valleyland restoration and enhancements planned within Lot 4 (refer to **Section 8**), an overall net benefit to the valleyland is considered to be demonstrated.

6.4 Proposed Trail

The Master Plan illustrates a conceptual trail within the Subject Lands as part of the overall proposal. This trail will connect the proposed parking area and associated Welcome/Visitor Centre to the proposed Temple. The trail has been conceptually located with the objective of providing an immerse experience in a Canadian landscape to visitors as part of their visit to the Temple and spiritual reflection.

The accessible trail is proposed through a portion of significant woodland, cultural woodland and other associated cultural communities. The most western extent of this trail is where an existing informal trail system is already present. The proposed trail alignment was discussed with the TRCA to inform its placement to the areas deemed the most appropriate and with minimal impacts to the NHN. The trail alignment will still need to be confirmed, to limit the extent of required tree removals, though most vegetation removals will be focused on Black Locust, Manitoba Maple and Common Buckthorn as well as other invasive species.

Additional efforts will be required to support the final alignment of the trail (i.e., slope stability, drainage, vegetation inventory, habitat inventory etc.). The most southern two encroachment areas are along the edge of the community and are largely degraded, however, these portions of the trail will have minor impacts on the significant woodland. The overall impacts and associated trees that are anticipated to be impacted by the proposed trail will be assessed in the future during the SPA stage, however the overall predicted encroachments into the NHN and associated VPZs has been assessed as part of this Scoped EIS.

6.5 Safe Access: Leslie Street Modifications

Given that Leslie Street is partially under water during a Regional Storm event, the Subject Lands as well as existing uses along Leslie Street do not have a safe access route in accordance with current provincial policy requirements. The flooding over Leslie Street creates an unsafe ingress/egress condition during Regional Storm events, though these conditions would be infrequent, the floodplain still impedes safe access.

As such, options to provide a secondary emergency access route have been considered to support the proposed development and the existing residences and buildings along Leslie Street. For the initial submission, an emergency access route was proposed through the unopened portion of the ROW of Leslie Street connecting north to John Street; however, due to the public response to the northern access route, alternatives were explored.

To provide safe access during regional flood events, the portion of Leslie Street below the regional floodline is proposed to be raised 0.30 m above the regional floodline of 152.25 m, to a minimum elevation of 152.55 m (SCS 2024). As part of this reconstruction works, Leslie Street will also proposed to be redesigned to include on street layby parking and a multi-use path linking the Lake-to-Lake trail to Steeles Ave, along with landscape and streetscape enhancements. During SPA stage of the project, a more detailed road design and an updated floodplain model will be prepared in support of the new Leslie Street alignment. The preliminary Leslie Street solution concept to solve the issue of emergency access road is shown on Figure 7.2 of the FSR by SCS 2024. As previously stated, the conceptual Leslie Street redesign will be explored further at the SPA stage.

7. Impact Assessment, Avoidance and Mitigation Measures

This section assesses the impacts, predicted effects, mitigation and enhancement measures associated with proposed development of the Subject Lands. Where direct impacts associated with development are proposed to occur outside of the proposed development footprint, an assessment of further impacts and associated mitigation measures will be required. Potential effects to the natural heritage features and environmental functions that exist on and adjacent to the Subject Lands are evaluated over the short and long term, with consideration given to measures to avoid and/or mitigate negative impacts, where appropriate. Areas to be maintained, and where possible, improved or restored, to promote the health, diversity, and size of natural heritage features on and adjacent to the Subject Lands, are also identified.

This section presents and discusses the natural heritage features and associated functions that occur on and/or adjacent to the Subject Lands. The following reports were reviewed to inform this impact assessment:

- Tree Inventory Report (Schollen & Company 2024b);
- Functional Servicing and Stormwater Management Report (SCS 2024);
- Slope Stability Analysis and Geotechnical Investigations Report (Terraprobe 2024); and,
- Landscape Restoration and Enhancement Strategy (Schollen & Company 2024a).

The range of potential impacts from proposed development can generally be divided into three categories:

1. Direct impacts are normally associated with the physical removal or alteration of natural features that could occur based upon a land use application;
2. Indirect impacts may be changes or impacts (these could be minor or major) to less visible functions or pathways that could cause negative impacts to natural heritage features over time; and
3. Induced impacts are associated with post-development impacts that may result in increased demand on natural resources.

Table 8 (**Appendix B**) summarizes impacts associated with site alteration and construction proposed by the site plan, as displayed on **Figure 8 and 10** (**Appendix A**). **Table 8** (**Appendix B**) also provides a summary of the natural heritage features and their associated function, as well as their significance and sensitivity within the landscape. Impactors are identified along with potential effects without any form of mitigation. Impact avoidance, mitigation and/or restoration measures are identified along with predicted effects. Recommended monitoring strategies are provided to assess the effectiveness of mitigation measures.

From the initial first submission, the proposed development has been revised to make all efforts to minimize the impacts associated with the proposed development. **Table 6** below outlines the overall reduction in impacts.

Table 6: Summary of Development Impact Reduction

Community	Original Area of Impact (ha)	Newly Proposed Area of Impact (ha)
CUW1 Removal	0.757	0.52
Significant Woodland Encroachment	0.05	0.03
Significant Woodland VPZ Encroachment	0.11	0.04
Significant Valleyland Encroachments	0.23	0.22
LTSTOS VPZ Encroachment	0.08	0.03
Total Area of Impact	**1.23**	**0.84**
Net Area of Impact	**~1.10**	**~0.80**

This reduction accounts for about 0.4 ha of impacts removed from the overall footprint of the proposed Temple and green parking area. It should be noted that there is a Maintenance and/or Site Management Area (**Figure 9b**, **Appendix A**), between the temple and the LTSTOS that includes approximately 0.12 ha of invasive species management and soft landscaping (refer to **Section 6.2.1**) that will occur within portion of the identified LTSTOS and Significant Woodland dripline VPZ. However, as this area intends to be planted with native species and incorporated into the natural woodland edge, it is not included within the overall impacts calculated above. The updated potential direct and indirect effects of the proposed development, and a summary of general recommended mitigation and restoration strategies are provided in more detail below. While the development limit shown on **Figure 8** and **Figure 10** (**Appendix A**). The conceptual trail alignments will be finalized at the SPA stage but their potential impacts have been considered as part of this impacts through this EIS.

7.1 Direct Effects

This section assesses the impacts associated with the proposed development on the Subject Lands. Potential effects to the natural heritage features and environmental functions that exist on, and adjacent to, the Subject Lands are evaluated over the short and long term.

7.1.1 Significant Woodlands

Three significant woodland vegetation communities were identified within the Subject Lands: FOD5-1, FOM2-2 and FOM3-2, for a total of 2.93 hectares. Direct removal of 0.03 ha of significant woodland (FOD5-1) is proposed to accommodate a portion of the reimagined

pathway system up Leslie Street along the way to the Temple. The proposed pathway adjacent to the existing driveway was assessed to determine the proposed impacts of the encroachments into significant woodland, which has been included within the 0.03 ha. In addition to this, the proposed development also proposes 0.08 ha of encroachment into the significant woodland VPZ to support a vehicular turn around at the temple. The identified encroachments account for approximately 1% of the significant woodland. A new woodlands edge is proposed because of the removal of the CUW1 community and further described in the LRES by Schollen and Company. No SAR habitat or provincially rare species were documented within the forest community being directly impacted. Impacts associated with SWH are discussed below within **Section 7.1.4**.

Regarding the placement of the trail, the proposed alignment was preliminary discussed with the TRCA to inform placement in areas deemed the most appropriate and with minimal impacts to the NHN, technical discussion with the TRCA will continue into the SPA stage to finalize the trail alignments. The trail alignment impacts are explored through the predicted encroachments into the NHN and associated VPZs to get an understanding of the expected impacts. Additional efforts will be required to support the final alignment of the trail (i.e., slope stability, drainage, vegetation inventory, habitat inventory etc.), however, these efforts and their associated impacts will be future assessed at the SPA stage.

7.1.1.1 Mitigation Options Considered

A review of the mitigation hierarchy was completed to determine whether other reasonable alternatives existed, specially including opportunities for:

1. Avoidance – prevent harmful impacts from occurring
2. Mitigation – reduce harmful impacts via mitigation
3. Offsetting – counterbalance harmful impacts via offsetting

A constraint for the mitigation hierarchy was the setbacks required from the adjacent property (golf course) and the required footprint associated with the Temple. Given the size of the Temple, location of adjacent uses, and the intent to interact and engage with the native landscape, the footprint for the development was minimized through the establishment of a 6 m grading buffer around the temple, and the development limit shift west to ensure construction would be outside of the NHN (**Figure 8**, **Appendix A**).

Development scenarios were considered where the significant woodlands were retained in place and provided a 10m VPZ to avoid adverse impacts associated with the proposed development. This scenario was not a viable option when taking the existing conditions into account. First, the portion of the significant woodland proposed for the trail are highly degraded edges of the existing woodland community. Thus, a small portion of the feature edge removed would not have a substantial ecological impact. The trail was placed in the location based on the available space for both cars and pedestrians up the dead end of Leslie Street. Moreover, the required parking would not be achieved within a smaller development footprint. Therefore, the proposed development has taken the significant woodlands and all

avoidance measures into account. Compensation is proposed where avoidance was not an option.

The edges of the existing significant woodlands boarding the CUW1 community have started to become degraded with the invasion of five Category 1 invasive species (Garlic Mustard, European Swallowort, Dame's Rocket, European Buckthorn, Manitoba Maple) at varying abundances from their current presence in the CUW1. The province has best management practices established for the eradication and control of these species. Disturbance of these communities is likely given their location surrounded by anthropogenic features (e.g., residential, golf course, parking lots, driveways). Additionally, retained woodlands, associated VPZs and boarding trails will be vegetated with native plant materials to protect, enhance, and increase overall habitat availability within the NHN. Opportunities to incorporate thorny plant material will also be considered within the VPZs to discourage human interactions with the NHN outside of the trail system and designated garden areas. The long-term invasive management of the system is considered another overall benefit.

Significant woodland VPZs were also considered in relation to the proposed parking area. The purpose of VPZs is to protect existing natural features; however, it is difficult to apply a functional buffer to a small exclusion outside of the identified woodlands and Greenway System that currently supports a residence and mowed lawn. A variable buffer is proposed around the proposed green parking area, adding 0.14 ha of enhanced native habitat where under existing conditions it is non-native lawn (**Figure 8**, **Appendix A**). With the buffer enhancements proposed, the area will see a benefit from the variable buffers provided.

As the parking area is located within the valley, the valleyland encroachment area (**Section 7.1.2**) will be used to assess the overall impacts.

7.1.1.2 Final Mitigation

Factoring in all encroachments to the significant woodlands (0.03 ha), compensation is proposed at a 5:1 ratio to property account for the ecosystem complexity. The encroachments into the significant woodland VPZs (0.08 ha) will be compensated for at a 1:1. Totaling 0.11 ha of direct encroachments requiring 0.23 ha of compensation efforts associated with significant woodlands.

Two key enhancement and invasive management areas have been established in association with the overall protection of the NHN (**Figure 8** and **9b**, **Appendix A)**:

- Degraded Feature Management Area: An area with a more minimal management approach, targeting the control of invasive species, the potential ground cover removal as required and the establishment of robust native plantings.
- Selective Natural Heritage Management Area: An area identified 5 m into the NHN (i.e., significant woodlands) to manage for invasive species that have begun to invade the natural communities. Invasive removals will take a gentle approach, with only minor seeding included in areas with dense invasive presence.

The trail alignment was selected as a single pass route through to reduce the amount of switch-backs and interactions within the woodlands. This alignment was discussed with the TRCA to avoid high constraint areas to lessen any impacts due to the proposed trail alignment. The trail will connect the temple to the parking area, while allowing its visitors to interact with the existing NHN.

An intensive restoration approach has been prepared by Schollen & Company as detailed in the LRES and summarized below in **Section 8**. Through the reforestation efforts proposed within the Subject Lands and Study Area, a net benefit to the overall system is expected as it will work to (1) increase native diversity, (2) create additional habitat functions and benefits (e.g., habitat for Eastern Wood-Pewee) and (3) increase overall forested cover by providing an increased compensation ratio (5:1).

Additionally, the following mitigation measures are proposed:

- All tree/native vegetation removals should occur outside of the active bat window (April 1 to September 30) and the migratory bird window (April 1 to August 25);
- Erosion and sediment control (ESC) measures should be installed around nearby/receiving hydrologic features to reduce sedimentation inputs;
- To slow the spread of invasive species (such as Emerald Ash Borer), all trees (not just Ash) should be disposed of locally to reduce transportation to other local municipalities;
- Where feasible, pre-stressing trees along the proposed new edge over a pre-construction period should be considered as this will allow the trees to experience less shock;
- Where trees are proposed for removal, appropriate arboricultural best management practices should be taken to prevent damage to trunks and root systems of nearby retained trees; and
- Trees removed from the woodland will be felled away from the retained woodland. Tree protection measures (e.g., hoarding, fencing) should be installed to avoid effects on the residual woodland trees during construction. Tree protection measures are further presented within Schollen & Company's Tree Inventory and Assessment Report (2022b).

Section 2.1.5 of the PPS (MMAH 2020) states, development and site alteration shall not be permitted within significant woodlands, unless it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions. No negative impacts are predicted because of the proposed development so long as the mitigative and restorative measures are enacted and maintained including the 0.23 ha of reforestation to compensate for the 0.11 ha of proposed removals. Additionally, a net gain through the restoration and enhancement areas is expected for the broader valleyland.

7.1.2 Other Woodlands

As previously discussed, the CUW1 vegetation community within the Subject Lands is not considered a significant woodland. The direct removal of 0.52 ha (requiring 2.60 ha of woodland compensation per **Section 3.2.1.4**) of the CUW1 is considered in the compensation plan (LRES, Schollen & Company 2024).

7.1.2.1 Mitigation Options Considered

Within the initial submission, the entirety if the CUW1 community was proposed for removal, however, as the final development limit was considered in further detail only 0.52 ha was considered necessary for removal. Additionally, during the initial submission of this EIS, the CUW1 was proposed to be compensated at a 1:1 ratio and taking in individual tree removal compensation guidance (with border additional enhancements to the valleyland) based on the invasive species presences and the risk posed to the natural woodlands within the Subject Lands.

This approach has been modified, as stated in **Section 3.2.1,** to include basal area surveys as required by the Guideline for Ecosystem Compensation (TRCA 2018) to accurately account for the complexity (or lag time) of a community proposed for removal. Based on the basal area results, a 5:1 compensation ratio is required to compensate for the removal of the CUW1 community. The 0.52 ha of CUW1 proposed for removal requires 2.60 ha of ecosystem structure compensation habitat based on the TRCA Compensation Guidelines (2018).

7.1.2.2 Proposed Mitigation

Within Section 2.2.49, the YROP outlines that if Policy 2.2.48 is applicable *"development and site alteration may be permitted within all or part of the woodland if the development or site alteration does not affect the ability of the retained portion of the woodland to remain significant in accordance with the criteria in policy 2.2.45 of this Plan."* As the removal of this CUW1 community will not impact the significance of the rest of the NHN and will provide protection from the existing invasive presence along with native species enhancements, a net benefit to the overall NHN is expected given the proposed removal of invasive species and the addition of high-quality compensation habitat replacing the existing community and elsewhere along the NHN. Therefore, no negative impacts are predicted because of the proposed site plan so long as the mitigative and restorative measures are enacted and maintained including the 2.60 ha of reforestation to compensate for the 0.52 ha of proposed removals. Additionally, a net gain through the restoration and enhancement areas is expected for the broader valleyland.

The remaining 0.24 ha of the CUW1 not proposed for removal is identified as either Maintenance and/or Site Alternation Area or Degraded Feature Management Area, these are described in further detail below:

- Maintenance and/or Site Alternation Area: Area east of the proposed temple that will receive more robust invasive management efforts, alteration associated with soft

landscaping. This area will maintain the presence of all suitable healthy trees to maintain tree cover before the soft native landscaping efforts commence. As much of this area is characterized by invasive species, it is expected that all ground cover will be required to be removed, and the area will be managed through soft landscaping around the temple.

- Degraded Feature Management Area: As stated above, a more minimal management area with targeted invasive species management, ground cover removal as required and the establishment of robust native plantings.

The more general mitigation measures, as discussed within **Section 7.1.1,** apply for the removal of the CUW1 vegetation community to ensure no adverse effects will occur to the adjacent retained woodlands.

7.1.3 Significant Valleylands

Minor alteration within the valleyland is proposed to accommodate the green parking area as described in **Section 6.3** (0.17 ha) and proposed recreational trail (0.05 ha), accounting for a total of 0.22 ha of valleyland encroachment within an area of existing encroachment by the residential home. The trail alignment will still need to be confirmed, to limit the extent of required tree removals, though most vegetation removals will be focused on Black Locust, Manitoba Maple and Common Buckthorn as well as other invasive species. Additional efforts will be required to support the final alignment of the trail (i.e., slope stability, drainage, vegetation inventory, habitat inventory etc.), this will be assessed at the SPA stage. The form and function of the valleyland will not be impacted because of the proposed alterations given the existing alteration within the Subject Lands already within the valleylands.

7.1.3.1 Mitigation Options Considered

As discussed in **Section 1.3.4**, **4.9**, and **6.3**, the proposed green parking area will provide necessary parking for the Temple. Given that these areas are already disturbed because of the current land use (residential), this area was selected as the opportune location to provide needed parking. Alternative parking locations were considered, refer to **Section 6.3.1**, however this location was determined to be the most appropriate and feasible location. The design and alignment of the parking area will respect the surveyed dripline of the significant woodlands and is located within an existing residential area. Access is already provided from Leslie Street. Design considerations have limited the necessary grading within the valleyland. Green and sustainable infrastructure opportunities (e.g., permeable pavement) will be prescribed through the detailed design at the SPA stage.

In addition to the explanations provided above, this open residential area within the valleyland also acts as foraging habitat for bats, with the open community showing the highest level of bat activity (**Table 5**, **Appendix B**). Therefore, this location being left as an open (non-treed community) maintains its current ecological function that would be lost if it was targeted for reforestation efforts.

Finally, the Temple will also encroach approximately 0.04 ha within the 10 m VPZ of the LTSTOS to support of the temple drop off and turn around. Approximately 0.06 ha of the

LTSTOS setback is proposed as part of the Maintenance and/or Site Alteration area, which will include invasive species management along with soft landscaping efforts, and compensation is captured in the overall benefit and enhancement proposed despite it not being considered an impact for the purposed of this submission. Much of the encroachment area will be replanted with natural gardens to provide a transition from the temple to the existing significant woodland. These gardens will be planted with native plant material and will have educational signage to introduce the visitors to the planted communities. Additional discussion on the restoration strategy is provided within **Section 8**.

7.1.3.2 Final Mitigation

Factoring in all encroachments into the valleyland to accommodate the green parking area (0.17 ha) and proposed trail (0.05 ha), accounts for a total of 0.22 ha of valleyland encroachment and requires 0.22 ha of compensation and enhancement efforts. To compensate for these encroachments, a total of 0.83 ha (8330 m^2) of direct valleyland restoration and enhancements are proposed through the LRES. This will be completed through 110 m^2 of rehabilitation of a portion of the German Mills Creek corridor, as well as removing 0.82 ha (8220 m^2) of hard and/or impervious surfacing from the valley corridor and a portion of the floodplain (refer to **Section 8**).

In addition, to avoid adverse effects during construction, ESC measures will be in place along the outer limits of the buffers to protect features from increased erosion and soil mobility. Prior to any construction, a detailed ESC Plan will be developed following the TRCA's Erosion and Sediment Control Guide for Urban Construction (2019a). ESC measures should be regularly inspected and maintained in good working order throughout the construction period. ESC measures should be removed upon completion of construction after exposed soils have been stabilized with a native seed mix. In addition to this Terraprobe recommended that site grading and drainage should be designed to prevent direct concentrated or channelized surface runoff from flowing directly over the slope, particularly regarding any drainage from the proposed development. As much healthy and native vegetative cover should be maintained on the slope as possible or restored with native vegetation should disturbance be necessary. Lastly, fill materials should not be placed on the slope or within about 5 m of the slope crest during construction activities.

The existing site is currently draining via overland flow towards the woodland and German Mills Creek to the east, with no existing storm sewers servicing the site (SCS 2024). The private storm sewer system for the proposed development will be designed to capture the 100 year return storm per the City of Markham Design Standards and released via control structures to match the pre-development levels (SCS 2024). The original intent was for the stormwater to outlet into German Mills Valleyland via an existing pipe from Waterloo Court; however, preliminary analysis by SCS suggests that this infrastructure may not be adequately sized to accommodate the future stormwater needs. It may be possible that a new outlet will be required; therefore, this will be further reviewed at the SPA stage. The ultimate outlet location will be discussed in consultation with the TRCA.

It is understood that this area would be considered regulated under TRCA's Living City Policy and therefore would be subject to an application for permission to undertake development, interference, or alteration in a regulated area. As the Subject Lands are outside of the floodplain and will decrease the impervious area within the floodplain at 7015 Leslie Street, no impacts are anticipated as part of the proposed development.

Provided that the proposed mitigative and restorative measures are enacted and monitored, no negative impacts are expected within the valleyland. An ecological benefit is expected as various areas within the existing valleyland will be revegetated and reincorporated into the existing NHN, further enhancing the overall system, and establishing a more resilient NHN, this is discussed further in **Section 8**.

7.1.4 Significant Wildlife Habitat

Habitat for Special Concern Species (Eastern Wood Pewee) was identified within the FOD5-1 and FOM2-2 vegetation communities. These communities are part of the significant woodland unit and are located within the NHN.

No direct removal of SWH habitat is expected because of the proposed development application associated with the Temple and the proposed trail alignment.

However, ambient noise from construction activities could result in wildlife avoidance of the edges abutting the active work areas during the construction period, however, this would occur on a temporary basis. Wildlife usage in this area has adapted to existing ambient noises from nearby Leslie Street, residential homes, trail users and golf course. Some localized movement of wildlife out of these edge areas may still occur during the construction phase.

All lighting should be directed away from the NHN to avoid impacts to natural processes (e.g., breeding, nesting).

To avoid negative impacts to migratory birds and bats, trees should be removed outside of the active windows (April 1 to September 30). Where tree removals are proposed within this window, a qualified ecologist must complete targeted surveys to determine whether nesting/roosting is occurring within the specific stems prior to the proposed removal.

Following construction activities, increased noise in the vicinity of the NHN may occur; however, those interactions will be less common than those associated with other types of development (e.g., residential). Worshipers and their companion animals may use the trail systems. To avoid negative impacts with the NHN, educational signage will be installed to educate the users about the importance of maintaining and protecting the system and its associated wildlife.

Eastern Wood-Pewee will be considered when designing habitat compensation areas within the NHN. Opportunities to increase habitat diversity, increase native plant materials and provide foraging opportunities will be explored. Eastern Wood-Pewee are generalist species and are typically found within urbanized landscapes. Given the minor amount of removals

adjacent to this habitat type, along with the restoration strategy proposed within the larger NHN, no negative impacts are expected.

7.1.5 Summary of Direct Effects

The proposed development area will require the encroachment, alteration, and/or removal of a combined 1.23 ha, including the following natural heritage features and their associated VPZs:

- Encroachment into significant woodland (FOD5-1; 0.03 ha);
- Removal of other wooded feature (CUW1; 0.52 ha);
- Encroachment into the valleyland (0.22 ha);
- Encroachment into significant woodland VPZ (0.04 ha); and,
- Encroachment into the top of bank VPZ and LTSTOS setback (0.03 ha).

It should be noted that several encroachment areas overlap with one another, thus reducing the net encroachment of 0.76 ha. The encroachment into significant woodlands (0.03 ha) overlaps with the top of bank VPZ encroachments (0.03 ha), additionally the top of bank VPZ encroachments overlap with the significant woodlands VPZ encroachment (0.04 ha). Additionally, the top of bank VPZ encroachments (0.03 ha) and LTSTOS encroachments (0.03 ha) account for the same encroachment area and are assessed together to accurately represent the encroachment proposed. Therefore, the net encroachment is closer to 0.80 ha than 0.83 ha if all encroachment areas are considered separately as shown in **Table 6**.

7.2 Potential Indirect Effects

Indirect effects are those potential effects on the biophysical environment that could potentially result in adverse effects on the Subject Lands and adjacent Lands. This could potentially include erosion from the work area with associated sedimentation in natural features, accidental spills, impacts to migratory birds, and the introduction of exotic and/or invasive plant species. Each of these are discussed in the following sections.

7.2.1 Erosion and Sedimentation

Erosion and sedimentation from the disturbed work area associated with the proposed development could potentially result in adverse effects to the top of slope, the surrounding woodland communities as well as potentially depositing seeds from the extensive invasive presence. Additionally, the proposed restoration efforts associated with the German Mills Creek would impact water quality (e.g., increased turbidity) or sedimentation and associated effects on downstream wetlands and tributaries (e.g., smothering of aquatic vegetation).

A detailed ESC Plan should be developed once the site plan has been finalized. Basic elements of the plan should include consideration of:

- Construction phasing to minimize the amount of time soils are barren and therefore more susceptible to erosion;
- Requirements and timing for rehabilitation of disturbed areas;
- Grading during periods when features are dry, to minimize potential for adverse effects on water quality;
- Erosion prevention measures (e.g., hydroseeding, sodding, erosion control matting, tarping of stockpiles);
- Sedimentation control measures (e.g., silt fences); and
- Inspection and performance monitoring requirements and adaptive management considerations.

The implementation of an effective ESC Plan, incorporating both erosion and sediment controls, coupled with regular inspection and performance monitoring and implementation of any remedial actions necessary to ensure effective performance, are anticipated to be largely effective in preventing the movement of eroded soil particles towards adjacent natural heritage features.

Overall, no adverse effects are anticipated as a result of erosion and sedimentation during construction, provided that an effective ESC Plan, including monitoring and adaptive management, is implemented.

7.2.2 Accidental Spills

Accidental spills of potentially hazardous materials (e.g., fuel and oil from heavy equipment), could cause stress or injury to the surrounding fauna and flora.

In order to mitigate the potential for adverse effects on aquatic habitat due to potential accidental spills during construction, it is recommended that a spill prevention and response plan be prepared to outline the material handling and storage protocols, mitigation measures (e.g., spill kits on-site), monitoring measures and spill response plans (i.e., emergency contact procedures, including the Spills Action Centre, and response measures including containment and clean-up). Implementation of an effective spill prevention and response plan is anticipated to be largely effective in preventing adverse effects on natural heritage features.

7.2.3 Migratory Birds

The federal MBCA (1994) prohibits the killing, capturing, injuring, taking or disturbing of migratory birds (including eggs) or the damaging, destroying, removing or disturbing of nests. During construction, particularly during activities that may result in tree or native vegetation removals, with lack of appropriate mitigation, migratory birds, and eggs and nests of these birds could be harmed inadvertently.

As per the MBCA (1994), it is recommended that any tree removals occur prior to, or after, the migratory breeding bird season (April 1 to August 31). If this window cannot be avoided, nest searches are necessary to determine the presence/absence of nesting birds or breeding

habitat every 72 hours until clearing is complete, or until August 31, whichever comes first. If an active nest is observed, a designated setback will be identified within which no construction activity will be allowed while the nest remains active. The setback distance typically ranges from 5 m to 60 m from the nest, depending on the species and its sensitivity to adjacent activities.

With the implementation of the above-stated mitigation measures, no disturbance to migratory birds and/or their nests are anticipated during the breeding season. This is also true for the adjacent grassland bird SAR habitat north of the Subject Lands within German Mills Settlers Park, which will be enhanced through invasive species control and native seeding efforts.

7.2.4 Introduction of Exotic and Invasive Plant Species

The spread of invasive and non-native plant species along the disturbed areas and along the proposed trails may occur due to the existing presence of nine invasive species. In order to reduce opportunities for the colonization of invasive and non-native species, all equipment should be cleaned prior to transport to site, and areas where disturbance has exposed bare soils should be seeded with a cover crop and native species seed mix.

7.3 Potential Induced Effects

Induced impacts are potential environmental effects associated with the post-development landscape. These effects could potentially include light and noise effects, and disturbance from the public. Each of these are discussed in the following sections.

7.3.1 Light and Noise Effects on Wildlife

Light could be a concern where it is directed towards sensitive natural features, with functions and/or species that may be intolerant of light disturbance. Primary sources for “new light” will be from exterior lighting on the BNC with possible strategically placed lighting in the proposed parking area.

To minimize light being directed into the adjacent ecological features, outdoor lighting should be located and directed away from the retained features. In addition, to minimize potential impacts, direct upward light should be eliminated, spill light should be minimized, and all lighting sources should illuminate only non-reflective surfaces (e.g., as per City of Toronto Green Development Standard Version 4, 2022). Given that the existing surrounding land uses are largely agricultural and commercial, existing wildlife communities are expected to be at least somewhat tolerant of disturbance from artificial lighting.

Noise associated with heavy equipment movement may temporarily disturb wildlife. However, given the heavily urban setting, the existing traffic noise along Steeles Avenue East and adjacent residential land uses, it is expected that local wildlife communities are already fairly tolerant of anthropogenic noise sources. Given the relatively short time period associated with construction and existing disturbances in the area, it is not expected that the additional noise

generated from construction would have a measurable effect on the local distribution of wildlife in residual natural features.

7.3.2 Human Disturbance to Natural Features

The placement of the temple and associated trails will likely increase access to natural features and, in general, could result in a variety of adverse impacts, though these impacts are expected to be minimal in comparison to existing activity and to residential development types. However, some vegetation trampling, the establishment of ad-hoc trails and other recreational uses within natural features are expected and need to be managed appropriately to ensure natural heritage feature sustainability over the long term. Each of these impacts are undesired and/or typically not permitted under municipal by-laws as they can result in adverse effects on key natural heritage features. The Subject Lands will remain in private ownership and access will be controlled and monitored, unlike public open space lands that are more open for undesirable activities that could impact the natural features.

The woodlands within the Subject Lands and within the adjacent lands are already used for ad-hoc trail networks maintained by pedestrian use. Potential approaches that may support the mitigation and management of these impacts include providing educational opportunities to the community on the value of natural features (e.g., religious emphasis, interpretive signage), the installation of garbage bins on adjacent trails and at entry points within the NHN and promoting stewardship within the community. These support tools are intended to promote a stronger sense of stewardship within the community by highlighting the value of the NHS and by providing outlets for community involvement in the protection of key features. Established trail systems, accompanied by signage indicating the presence of sensitive areas, can also promote more effective use of natural areas and have been found to effectively reduce human disturbance impact. Planning considerations (e.g., pedestrian barrier plantings, educational signage), as well as by-law enforcement, may also be used to address human use impacts and promote recreational opportunities.

7.3.3 Window-Bird Collisions

Window-bird collisions have been extensively studied to establish best management practices and mitigation measures. Mitigation strategies include angled windows, marked or tinted windows and reduced window size. In a continent-wide analysis of the impacts of urbanization on bird-window mortalities in North America, Hager et al. (2017) concluded that “the positive relationship between collision mortality and building size was greatest in regions of low urbanization containing locally extensive landscaped grass and few structures. Collision mortality was low to non-existent in regions that were highly urbanized.” The study concluded that applying visual mitigation systems was the most effective method to reduce collisions; it is recommended that appropriate visual mitigation systems be applied to windows within the Subject Lands as set out in the City of Markham Bird-Friendly Design Guideline. Landscaping adjacent buildings was also a well-supported model but was not an important driver of collision mortality.

No support was found for vegetated buffers as an effective means to reduce window-bird collisions as buffers do not address the visual challenges created by anthropogenic structures and cannot be expected to effectively mitigate this impact.

8. Compensation and Restoration Framework

Preservation of all existing natural heritage features within the Subject Lands could not be achieved despite the various revisions made to the proposed conceptual site plan to decrease the proposed impacts to the identified site constraints. As described in **Section 7**, the proposed development area will require the removal, encroachment, or alteration of 0.90 ha or a combined 0.76 ha. **Table 7** includes the total removals and/or encroachments as well as the required compensation for each:

Table 7: Summary of Compensation Requirements

Community	Area of Impact (ha)	Compensation Ratio	Required Compensation (ha)
Woodland Removal and Compensation			
CUW1	0.52	5:1	2.60
Significant Woodland	0.03	5:1	0.15
Woodland Total	**0.55**	**5:1**	**2.75**
Valleyland Encroachment and Compensation			
Significant Valleyland	0.22	1:1	0.22
Valleyland Total	**0.22**	**1:1**	**0.22**
VPZ Encroachments and Compensation			
Significant Woodland VPZ	0.04	1:1	0.04
LTSTOS VPZ	0.03	1:1	0.03
VPZ Total	**0.07**	**1:1**	**0.07**
Total	**0.84**	**N/A**	**3.04**

The next sections discuss the broader watershed restoration aims (**Section 8.1**), the compensation requirements, additional restoration and enhancement measure and discussion of the broader Conceptual Site Plan (**Section 8.2**) and summarize the LRES (**Section 8.3**; Schollen & Company 2024a) summarizing the proposed restoration and enhancement of the existing natural system through the implementation initiatives within both the Subject Lands and the Study Area.

8.1 Existing Conditions and Broader Watershed Restoration Aims

The Subject Lands are within the Don River Watershed, a watershed focused mitigating the impacts observed from the intense urbanization and increase in impervious area that has occurred due to urbanization in the GTA. Some of the restoration objectives outlined with the Don River Watershed Plan (2009), included increasing species diversity within riparian areas (i.e., targeted native lowland species plantings), barrier plantings strategically installed along the edges of the systems and trails to discourage public access to the interior of the NHN,

interpretive signage to heighten public awareness as well as a general improvement to trail access and parking.

The LRES and the associated enhancement efforts have already incorporated many of the general improvements outlined within the Don River Watershed Plan (2009). Additional detail will be provided at the SPA stage.

8.1.1 German Mills Creek Regeneration Plans

German Mills Creek Regeneration Plans (1994): German Mills Creek: The Subwatershed of today and tomorrow. Subwatershed Regeneration Plans.

German Mills Creek has undergone several impacts related to urbanization resulting in a system that has been moved, straightened and confined over about half its length. However, as stated above, this is still considered one of the healthier systems within the Don River Watershed, and therefore a regenerative plan was drafted for the German Mills Creek system, the relevant steps are outlined below:

- Protection:
    - Protect the ability of the land to absorb water and filter it slowly to the river, by applying best management practices.
    - Protect existing water quality and aquatic habitat by implementing BMP's for stormwater management and sediment controls during construction.
    - Protect and enhance the form and function of the valley and stream corridors in developing and already urbanized areas.
- Regeneration:
    - Maintain linkages within the valleylands by providing for passage for people and wild life through new or renewed valley crossings.
    - Improve water quality in the river by retrofitting controls in the stormwater system or at the end of the pipe, including detention tanks, infiltration facilities, dry or wet ponds and wetlands.
    - Restore aquatic habitat by improving instream cover, stream back plantings, and water quality, reducing flood scouring, erosion and sedimentation, and removing instream barriers to recreate a more natural channel form and flow regime.
    - Improve access to the valleylands through more local and regional trails, safe access points, information pamphlets, and safety improvements.
    - Improve linkages within the subwatershed by plantings to provide cover in open areas.
    - Restore a variety of vegetation and habitats in the valleylands by establishing buffer strips along the stream banks, and planting a mixture of native herbaceous plants, shrubs, and trees on slopes and in open areas, especially in manicured parks and golf courses.
    - Reduce the effects of flooding by providing flood detention facilities where possible to attenuate flood peaks.
- Responsibility:

- Help improve upland habitat, particularly next to the valleylands, by planting a variety of native trees and shrubs, and creating small pools or wetlands.
- Encourage other subwatershed residents, businesses, and industries to improve water quality by reducing or eliminating the use of hazardous chemicals, salt, and fertilizers and disposing of them properly.

The LRES and the associated enhancement efforts have already incorporated many of the general improvements outlined within the German Mills Creek regenerative plan, these are outlined in **Section 8.3**, but will be discussed in further detail at the SPA stage.

8.2 Conceptual Restoration and Enhancement Strategy

As summarized in **Table 7**, there are a number of compensation areas proposed. These compensation areas also have different requirements, the restoration types are outlined below:

- Woodland Compensation (5:1):
  - Total Area Required – 2.75 ha
  - Area Proposed – Direct woodland compensation will be completed through a number of the Restoration Areas (refer to **Section 8.3**) identified for woodland restoration efforts. A minimum of 2.75 ha of reforestation will occur over 2.86 ha (28,645 m^2) of identified restoration areas (**Figure 11**, **Appendix A**). Providing a possible additional 0.11 ha of woodland or other beneficial successional habitat.
- Valleyland Compensation (1:1):
  - Total Area Required – 0.22 ha
  - Total Area Proposed – Direct valleyland compensation and enhancements will be completed through two key Restoration Areas (refer to **Section 8.2** and **8.3**) identified for direct valleyland restoration and enhancements. A total of 0.83 ha (8330 m2) of direct valleyland restoration and enhancements are proposed through the LRES. This will be completed through 110 m^2 of rehabilitation of a portion of the German Mills Creek corridor, as well as removing 0.82 ha (8220 m^2) of hard and/or impervious surfacing from the valley corridor and a portion of the floodplain (refer to **Section 8.3**; **Figure 11**, **Appendix A**). This is 0.61 ha more compensation than required, a rate of more than 3.5:1, more than accounting for the additional 0.06 ha of Maintenance and/or Site Alteration area that may be considered an encroachment into the valleyland VPZ.
- Buffer Encroachment Compensation (1:1):
  - Total Area Required – 0.07 ha
  - Total Area Proposed – Direct buffer enhancements will be completed through the 0.46 ha of Degraded Feature Management and Enhancement Area (**Figure 9b**, **Appendix A**). This is 0.34 ha more compensation than required, again at a rate of more than 3.5:1.
- Totaling 3.09 ha of compensation and an additional 1.06 ha of additional restoration and enhancement benefits to the broader system.

Beyond the compensation required, the proposal has taken steps to provide a broader benefit to the NHN within the German Mills Creek valleyland through the following restoration and enhancement measures that largely involve invasive species management and enhancement measures through native plantings:

- Meadow Restoration and Enhancement – 1.59 ha (15,940 m^2)
- Woodland Enhancement – 0.23 ha (2330 m^2)
- Selective Natural Heritage Management Area – 0.35 ha
- Totaling an additional 2.17 ha of additional restoration and enhancement benefits to the broader system.

However, please note that the breakdown in areas provided above showcase different restoration approaches, some of these restoration areas overlap (i.e., Restoration Area 4; reforestation and impervious surface removal). While the restoration approaches and their benefits are accurate and the proposal aims to provide a combined 6.32 ha of overall enhancement efforts to the German Mills Creek valleyland, the total area proposed for restoration efforts is 4.6 ha. Further detail on these areas is summarized in **Section 8.3**.

8.2.1 Conceptual Site Plan

Over the broader valleyland between the Subject Lands and the Study Area, there proposed Conceptual Site Plan (**Figure 9a** and **9b**, **Appendix A**) includes two types of compensation efforts:

- Restoration Areas: These areas are described in further detail within **Section 8.3**)
    - Meadow Restoration Area (LRES Restoration Area 1a)
    - Reforestation Area (LRES Restoration Areas 1b, 4, 6a, 6b and 6c)
    - Invasive Management and Reforestation Area (LRES Restoration Areas 2, 3a)
    - Woodland Enhancement Area (LRES Restoration Area 3b)
    - Stream Stability Restoration Area (LRES Restoration Area 5)
- Enhancement Areas: The enhancement areas are not included within the LRES and are instead areas where invasive management and/or native plantings are proposed while maintaining native tree cover within the existing features. These areas include:
    - Maintenance and/or Site Alternation Area: This 0.11 ha area (**Figure 9b**, **Appendix A**) is not included as an overall benefit enhancement, however, the works proposed here will manage the presence of invasive species and have soft landscaping plans created utilizing native species.
    - Degraded Feature Management and Enhancement Area: The 0.46 ha within the boundary of the CUW1 (**Figure 9b**, **Appendix A**) and associated buffers for a complete invasive species management plan to eradicate the dominate invasive presence within the community. Fairly extensive native tree, shrub and ground cover plantings are proposed in this area and individual tree compensation efforts are anticipated in this area.
    - Selective Natural Heritage Management Area: The 0.35 ha within the 5 m buffer into the significant woodlands for targeted and carefully selective invasive species

removal and management (**Figure 9b**, **Appendix A**). This area will be carefully assessed to determine if minor native seeding may be warranted. Specific discussions with the City and TRCA will occur to ensure best practices are used in these sensitive areas.

Moreover, interpretive signage will be installed at each trail entrance to inform users of the importance of protecting the NHN and its associated functions. The retained woodlands and associated VPZs will be vegetated with native plant materials to protect, enhance, and increase overall habitat availability within the NHN. Opportunities to incorporate thorny plant material will also be considered within the VPZs to discourage human interactions with the NHN outside of the trail system and designated garden areas.

The proposed restoration areas have been identified and designed to enhance the existing NHN associated with the German Mills Creek corridor and expand the woodland cover on the Subject Lands, therefore the existing native habitats and species known to the surrounding landscape have been incorporated into the design. These include the following species found within the background review and targeted survey efforts that are known to utilize wooded habitats:

- Eastern Wood-Pewee;
- Wood Thrush;
- Big Brown Bat; and,
- Silver-haired Bat.

Based on the compensation efforts proposed within the Conceptual Site Plan, no negative impacts are predicted because of the proposed site plan so long as the mitigative and restorative measures are enacted and maintained. This will be further explored at the SPA stage.

8.3 Landscape Restoration and Enhancement Strategy (LRES)

The LRES is generally summarized here, benefiting from the ecological information provided in this EIS, however, for additional detail, refer to the LRES by Schollen & Company (2024a)

The LRES (Schollen 2024) was prepared with the goal of offsetting the potential impacts of the proposed CUW1 removal, development encroachments and associated tree removals outlined in **Section 7**. The target of the LRES is to broadly enhance and extend the existing NHN with a focus on diversity and sustainability of the existing natural system through the implementation initiatives within both the Subject Lands and the Study Area. A net benefit to the overall system is expected as it will work to (1) increase native diversity, (2) create additional habitat functions and benefits (e.g., habitat for Eastern Wood-Pewee) and (3) increase overall forested cover by providing an increased compensation ratio (5:1).

The LRES was designed to achieve the following objectives:

- Increasing the area of native woodland within the German Mills Creek Valley corridor.

- Restoring areas that are prone to erosion along German Mills Creek.
- Enhancing connectivity by infilling voids in the forest communities and linking existing woodlands.
- Converting existing hard surfaces and maintained landscapes to naturalized landscapes that are targeted to become native woodlands.
- Removing/managing non-native/invasive plant communities with the intent of expanding/sustaining native vegetation.
- Enhancing VPZs adjacent to existing forest communities.
- Enhancing species diversity throughout the NSA Bahá'í land holdings.

Restoration Areas Overview:

- Meadow Restoration Area (LRES Restoration Area 1a)
  - 1.59 ha (15,940 m^2)
- Reforestation Area (LRES Restoration Areas 1b, 4, 6a, 6b and 6c)
  - 1.68 ha (16,880 m^2)
- Invasive Management and Reforestation Area (LRES Restoration Areas 2, 3a)
  - 0.73 ha (7,365 m^2)
- Woodland Enhancement Area (LRES Restoration Area 3b)
  - 0.23 ha (2,330 m^2)
- Stream Stability Restoration Area (LRES Restoration Area 5)
  - 0.32 ha (3,260 m^2)

Total of 5.52 ha (55,245 m^2) of combined restoration efforts, including of 4.69 ha (46,915 m^2) of direct vegetation community (i.e., woodland, meadow and riparian restoration).

Along with the restoration objectives, and as discussed within **Section 7**, **8.1** and **8.2**, the compensation required for the proposed tree removals was calculated through the number of removal trees with each DBH's associated ratio (Schollen & Company 2024b). Accordingly, a total of 258 trees are required to compensate for those proposed for removal within the development area on the Subject Lands. In addition, a tree valuation was completed for all proposed tree removals larger than 40 cm DBH, the total value for the proposed removals is $283,500.0. The compensation will be completed within the restoration areas identified for the landscape requirements, along with the proposed restoration initiatives focused on reforestation.

Each Restoration Area shown on **Figure 11** (**Appendix A**) and the associated restoration actions for each are described in further detail within the LRES (Schollen 2024).

8.4 Future Detailed Design Plan

The sections above provide an overview of the restoration strategy for the Subject Lands and broader Study Area. At the SPA stage, the target vegetation community types; outline habitat design elements; and outlines the ecological monitoring plan and triggers for adaptive management will be further outlined.

Additionally, detailed planting plans will be developed along with a corresponding design brief (or similar report) that will provide specific details for each restoration area, including plant species lists, recommended planting standards, proposed plant stock type and sizing, and planting timing considerations. Plantings will be selected to establish a suitable restoration trajectory towards the intended target vegetation communities.

The proposed vegetation communities within each restoration community will reflect the naturally occurring native species groupings identified on the Subject Lands, while providing increased diversity and woodland cover. Plant species will be chosen from across several functional groups (e.g., shrubs, forbs, and graminoids), reproductive strategies (e.g., seed-heavy annuals, perennials and biennials), and moisture requirements (e.g., drought-tolerant and upland). Within each group, several plant species should be selected to provide redundancy and adaptability within the community. This redundancy increases the likelihood that suitable species will colonize the microhabitats within the created habitats, and that restoration areas can adapt to changing environmental conditions over the long term.

8.4.1 Invasive Species Management

The invasive species found within the boundary of the Subject Lands and broader Study Area were discussed in Section 3.2.1, and consist of the following nine species:

- European Swallowort
- Canada Thistle
- Garlic Mustard
- Dame's Rocket
- Autumn Olive
- Purple Crown-vetch
- European Buckthorn
- Manitoba Maple
- Exotic Honeysuckle

No specific invasive management has been described beyond the high-level woody invasive management discussed within **Section 8.3**. This will be expanded on to include best practices and proposed methodology for each restoration and enhancement area as shown on **Figure 9a** (**Appendix A)** as the project moves into detailed design.

8.4.2 Monitoring Plan

The purpose of a monitoring plan and adaptive management strategy is to evaluate the performance of restoration plantings, and provide necessary adjustments through adaptive management, should they be required.

The baseline ecological inventories provide information on the pre-development/pre-restoration biotic elements for the existing conditions and will help to form a local native reference system that the restoration activity strives to achieve.

The monitoring plan will follow the general practices of construction and performance monitoring that will be outlined in more detail at the SPA stage and finalized during the detailed design brief for the proposed restoration and enhancement efforts.

9. Conclusions and Recommendations

The second submission of this EIS addresses the natural heritage features and associated functions found on and adjacent to the Subject Lands and the broader Study Area, and the impacts expected from the confirmation of the development limit shown on **Figure 8** (**Appendix A**) and the broader conceptual site plan for the broader German Mills Creek valleyland is shown on **Figure 9a** (**Appendix A**).

Detailed ecological investigations were conducted within the Subject Lands in 2019 and 2023 to assess the natural heritage features were present within the property and identify the form and function of the features. Presently, the Subject Lands contain a mixture of anthropogenic, cultural and forested vegetation community types. The following natural heritage features were identified within or immediately adjacent to the Subject Lands:

- Other Woodlands (CUW1)
- Significant Woodlands (FOD5-1, FOM2-2, FOM3-2)
- Candidate Significant Woodlands (CUW1-3*, FODM7-7)
- Significant Valleyland (German Mills Creek Valleyland)
- SWH (Habitat for Special Concern Species – Eastern Wood Pewee)
- Regulated Watercourse (German Mills Creek)
- TRCA Regulated Valleyland

Of the listed natural heritage features, the proposed development overlaps with the following:

- Other Woodlands (CUW1; 0.52 ha)
- Significant Woodlands (FOD5-1, FOM2-2; 0.04 ha)
- Significant Valleyland/Regulated Valleyland (0.22 ha)
- VPZ Encroachments (0.07 ha)

While direct removal of portions of the NHN are proposed, no negative impacts are expected as a result of the proposed development provided that the recommended mitigative and restorative measures are implemented monitored as they establish. A total of 4.6 ha (with an combined benefit of 6.32 ha) of restoration and enhancement efforts will provide an overall net benefit to the German Mills Creek valleyland. As only 3.04 ha was required based on the calculated removals and encroachments. This will include a variety of restoration efforts, from a minimum of 2.60 ha of reforestation efforts, maintaining and protecting the existing meadow community connected to German Mills Settlers Park, re-naturalizing portions of the stream corridor and returning valleyland floodplain from tennis courts to a natural community. The compensation will be provided within the adjacent lands to create a more resilient NHN by increasing the native plant diversity, increasing the amount of forested cover and enhancing the ecological functions of the communities.

The implementation of the LRES (Schollen & Company 2024a) will support various biophysical functions of the existing NHN (e.g., improve water quality, increase native plant species diversity, increase habitat availability). A detailed design brief and monitoring plan will be prepared during the SPA stage to accompany the restoration strategy.

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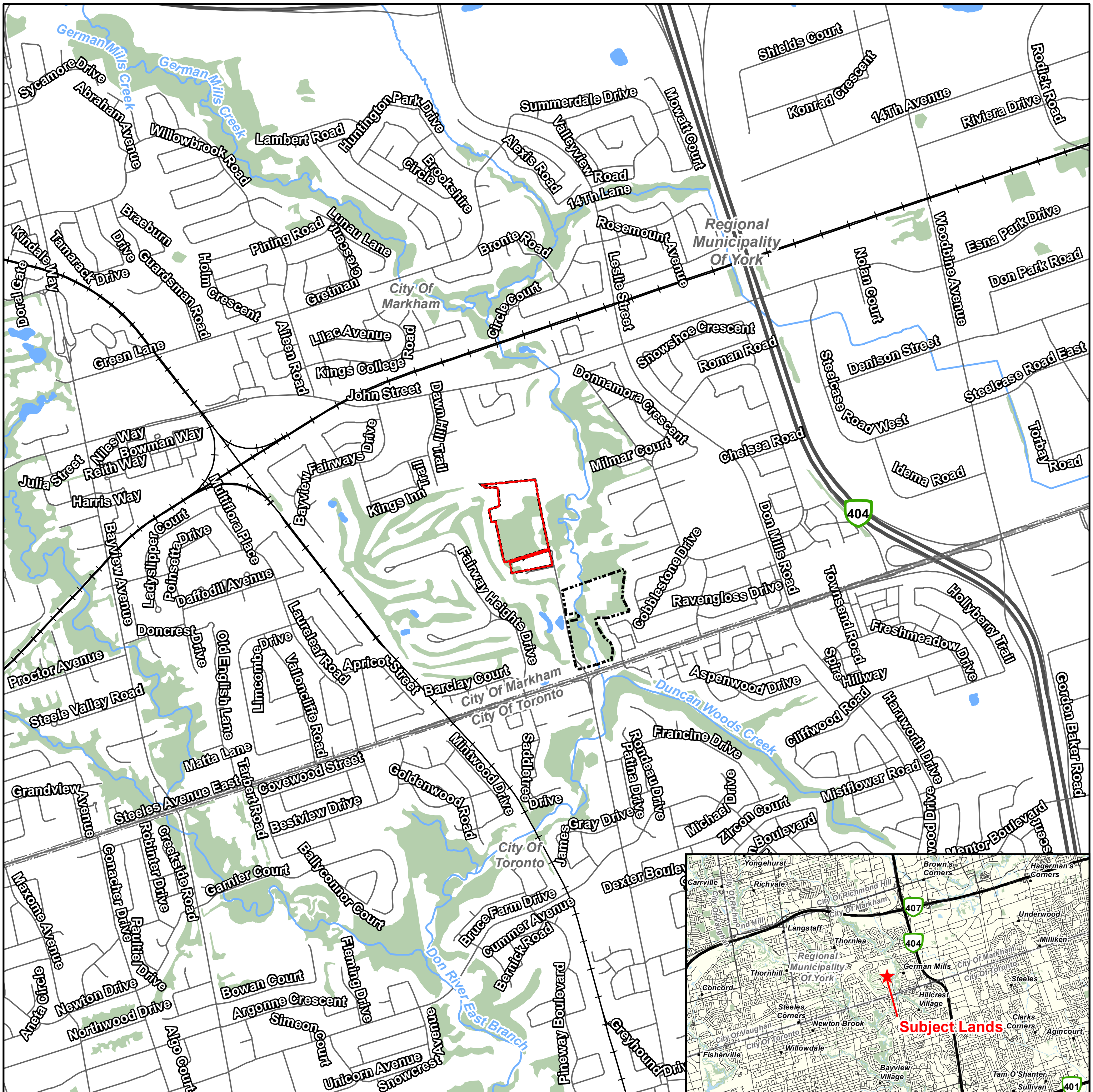
Appendix A

Figures



Project 8061

NOTES:
1. Coordinate System: NAD 1983 UTM Zone 17N.
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Legend

- Subject Lands
- Study Area
- Railway
- Municipal Boundary, Lower/Single Tier
- Municipal Boundary, Upper Tier
- Watercourse
- Waterbody
- Wooded Area

7200 and 7015 Leslie Street
Bahá'í Community of Canada

Figure 1
Location of Subject Lands

0 500 m
1:25,000
N

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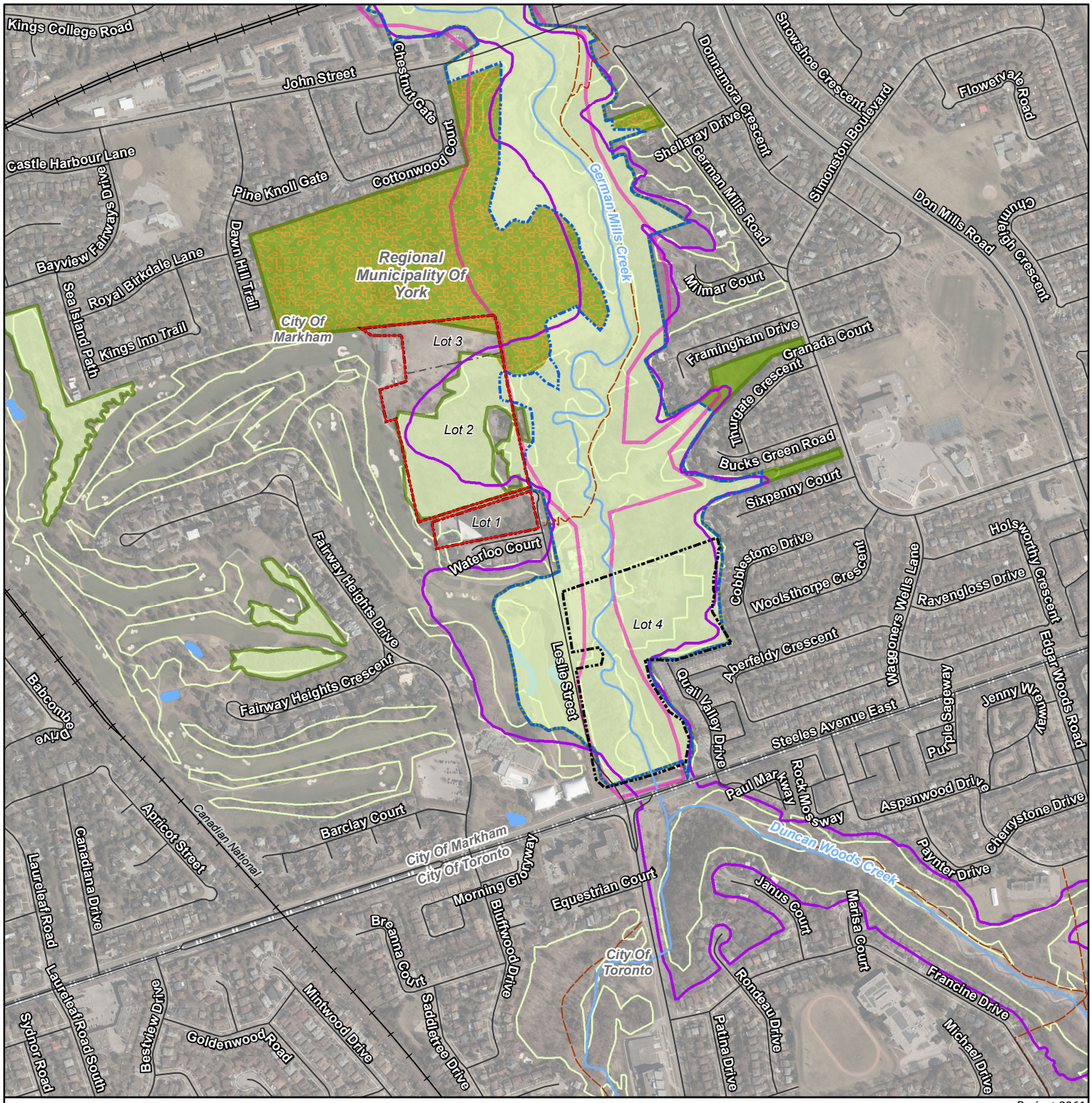

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3. Orthoimagery © First Base Solutions, 2022. Imagery taken in 2021.
4. Markham OP Greenway system boundary subdivided into Natural Heritage Network, Natural Heritage Restoration Areas and Other Greenway System Lands based on digitized boundaries from 'Map 4- Greenway system, June 2014' (approximate).

Legend

- Subject Lands
- Study Area
- Railway
- Road
- Trail Segment (OTN)
- Municipal Boundary, Lower/Single Tier
- Municipal Boundary, Upper Tier
- Watercourse (LIO)
- Waterbody (LIO)
- Wooded Area (LIO)
- TRCA Crest of Slope
- York Region Greenlands System
- Markham OP Greenway System Boundary
- Natural Heritage Network*
- Natural Heritage Restoration Areas
- Other Greenway System Lands
- City of Markham Valleylands (Approximate)

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Bahá'í Community of Canada

Figure 2
Landscape Setting

0 200 m
1:10,000

N

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Legend

- Subject Lands
- Study Area
- Watercourse
- Ecological Land Classification

ELC Legend

ANTH, Anthropogenic
CUM1, Cultural Meadow
CUM1-1, Dry - Moist Old Field Meadow
CUW1, Mixed Cultural Woodland
CUW1-3*, Black Locust Cultural Woodland
FOD5-1, Dry-Fresh Sugar Maple Deciduous Forest
FODM7-7, Fresh-Moist Manitoba Maple Deciduous Forest
FOM, Mixed Forest
FOM2-2, Dry-Fresh White Pine - Sugar Maple Mixed Forest
FOM3-2, Dry-Fresh Sugar Maple - Hemlock Mixed Forest
FOM7, Fresh – Moist White Cedar – Hardwood Mixed Forest
HR, Hedgerow
MAM2, Mineral Meadow Marsh
OA, Open Aquatic
RES, Residential

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Figure 3a
Study Area Ecological Land Classification Summary

0 50 m
1:4,500

N

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Legend

- Subject Lands
- Watercourse
- Ecological Land Classification

ELC Legend

ANTH, Anthropogenic
CUM1-1, Dry - Moist Old Field Meadow
CUW1, Mixed Cultural Woodland
CUW1-3*, Black Locust Cultural Woodland
FOD5-1, Dry-Fresh Sugar Maple Deciduous Forest
FODM7-7, Fresh-Moist Manitoba Maple Deciduous Forest
FOM2-2, Dry-Fresh White Pine - Sugar Maple Mixed Forest
FOM3-2, Dry-Fresh Sugar Maple - Hemlock Mixed Forest
HR, Hedgerow
RES, Residential

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Bahá'í Community of Canada

Figure 3b
Ecological Land Classification for the Subject Lands

0 20 m
1:2,200

N

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Legend

- Subject Lands
- Breeding Bird Survey
- Breeding Bird Survey Territory
- Watercourse
- Ecological Land Classification

Breeding Bird Territory

EWPE Eastern Wood Pewee

ELC Legend

ANTH, Anthropogenic
CUM1-1, Dry - Moist Old Field Meadow
CUW1, Mixed Cultural Woodland
CUW1-3*, Black Locust Cultural Woodland
FOD5-1, Dry-Fresh Sugar Maple Deciduous Forest
FODM7-7, Fresh-Moist Manitoba Maple Deciduous Forest
FOM2-2, Dry-Fresh White Pine - Sugar Maple Mixed Forest
FOM3-2, Dry-Fresh Sugar Maple - Hemlock Mixed Forest
HR, Hedgerow
RES, Residential

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Figure 4
Breeding Bird Surveys

0 20 m
1:2,200

N

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Legend

- Subject Lands
- Watercourse
- Bat Snags
- Bat Accoustic Station
- Ecological Land Classification

ELC Legend

ANTH, Anthropogenic
CUM1-1, Dry - Moist Old Field Meadow
CUW1, Mixed Cultural Woodland
CUW1-3*, Black Locust Cultural Woodland
FOD5-1, Dry-Fresh Sugar Maple Deciduous Forest
FODM7-7, Fresh-Moist Manitoba Maple Deciduous Forest
FOM2-2, Dry-Fresh White Pine - Sugar Maple Mixed Forest
FOM3-2, Dry-Fresh Sugar Maple - Hemlock Mixed Forest
HR, Hedgerow
RES, Residential

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Bahá'í Community of Canada

Figure 5
Bat Survey Locations (Subject Lands)

0 20 m
1:2,200

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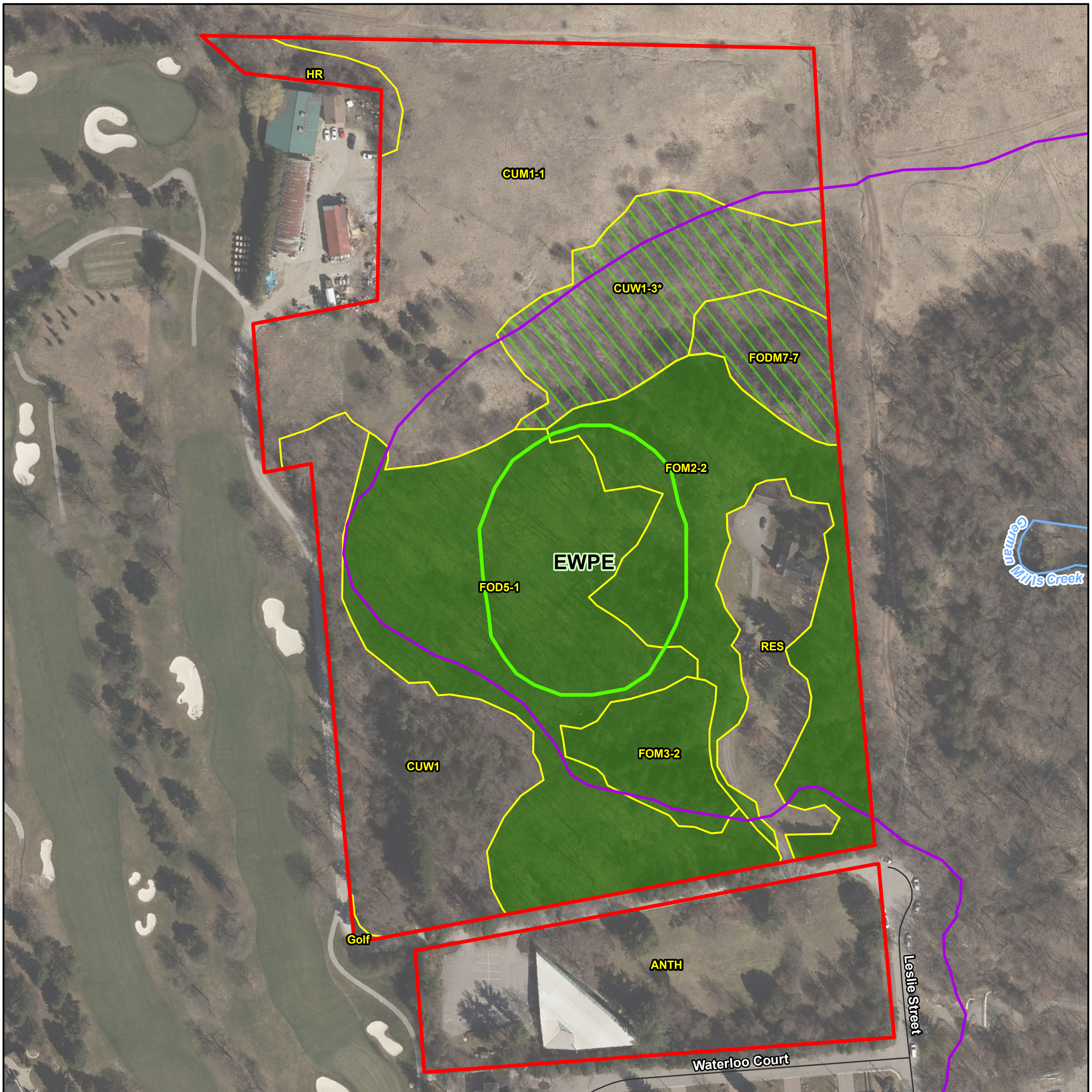

NOTES:
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Legend

- Subject Lands
- Watercourse
- Habitat for Species of Conservation Concern (Eastern Wood-Pewee)
- Candidate Significant Woodland*
- Significant Woodland
- Significant Valleyland
- Ecological Land Classification

* designation is contingent upon the completion of the restoration and enhancement efforts identified in the EIS and LRES (2023)

ELC Legend

ANTH, Anthropogenic
CUM1-1, Dry - Moist Old Field Meadow
CUW1, Mixed Cultural Woodland
CUW1-3*, Black Locust Cultural Woodland
FOD5-1, Dry-Fresh Sugar Maple Deciduous Forest
FODM7-7, Fresh-Moist Manitoba Maple Deciduous Forest
FOM2-2, Dry-Fresh White Pine - Sugar Maple Mixed Forest
FOM3-2, Dry-Fresh Sugar Maple - Hemlock Mixed Forest
HR, Hedgerow
RES, Residential

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Figure 6 Significant Natural Hertiage Features

0 20 m
1:2,200

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4. Site Plan: 1709_Site_Plan.dwg (2023-12-20)

Legend

- Subject Lands
- Final Development Limit — *Total: 0.72 ha; Temple: 0.52 ha; Parking Lot: 0.20 ha*
- Watercourse
- Existing Residential Infrastructure
- Markham OP Greenway System Boundary
- York Region Greenlands System
- Greenway System Amendment (Addition): 2.23 ha
- Greenway System Amendment (Removal): 0.54 ha
- Greenway System Amendment and Management Area: 0.58 ha
- Ecological Land Classification

ELC Legend

ANTH, Anthropogenic
CUM1-1, Dry - Moist Old Field Meadow
CUW1, Mixed Cultural Woodland
CUW1-3*, Black Locust Cultural Woodland
FOD5-1, Dry-Fresh Sugar Maple Deciduous Forest
FODM7-7, Fresh-Moist Manitoba Maple Deciduous Forest
FOM, Mixed Forest
FOM2-2, Dry-Fresh White Pine - Sugar Maple Mixed Forest
FOM3-2, Dry-Fresh Sugar Maple - Hemlock Mixed Forest
HR, Hedgerow
OA, Open Aquatic
RES, Residential

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7200 and 7015 Leslie Street
Bahá'í Community of Canada

Figure 7
Proposed Greenway Amendment Area

0 20 m
1:2,200

N

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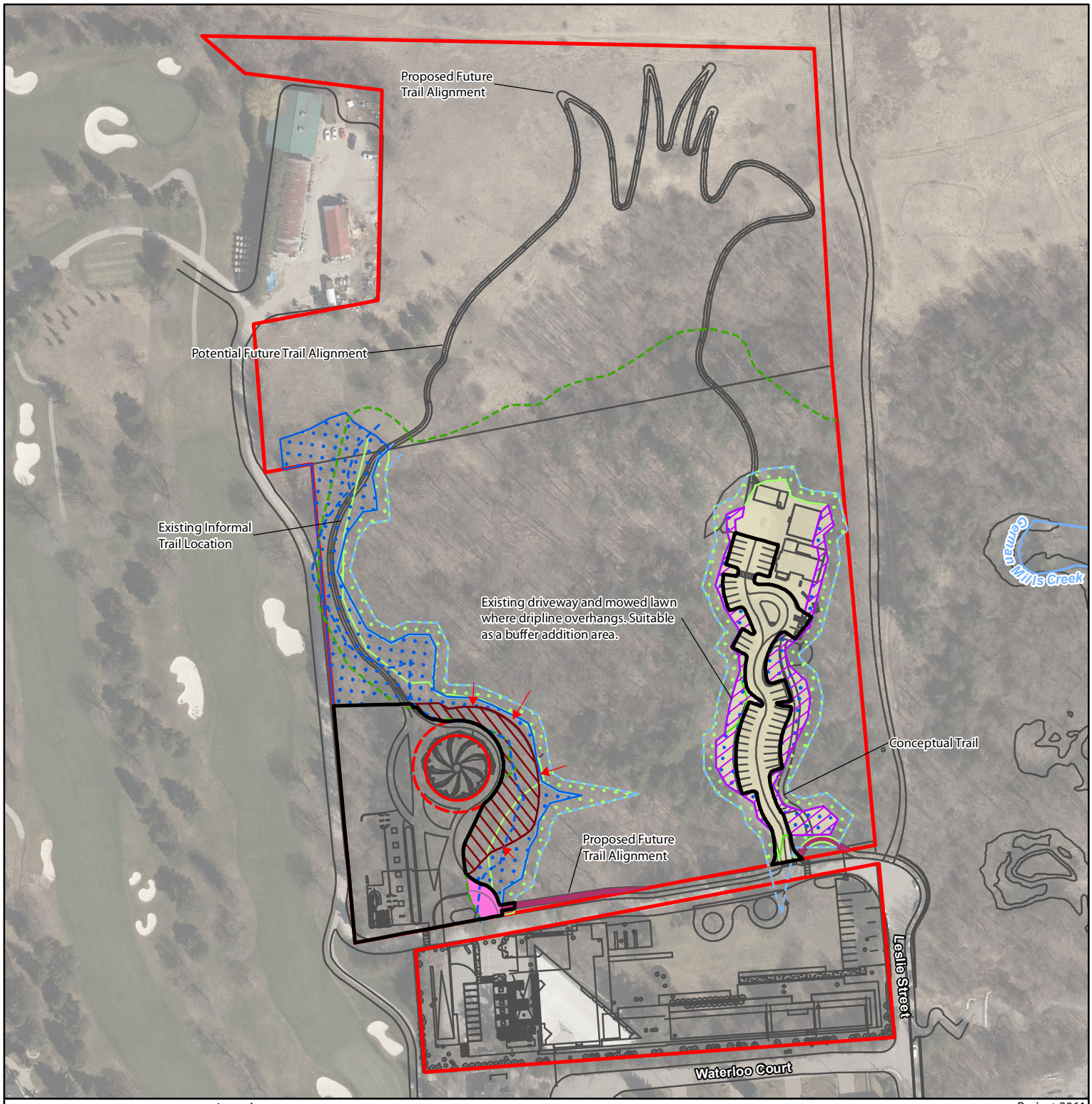

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3. Orthoimagery © First Base Solutions, 2024. Imagery taken in 2022.
4. Site Plan: 1709_Site_Plan.dwg (2023-12-20)

Legend

- Subject Lands
- Final Development Limit: *Total: 0.72 ha; Temple: 0.52 ha; Parking Lot: 0.20 ha*
- Watercourse
- Staked Limit of CUW Community (TRCA, June 16, 2022)
- Staked Dripline of FOM Community (TRCA, June 16, 2022)
- Long Term Stable Top of Slope (Terraprobe, 2022)
- 5 metre Maintenance Buffer into NHN
- Limit of Woodland Community + 10 metres
- Long Term Stable Top of Slope + 10 metres
- Existing Residential Infrastructure
- Approximate temple outline (simplified)
- Approximate temple outline (simplified) buffer (5-6m)

Summary of Encroachments

- Feature Encroachment: 0.02 ha
- Buffer Encroachments: 0.02 ha

Summary of Management and Enhancement Areas

- Buffer Additions: 0.14 ha
- Enhancement: 0.50 ha
- Management: 0.35 ha
- Maintenance: 0.12 ha

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Figure 8
Development Limit

0 20 m
1:2,200

N

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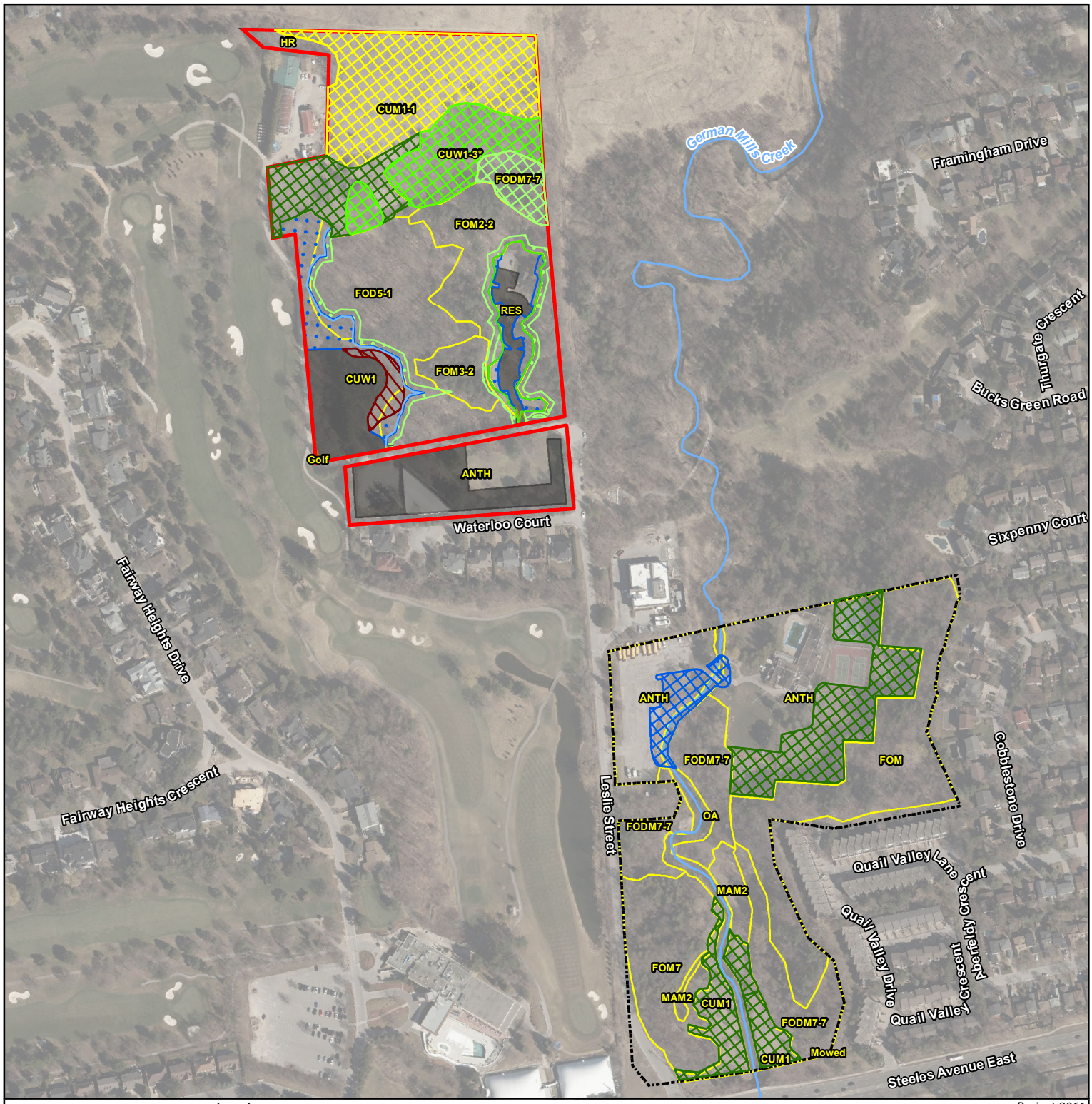

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3. Orthoimagery © First Base Solutions, 2024. Imagery taken in 2022.
4. Site Plan: 1709_Site_Plan.dwg (2023-12-05)

*The areas shown here are approximate, refer to LRES (Schollen 2024)

Legend

- Subject Lands
- Study Area
- Watercourse
- Final Development Limit (*Total: 0.72 ha; Temple: 0.52 ha; Parking Lot: 0.20 ha*)
- Staked Dripline of FOM Community (TRCA, June 16, 2022)
- Long Term Stable Top of Slope (Terraprobe, 2022)

Restoration Area:

- Invasive Management and Reforestation Area: 0.74 ha*
- Meadow Restoration Area: 1.51 ha*
- Reforestation Area: 1.96 ha*
- Stream Stability Restoration Area: 0.25 ha*
- Woodland Enhancement: 0.23 ha*

Enhancement and Management Areas:

- Degraded Feature Management and Enhancement Area: 0.49 ha
- Selective Natural Heritage Management Area: 0.35 ha
- Maintenance and/or Site Alteration Area: 0.12 ha

ELC Legend

ANTH, Anthropogenic
CUM1, Cultural Meadow
CUM1-1, Dry - Moist Old Field Meadow
CUT1-1, Sumac Cultural Thicket
CUW1, Mixed Cultural Woodland
CUW1-3*, Black Locust Cultural Woodland
FOD5-1, Dry-Fresh Sugar Maple Deciduous Forest
FOD7, Fresh – Moist Lowland Deciduous Forest
FODM7-7, Fresh-Moist Manitoba Maple Deciduous Forest
FOM, Mixed Forest
FOM2-2, Dry-Fresh White Pine - Sugar Maple Mixed Forest
FOM3-2, Dry-Fresh Sugar Maple - Hemlock Mixed Forest
FOM7, Fresh – Moist White Cedar – Hardwood Mixed Forest
Golf, Golf
HR, Hedgerow
MAM2, Mineral Meadow Marsh
Mowed, Mowed
OA, Open Aquatic
RES, Residential

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7200 and 7015 Leslie Street
Bahá'í Community of Canada

Figure 9a
Conceptual Site Plan

0 100 m N

1:4,600

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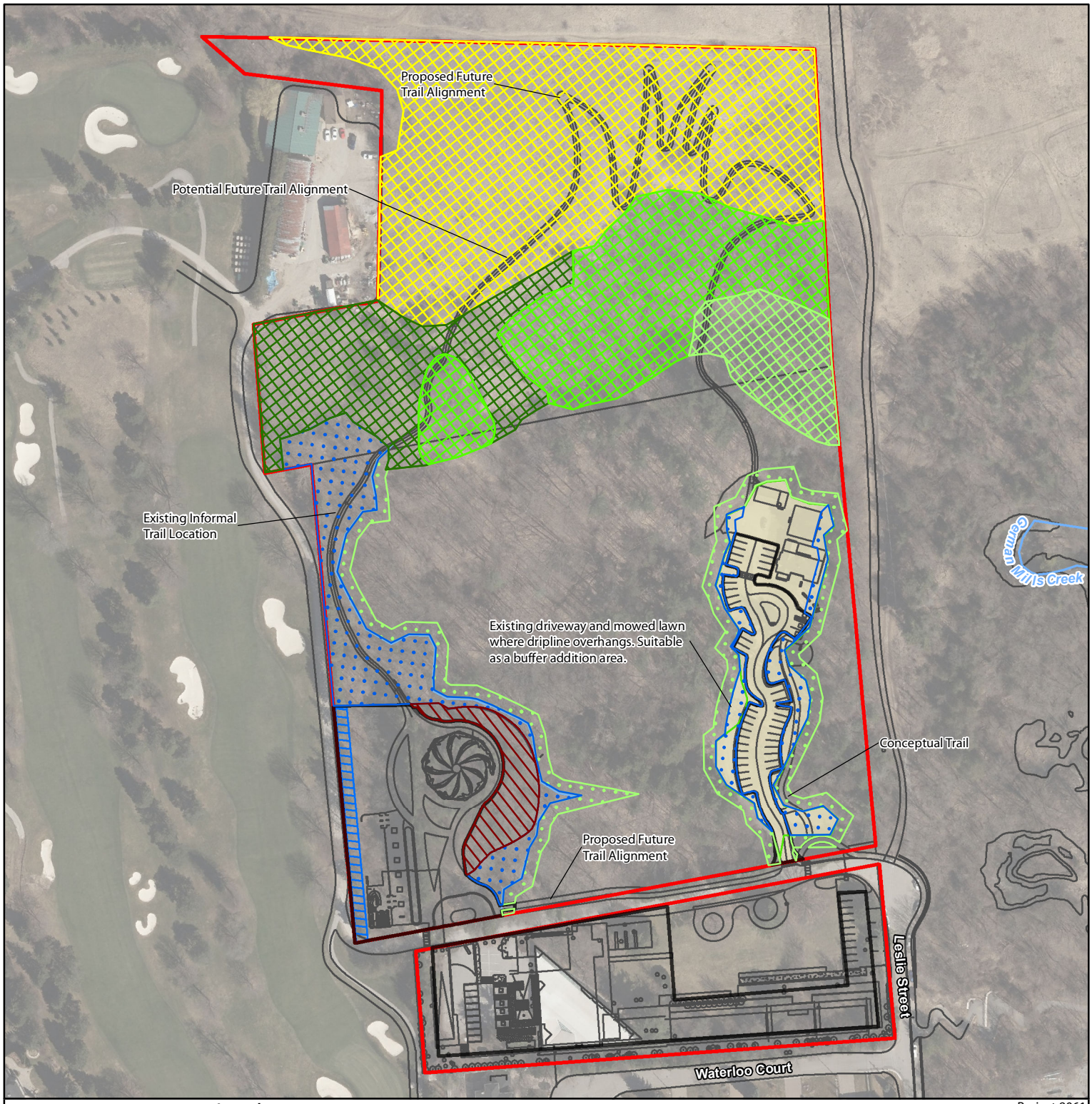

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3. Orthoimagery © First Base Solutions, 2024. Imagery taken in 2022.
4. Site Plan: 1709_Site_Plan.dwg (2023-12-20)

*The areas shown here are approximate, refer to LRES (Schollen 2024)

Legend

- Subject Lands
- Final Development Limit — *Total: 0.72 ha; Temple: 0.52 ha; Parking Lot: 0.20 ha*
- Watercourse
- Staked Dripline of FOM Community (TRCA, June 16, 2022)
- Long Term Stable Top of Slope (Terraprobe, 2022)
- Existing Residential Infrastructure
- Golf Course Protective Screening Enhancements

Restoration Area (LRES, 2024):

- Invasive Management and Reforestation Area: 0.74 ha*
- Meadow Restoration Area: 1.51 ha*
- Reforestation Area: 0.51 ha*
- Woodland Enhancement: 0.23 ha*

Enhancement and Management Areas:

- Degraded Feature Management and Enhancement Area: 0.50 ha
- Selective Natural Heritage Management Area: 0.35 ha
- Maintenance and/or Site Alteration Area: 0.12 ha

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Figure 9b
Development Limit and Conceptual Site Plan

0 20 m
1:2,200

N

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3. Orthoimagery © First Base Solutions, 2024. Imagery taken in 2022.
4. Markham OP Greenway system boundary subdivided into Natural Heritage Network, Natural Heritage Restoration Areas and Other Greenway System Lands based on digitized boundaries from 'Map 4- Greenway system, June 2014' (approximate).
5. Site Plan: 1709_Site_Plan.dwg (2023-12-20)

Legend

- Subject Lands
- Watercourse
- Staked Limit of CUW Community (TRCA, June 16, 2022)
- Staked Dripline of FOM Community (TRCA, June 16, 2022)
- Long Term Stable Top of Slope (Terraprobe, 2022)
- 5 metre Maintenance Buffer into NHN
- Limit of Woodland Community + 10 metres
- Long Term Stable Top of Slope + 10 metres
- Existing Residential Infrastructure
- City of Markham Valleylands (Approximate)
- TRCA Regulated Valleyland
- Significant Woodland

Areas of Encroachment

- Dripline VPZ: 0.04 ha
- Long Term Stable Top Of Slope VPZ: 0.03 ha
- Significant Woodland: 0.03 ha
- Valleyland: 0.22 ha

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7200 and 7015 Leslie Street
Bahá'í Community of Canada

Figure 10
Natural Heritage System Constraints

0 20 m
1:2,200

N

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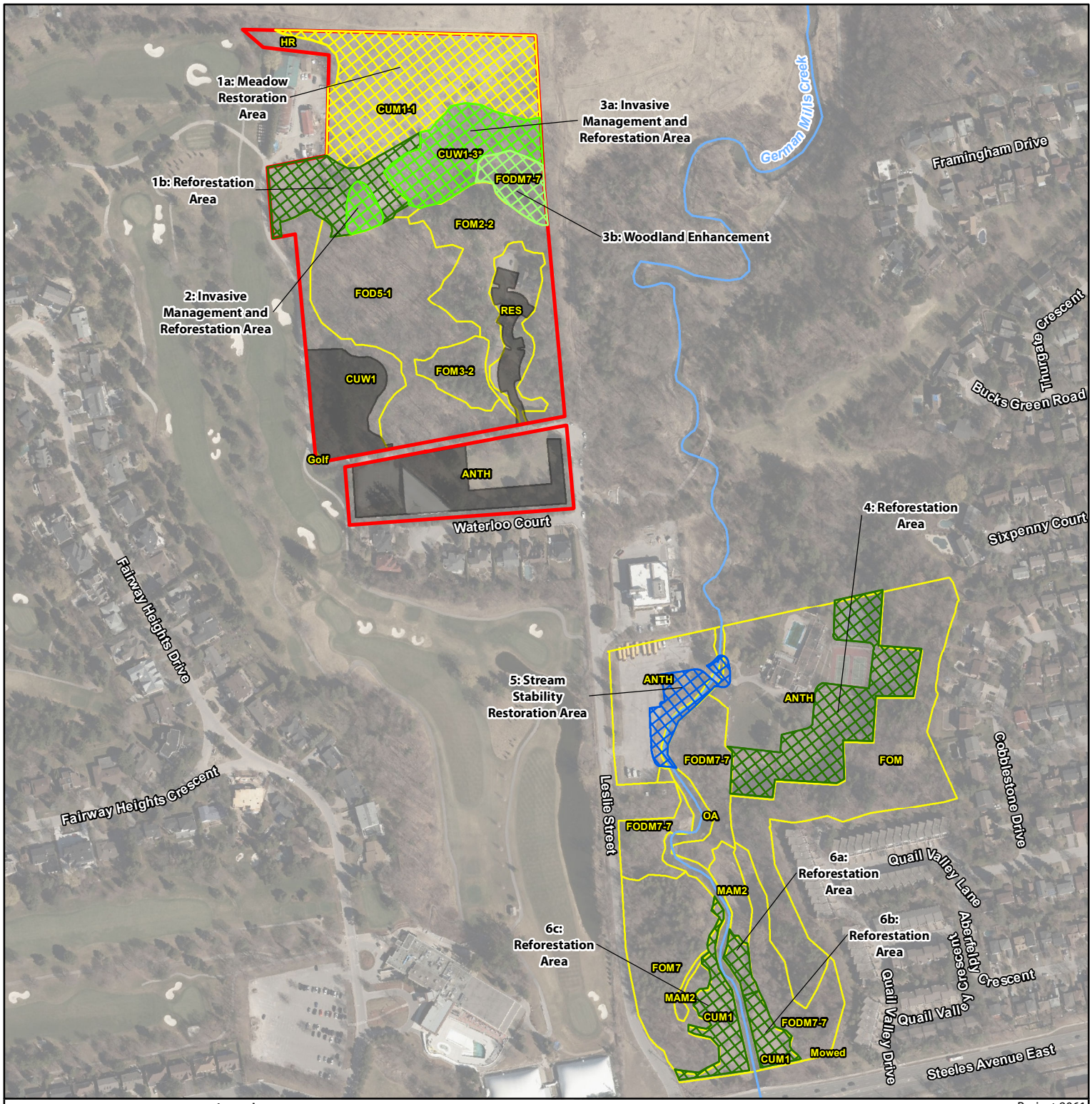

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3. Orthoimagery © First Base Solutions, 2024. Imagery taken in 2022.
4. Site Plan: 1709_Site_Plan.dwg (2023-12-05)

Legend

- Subject Lands
- Watercourse
- Final Development Limit

Total: 0.72 ha
Temple: 0.52 ha
Parking Lot: 0.20 ha

Restoration Area (LRES, 2024):

- Invasive Management and Reforestation Area: 0.74 ha*
- Meadow Restoration Area: 1.51 ha*
- Reforestation Area: 1.96 ha*
- Stream Stability Restoration Area: 0.25 ha*
- Woodland Enhancement: 0.23 ha*

*The areas shown here are approximate, refer to LRES (Schollen 2024)

ELC Legend

ANTH, Anthropogenic
CUM1, Cultural Meadow
CUM1-1, Dry - Moist Old Field Meadow
CUT1-1, Sumac Cultural Thicket
CUW1, Mixed Cultural Woodland
CUW1-3*, Black Locust Cultural Woodland
FOD5-1, Dry-Fresh Sugar Maple Deciduous Forest
FOD7, Fresh – Moist Lowland Deciduous Forest
FODM7-7, Fresh-Moist Manitoba Maple Deciduous Forest
FOM, Mixed Forest
FOM2-2, Dry-Fresh White Pine - Sugar Maple Mixed Forest
FOM3-2, Dry-Fresh Sugar Maple - Hemlock Mixed Forest
FOM7, Fresh – Moist White Cedar – Hardwood Mixed Forest
Golf, Golf
HR, Hedgerow
MAM2, Mineral Meadow Marsh
Mowed, Mowed
OA, Open Aquatic
RES, Residential

Project 8061

7200 and 7015 Leslie Street
Bahá'í Community of Canada

Figure 11
Restoration Areas

0 100 m N
1:4,600

GEI Consultants

Appendix B

Tables

Table 1: Field Studies and Natural Inventories (2019 and 2022)

SURVEYORS (SURNAME, INTL)	SURVEY ROUND	SURVEY TYPE	DATE	TIME		AIR TEMP (C°)	WATER TEMP (C°)	HUMIDITY (%)	CLOUD COVER (%)	BEAUFORT WIND SPEED	PRECIPITATION COMMENTS
				START	END						
2019											
Leslie, J.	1	Stem Density	15-OC	09:30	14:15	12	NA	58	70	3	None
Leslie, J.	1	Fall Botanical Inventory and Preliminary ELC	27-SE	11:00	16:00	22	NA	48	80	4	None
2022											
Williamson, L., Ng, P.	1	Bat Habitat Assessment	21-AP	10:00	14:30	15	NA	82	100	4	Light rain
Leslie, J.	2	Spring Botanical Inventory and ELC	06-MA	12:00	16:00	16	NA	40	70	4	None
Leslie, J.	3	Summer Botanical Inventory and ELC	11-JL	11:00	17:00	31	NA	31	70	4	None
Lee R.	1	Breeding Bird Surveys	25-MA	06:50	07:50	11	NA	55	10	0	None
Williamson, L., Lee, E.	1	Acoustic detector deployment	14-JN	09:00	09:50	21	NA	60	30	1	None
Lee R.	2	Breeding Bird Surveys	24-JN	07:00	08:00	17	NA	46	0	0	None
Williamson, L., Lee, E.	2	Acoustic detector collection	24-JN	09:15	10:00	23	NA	40	20	1	None

Table 1: Field Studies and Natural Inventories (2019 and 2022)

LEGEND:

BEAUFORT WIND SPEED SCALE	
0	Calm (<1 km/hr)
1	Light Air (1-5 km/hr)
2	Light Breeze (6-11 km/hr)
3	Gentle Breeze (12-19
4	km/hr)
	Moderate Breeze (20-28 km/hr)

MONTH (CODE)	
JA	January
FB	February
MR	March
AP	April
MA	May
JN	June
JL	July
AU	August
SE	September
OC	October
NO	November
DE	December

Table 2a: Ecological Landscape Characterization (ELC) Community Descriptions

ELC TYPE	COMMUNITY DESCRIPTION	S-RANK / G-RANK (NHIC, 2021)
FOREST		
Mixed Forest		
FOM2-2 Dry-Fresh White Pine - Sugar Maple Mixed Forest	• Mature forest on rolling upland • Canopy with abundance of Sugar Maple (*Acer saccharum*) and common occurrences of White Pine (*Pinus strobus*), American Beech (*Fagus grandifolia*), Black Cherry (*Prunus serotina*), and White Birch (*Betula papyrifera*) • Understory with frequent Choke Cherry (*Prunus virginiana*), as well as Sugar Maple saplings • Ground cover not particularly diverse, most often consisting of Yellow Trout Lily (*Erythronium americanum*), Garlic Mustard (*Alliaria petiolata*), Enchanters Nightshade (*Circaea canadensis*), Spinulose Wood Fern (*Dryopteris carthusiana*), Wild Ginger (*Asarum canadense*), and Virginia Waerleaf (*Hydrophyllum virginiana*).	S5
FOM3-2 Dry-Fresh Sugar Maple - Hemlock Mixed Forest	• Mature forest on rolling upland • Canopy with abundance of Eastern Hemlock and frequent Sugar Maple • Understory with Sugar Maple saplings and infrequent shrubs, such as Prickly Gooseberry (*Ribes cynosbati*), and Red Elderberry (*Sambucus racemosa*) • Ground cover relatively sparse (< 25% cover) most commonly with Garlic Mustard and Enchanter's Nightshade.	S4S5
Deciduous Forest		
FOD5-1 Dry-Fresh Sugar Maple Deciduous Forest	• Mid-age to mature forest on rolling upland • Canopy with abundance of Sugar Maple and various, though often infrequent associates, such as Eastern White Pine, Black Walnut (*Juglans nigra*), Black Cherry, and Red Oak (Quercus rubra). • Understory withy common occurrences of Sugar Maple saplings, and Alternate-leaved dogwood (*Cornus alternifolia*), and Choke Cherry. • Ground cover most frequently composed of Garlic Mustard, Enchanter's Nightshade, Yellow Trout Lily, and Wild Ginger.	S5
FODM7-7 Fresh-Moist Manitoba Maple	• Bottomland young to mid-age forest • Abundance of Manitoba Maple in the canopy and subcanopy. • Understory commonly composed of Choke cherry, and young Manitoba Maple.	Not ranked

Table 2a: Ecological Landscape Characterization (ELC) Community Descriptions

ELC TYPE	COMMUNITY DESCRIPTION	S-RANK / G-RANK (NHIC, 2021)
Deciduous Forest	• Ground cover most commonly with Yellow Avens (*Geum allepicum*), Dame's Rocket (*Hesperis matronalis*), Garlic Mustard, and Enchanter's Nightshade.	
CULTURAL		
Cultural Meadow		
CUM1-1 Dry-Moist Old Field Meadow	• Open tableland meadow with scattered woody trees and shrubs, which occupy less than 25% cover. • Ground cover primarily composed of Kentucky Bluegrass (*Poa pratensis*) and Smooth Brome (*Bromus inermis*), with common occurrences of Motherwort (*Leonurus cardiaca*), Tall Goldenrod (*Solidago altissima*), Teasel (*Dipsacus fullonum*), Canada Thistle (*Cirsium arvense*), European Swallowort (*Vincetoxicum rossicum*), and Annual Fleabane (*Erigeron annuus*).	Not ranked
Cultural Woodland		
CUW1 Mineral Cultural Woodland	• Mid-age tableland woodland complexed with pockets of coniferous plantation • Canopy species most commonly consisting of Black Walnut, Norway Spruce (*Picea abies*), Red Pine (*Pinus resinosa*), and White Spruce (*Picea glauca*). • Understory often with abundance of European Buckthorn (*Rhamnus cathartica)*, and occasional Show Fly Honeysuckle, Choke Cherry, and Red Raspberry. • Density of ground cover varies, but generally with abundance of Enchanter's Nightshade, Spiked Sedge (*Carex spicata*), White Avens, Garlic Mustard, and Dame's Rocket.	Not ranked
CUW1-3* Black Locust Cultural Woodland	• Young woodland occurring on rolling upland • Canopy dominated by Black Locust (*Robinia pseudoacacia*) • Understory often of European Buckthorn, Showy Fly Honeysuckle (*Lonicera x bella*), and Black Raspberry (*Rubus* occidentalis). • Ground cover generally composed of Tall Goldenrod, Smooth Brome, Garlic Mustard, White Avens (*Geum canadensis*), and European Swallowort.	Not ranked

*****Denotes a type not listed in the Southern Ontario ELC Guide.

Table 2b: Ecological Landscape Characterization (ELC) Community Descriptions

ELC TYPE	COMMUNITY DESCRIPTION	S-RANK / G-RANK (NHIC, 2021)
FOREST		
Mixed Forest		
FOM Mixed Forest	• Mixed forest composed of White Pine, Black Walnut, Sugar Maple, and Black Cherry, among others. Includes smaller pockets of Sugar Maple dominated deciduous forest.	Not ranked
FOM7 Fresh-Moist White Cedar – Hardwood Mixed Forest	• Lowland forest of predominantly White Cedar, with varying occurrences of Crack Willow, Black Walnut, Sugar Maple, Black Cherry, and Manitoba Maple	Not ranked
Deciduous Forest		
FODM7-7 Fresh-Moist Manitoba Maple Deciduous Forest	• Mid-age lowland forest with a canopy composed predominantly of Manitoba Maple and an understory with abundance of European Buckthorn.	Not ranked
CULTURAL		
Cultural Meadow		
CUM1 Mineral Cultural Meadow	• Classic open meadow forb / graminoid species mix with scattered occurrences of shrubs and saplings	Not ranked
MARSH		
Meadow Marsh		
MAM2 Mineral Meadow Marsh	• Herb-dominated marsh communities, most commonly composed of Purple Loosestrife, Panicled Aster, and Reed-canary Grass.	Not ranked

*****Denotes a type not listed in the Southern Ontario ELC Guide.

													LOCAL / REGIONAL STATUS		
ORDER	FAMILY	LATIN NAME	COMMON NAME	COEFFICIENT OF CONSERVATISM	WETNESS INDEX	OWES WETLAND SPECIES	WEEDINESS INDEX	INVASIVE EXOTIC RANK (Urban Forest Associates 2002)	PROVINCIAL STATUS (S-RANK)	GLOBAL STATUS (G-RANK)	COSSARO (MNRF)	COSEWIC STATUS	YORK (Varga 2005)	GTA (Varga 2005)	AUTHORITY
DICOTYLEDONS	Adoxaceae	Sambucus racemosa ssp. pubens	Red Elderberry	5	3			P	S5	G5			X	X	(Michaux) Hultén
DICOTYLEDONS	Adoxaceae	Viburnum lantana	Wayfaring Viburnum		5		-1		SNA	GNR			X	X	L.
DICOTYLEDONS	Anacardiaceae	Rhus typhina	Staghorn Sumac	1	3				S5	G5			X	X	L.
DICOTYLEDONS	Apiaceae	Daucus carota	Wild Carrot		5		-2		SNA	GNR			X	X	L.
DICOTYLEDONS	Apocynaceae	Asclepias syriaca	Common Milkweed	0	5				S5	G5			X	X	L.
DICOTYLEDONS	Apocynaceae	Vinca minor	Lesser Periwinkle		5		-2	2	SNA	GNR			X	X	L.
DICOTYLEDONS	Apocynaceae	Vincetoxicum rossicum	European Swallowwort		5			1	SNA	GNR			X	X	(Kleopow) Barbaricz
DICOTYLEDONS	Aristolochiaceae	Asarum canadense	Canada Wild-Ginger	6	5				S5	G5			X	X	L.
DICOTYLEDONS	Asteraceae	Arctium minus	Common Burdock		3		-2		SNA	G?T?			X	X	(Hill) Bernh.
DICOTYLEDONS	Asteraceae	Cichorium intybus	Wild Chicory		5		-1		SNA	GNR			X	X	L.
DICOTYLEDONS	Asteraceae	Cirsium arvense	Canada Thistle		3		-1	1	SNA	GNR			X	X	(L.) Scop.
DICOTYLEDONS	Asteraceae	Cirsium vulgare	Bull Thistle		3		-1		SNA	G5			X	X	(Savi) Tenore
DICOTYLEDONS	Asteraceae	Erigeron annuus	Annual Fleabane	0	3				S5	G5			X	X	(L.) Pers.
DICOTYLEDONS	Asteraceae	Lapsana communis	Common Nipplewort		3		-2	P	SNA	GNR			X	X	L.
DICOTYLEDONS	Asteraceae	Solidago altissima var. altissima	Tall Goldenrod	1	3				S5	GNR			X	X	L.
DICOTYLEDONS	Asteraceae	Solidago flexicaulis	Zigzag Goldenrod	6	3				S5	G5			X	X	L.
DICOTYLEDONS	Asteraceae	Symphyotrichum novae-angliae	New England Aster	2	-3				S5	G5			X	X	(L.) G.L. Nesom
DICOTYLEDONS	Asteraceae	Symphyotrichum urophyllum	Arrow-Leaved Aster	6	5				S4	G4G5			U	U	(Lind. ex DC.) G.L. Nesom
DICOTYLEDONS	Asteraceae	Taraxacum officinale	Common Dandelion		3		-2		SNA	G5			X	X	F.H. Wiggers
DICOTYLEDONS	Berberidaceae	Caulophyllum giganteum	Giant Blue Cohosh	5	5				S5	G4G5			X	X	(Farw.) Loconte & W.H. Blackw.
DICOTYLEDONS	Berberidaceae	Podophyllum peltatum	May-Apple	5	3				S5	G5			X	X	L.
DICOTYLEDONS	Betulaceae	Betula papyrifera	Paper Birch	2	3	T			S5	G5			X	X	Marshall
DICOTYLEDONS	Boraginaceae	Cynoglossum officinale	Common Hound's-Tongue		5		-1		SNA	GNR			X	X	L.
DICOTYLEDONS	Boraginaceae	Hackelia virginiana	Virginia Stickseed	5	3				S5	G5			R8	U	(L.) I.M. Johnston
DICOTYLEDONS	Boraginaceae	Hydrophyllum virginianum var. virginianum	Virginia Waterleaf	6	0				S5	G5			X	X	L.
DICOTYLEDONS	Brassicaceae	Alliaria petiolata	Garlic Mustard		0		-3	1	SNA	G5			X	X	(M. Bieb.) Cavara & Grande
DICOTYLEDONS	Brassicaceae	Cardamine concatenata	Cut-Leaved Toothwort	6	3				S5	G5			R3	X	(Michx.) O. Schwarz
DICOTYLEDONS	Brassicaceae	Hesperis matronalis	Dame's Rocket		3		-3	1	SNA	G4G5			X	X	L.
DICOTYLEDONS	Brassicaceae	Thlaspi arvense	Field Pennycress		5		-1		SNA	GNR			XSR	X	L.
DICOTYLEDONS	Caprifoliaceae	Dipsacus fullonum	Common Teasel		3		-1	3	SNA	G?T?			X	X	L.
DICOTYLEDONS	Caprifoliaceae	Lonicera x bella	Showy Fly Honeysuckle		3		-3		SNA	GNR			X	X	Zabel
DICOTYLEDONS	Celastraceae	Euonymus alatus	Winged Euonymus		5		-1	3	SNA	GNR			X	X	(Thunb.) Siebold
DICOTYLEDONS	Celastraceae	Euonymus obovatus	Running Strawberry Bush	6	5				S4	G5			R7	X	Nutt.
DICOTYLEDONS	Cornaceae	Cornus alternifolia	Alternate-Leaved Dogwood	6	3				S5	G5			X	X	L. f.
DICOTYLEDONS	Elaeagnaceae	Elaeagnus umbellata	Autumn Olive		3		-3	1	SNA	GNR			X	X	Thunberg
DICOTYLEDONS	Fabaceae	Robinia pseudoacacia	Black Locust		3		-3	2	SNA	G5			X	X	L.
DICOTYLEDONS	Fabaceae	Securigera varia	Purple Crown-Vetch		5		-2	1	SNA	GNR			X	X	(L.) Lassen
DICOTYLEDONS	Fabaceae	Vicia cracca	Tufted Vetch		5		-1	2	SNA	GNR			X	X	L.
DICOTYLEDONS	Fagaceae	Fagus grandifolia	American Beech	6	3				S4	G5			X	X	Ehrhart
DICOTYLEDONS	Fagaceae	Quercus rubra	Northern Red Oak	6	3				S5	G5			X	X	L.
DICOTYLEDONS	Geraniaceae	Geranium robertianum	Herb-Robert	2	3		-2		S5	G5			X	X	L.
DICOTYLEDONS	Grossulariaceae	Ribes cynosbati	Eastern Prickly Gooseberry	4	3				S5	G5			X	X	L.
DICOTYLEDONS	Hypericaceae	Hypericum perforatum ssp. perforatum	Common St. John's-Wort		5		-3	4	SNA	GNR			X	X	L.
DICOTYLEDONS	Juglandaceae	Juglans nigra	Black Walnut	5	3				S4?	G5			R	X	L.
DICOTYLEDONS	Lamiaceae	Ajuga reptans	Creeping Bugleweed		5		-1	4	SNA	GNR				X	L.
DICOTYLEDONS	Lamiaceae	Leonurus cardiaca ssp. cardiaca	Common Motherwort		5		-2		SNA	GNR			X	X	L.
DICOTYLEDONS	Lamiaceae	Nepeta cataria	Catnip		3		-2	4	SNA	GNR			X	X	L.
DICOTYLEDONS	Malvaceae	Tilia americana	Basswood	4	3				S5	G5			X	X	L.
DICOTYLEDONS	Malvaceae	Tilia cordata	Little-Leaved Linden		5			P	SNA	GNR			X	X	Miller
DICOTYLEDONS	Montiaceae	Claytonia virginica	Eastern Spring Beauty	5	3	T			S5	G5			R3	X	L.
DICOTYLEDONS	Oleaceae	Forsythia viridissima	Green-Stemmed Forsythia		5				SNA	GNR			X	X	Lindley
DICOTYLEDONS	Oleaceae	Fraxinus pennsylvanica	Red Ash	3	-3	T			S4	G5			X	X	Marshall
DICOTYLEDONS	Onagraceae	Circaea canadensis ssp. canadensis	Canada Enchanter's Nightshade	2	3				S5	G5T5			X	X	(L.) Hill
DICOTYLEDONS	Orobanchaceae	Epifagus virginiana	Beechdrops	6	5				S5	G5			X	X	(L.) Barton
DICOTYLEDONS	Oxalidaceae	Oxalis stricta	European Wood-Sorrel	0	3				S5	G5			X	X	L.
DICOTYLEDONS	Papaveraceae	Chelidonium majus	Greater Celandine		5		-3		SNA	GNR			X	X	L.
DICOTYLEDONS	Papaveraceae	Sanguinaria canadensis	Bloodroot	5	3				S5	G5			X	X	L.
DICOTYLEDONS	Plantaginaceae	Plantago major	Common Plantain		3		-1		SNA	G5			X	X	L.
DICOTYLEDONS	Plantaginaceae	Veronica serpyllifolia	Thyme-Leaved Speedwell		0				SNA	G5			X	X	L.
DICOTYLEDONS	Ranunculaceae	Actaea pachypoda	White Baneberry	6	5				S5	G5			X	X	Elliott
DICOTYLEDONS	Ranunculaceae	Actaea rubra ssp. rubra	Red Baneberry	6	3				S5	G5			X	X	(Aiton) Willdenow
DICOTYLEDONS	Rhamnaceae	Rhamnus cathartica	European Buckthorn		0	T	-3	1	SNA	GNR			X	X	L.
DICOTYLEDONS	Rosaceae	Crataegus punctata	Dotted Hawthorn	4	5				S5	G5			X	X	Jacquin
DICOTYLEDONS	Rosaceae	Geum aleppicum	Yellow Avens	2	0	T			S5	G5			X	X	Jacquin
DICOTYLEDONS	Rosaceae	Geum canadense	White Avens	3	0	T			S5	G5			X	X	Jacquin
DICOTYLEDONS	Rosaceae	Malus pumila	Common Apple		5		-1		SNA	G5			X	X	Miller
DICOTYLEDONS	Rosaceae	Prunus serotina var. serotina	Black Cherry	3	3				S5	G5			X	X	Ehrhart
DICOTYLEDONS	Rosaceae	Prunus virginiana var. virginiana	Chokecherry	2	3				S5	G5T?			X	X	L.
DICOTYLEDONS	Rosaceae	Pyrus communis	Common Pear		5		-1		SNA	G5			X	X	L.
DICOTYLEDONS	Rosaceae	Rubus occidentalis	Black Raspberry	2	5				S5	G5			X	X	L.
DICOTYLEDONS	Rosaceae	Sorbaria sorbifolia	False Spiraea		5		-1	3	SNA	G5				X	(L.) A. Braun
DICOTYLEDONS	Salicaceae	Populus deltoides ssp. deltoides	Eastern Cottonwood	4	0	T			S5	G5T5			X+	X	Bartram ex Marshall
DICOTYLEDONS	Salicaceae	Populus grandidentata	Large-Toothed Aspen	5	5				S5	G5			X	X	Michaux
DICOTYLEDONS	Salicaceae	Populus tremuloides	Trembling Aspen	2	0	T			S5	G5			X	X	Michaux
DICOTYLEDONS	Sapindaceae	Acer negundo	Manitoba Maple	0	0	T		1	S5	G5			X	X	L.
DICOTYLEDONS	Sapindaceae	Acer nigrum	Black Maple	7	3				S4?	G5			R4	X	F. Michaux
DICOTYLEDONS	Sapindaceae	Acer platanoides	Norway Maple		5		-3	2	SNA	GNR			X	X	L.
DICOTYLEDONS	Sapindaceae	Acer saccharum	Sugar Maple	4	3				S5	G5			X	X	Marshall
DICOTYLEDONS	Sapindaceae	Acer tataricum ssp. ginnala	Amur Maple		5		-2	4	SNA	GNR			X	X	(Maximowicz) Wesmael
DICOTYLEDONS	Scrophulariaceae	Verbascum thapsus ssp. thapsus	Common Mullein		5		-2		SNA	GNR			X	X	L.
DICOTYLEDONS	Ulmaceae	Ulmus americana	White Elm	3	-3	T			S5	G5			X	X	L.
DICOTYLEDONS	Urticaceae	Urtica dioica ssp. gracilis	Slender Stinging Nettle	2	0	T			S5	G5T5			XSR	X	(Aiton) Selander
DICOTYLEDONS	Verbenaceae	Verbena urticifolia	White Vervain	4	0	T			S5	G5			X	X	L.
DICOTYLEDONS	Violaceae	Viola sororia	Woolly Blue Violet	4	0	T			S5	G5			X	X	Willdenow
DICOTYLEDONS	Vitaceae	Parthenocissus vitacea	Thicket Creeper	4	3				S5	G5			X	X	(Knerr) Hitchcock
DICOTYLEDONS	Vitaceae	Vitis riparia	Riverbank Grape	0	0				S5	G5			X	X	Michaux
GYMNOSPERMS	Cupressaceae	Juniperus communis var. depressa	Depressed Juniper	4	3				S5	G5T5			R5	R	Pursh
GYMNOSPERMS	Cupressaceae	Juniperus virginiana var. virginiana	Eastern Red Cedar	4	3				S5	G5T			U	U	L.
GYMNOSPERMS	Cupressaceae	Thuja occidentalis	Eastern White Cedar	4	-3	T			S5	G5			X	X	L.
GYMNOSPERMS	Pinaceae	Larix decidua	European Larch		5		-1		SNA	GNR			X	X	Miller
GYMNOSPERMS	Pinaceae	Picea abies	Norway Spruce		5		-1		SNA	GNR			X	X	(L.) Karsten
GYMNOSPERMS	Pinaceae	Picea glauca	White Spruce	6	3	T			S5	G5			X	X	(Moench) Voss

ORDER	FAMILY	LATIN NAME	COMMON NAME	COEFFICIENT OF CONSERVATISM	WETNESS INDEX	OWES WETLAND SPECIES	WEEDINESS INDEX	INVASIVE EXOTIC RANK (Urban Forest Associates 2002)	PROVINCIAL STATUS (S-RANK)	GLOBAL STATUS (G-RANK)	COSSARO (MNRF)	COSEWIC STATUS	YORK (Varga 2005)	GTA (Varga 2005)	AUTHORITY
GYMNOSPERMS	Pinaceae	Pinus resinosa	Red Pine	8	3				S5	G5			X+	R	Aiton
GYMNOSPERMS	Pinaceae	Pinus strobus	Eastern White Pine	4	3	T			S5	G5			X	X	L.
GYMNOSPERMS	Pinaceae	Pinus sylvestris	Scots Pine		3		-3	2	SNA	GNR			X	X	L.
GYMNOSPERMS	Pinaceae	Tsuga canadensis	Eastern Hemlock	7	3	T			S5	G5			X	X	(L.) Carrière
MONOCOTYLEDONS	Araceae	Arisaema triphyllum ssp. triphyllum	Jack-In-The-Pulpit	5	-3	T			S5	G5			X	X	(L.) Schott
MONOCOTYLEDONS	Asparagaceae	Convallaria majalis var. majalis	European Lily-Of-The-Valley		5		-2	3	SNA	G5			X	X	L.
MONOCOTYLEDONS	Asparagaceae	Scilla siberica	Siberian Squill		5		-1	2	SNA	GNR			X	X	Haworth
MONOCOTYLEDONS	Cyperaceae	Carex blanda	Woodland Sedge	3	0				S5	G5			X	X	Dewey
MONOCOTYLEDONS	Cyperaceae	Carex communis var. communis	Fibrous-Root Sedge	6	5				S5	G5			X	X	L.H. Bailey
MONOCOTYLEDONS	Cyperaceae	Carex leptonervia	Finely-Nerved Sedge	5	0				S5	G5			X	U	(Fern.) Fernald
MONOCOTYLEDONS	Cyperaceae	Carex radiata	Eastern Star Sedge	4	0	T			S5	G5			X	X	(Wahlenb.) Small
MONOCOTYLEDONS	Cyperaceae	Carex rosea	Rosy Sedge	2	5				S5	G5			X	X	Schkuhr ex Willdenow
MONOCOTYLEDONS	Cyperaceae	Carex spicata	Spiked Sedge		3		-1		SNA	GNR			X	X	Hudson
MONOCOTYLEDONS	Liliaceae	Erythronium americanum ssp. americanum	Yellow Trout Lily	5	5				S5	G5T5			X	X	Ker Gawler
MONOCOTYLEDONS	Poaceae	Agrostis capillaris	Colonial Bentgrass		0		-1		SNA	GNR				X	L.
MONOCOTYLEDONS	Poaceae	Bromus inermis	Smooth Brome		5		-3	4	SNA	G5TNR			X	X	Leysser
MONOCOTYLEDONS	Poaceae	Elymus repens	Quackgrass		3		-3	3	SNA	GNR			X	X	(L.) Gould
MONOCOTYLEDONS	Poaceae	Phalaris arundinacea var. arundinacea	Reed Canary Grass	0	-3	T		P	S5	GNR			X	X	L.
MONOCOTYLEDONS	Poaceae	Phleum pratense ssp. pratense	Common Timothy		3		-1		SNA	GNR			X	X	L.
MONOCOTYLEDONS	Poaceae	Poa pratensis	Kentucky Bluegrass	0	3			2	S5	G5			X	X	L.
PTERIDOPHYTES	Athyriaceae	Athyrium filix-femina var. angustum	Northeastern Lady Fern	4	0	T			S5	G5T5			X	X	(Willdenow) G. Lawson
PTERIDOPHYTES	Dryopteridaceae	Dryopteris carthusiana	Spinulose Wood Fern	5	-3	T			S5	G5			X	X	(Vill.) H.P. Fuchs
PTERIDOPHYTES	Dryopteridaceae	Dryopteris clintoniana	Clinton's Wood Fern	7	-3	I			S4	G5			U	U	(D.C. Eaton) Dowell
PTERIDOPHYTES	Dryopteridaceae	Dryopteris marginalis	Marginal Wood Fern	5	3				S5	G5			X	X	(L.) A. Gray
PTERIDOPHYTES	Equisetaceae	Equisetum arvense	Field Horsetail	0	0	T			S5	G5			X	X	L.
PTERIDOPHYTES	Onocleaceae	Matteuccia struthiopteris var. pensylvanica	Ostrich Fern	5	0	T			S5	G5			X	X	(Willd.) C.V. Morton
	STATISTICS														
	Species Diversity														
	Total Number of Species:	3541													
	Native Species:	2244	63%												
	Exotic Species:	1297	37%												
	S1-S3 Species:	661	29%												
	S4 Species:	633	28%												
	S5 Species:	761	34%												
	Floristic Quality Assessment (FQA)														
	Mean Co-efficient of Conservatism (CC)	6.8													
	CC 0 - 3 = lowest sensitivity	215	10%												
	CC 4 - 6 = moderate sensitivity	556	25%												
	CC 7 - 8 = high sensitivity	512	23%												
	CC 9 - 10 = highest sensitivity	602	27%												
	Floristic Quality Index (FQI)	297													
	Weedy & Invasive Species														
	Mean Weediness Index (Oldham et al):	-1.2													
	-1 = low potential invasiveness	573	44%												
	-2 = moderate potential invasiveness	62	5%												
	-3 = high potential invasivenss	36	3%												
	Mean Exotic Rank (Urban Forest Associates):	3													
	Category 1	29	2%												
	Category 2	20	2%												
	Category 3	44	3%												
	Category 4	40	3%												
	Potentially Invasive (P)	19	1%												
	Wetland Species														
	Mean Wetness Index	0.9													
	Upland	1013	29%												
	Facultative upland	713	20%												
	Facultative	432	12%												
	Facultative wetland	437	12%												
	Obligate wetland	611	17%												

No.	X	Common Name	Species Code	Scientific Name	Provincial Status (S Rank)	Global Status (G Rank)	SARO (MECP)	COSEWIC (Federal)	SWH Indicator Species	Highest Breeding Evidence		Round 1 PC 1	Round 1 PC 2	Round 1 PC 3	Round 1 PC 4	Round 1 PC 5	Incidental Round 1	Off Site Round 1	Round 2 PC 1	Round 2 PC 2	Round 2 PC 3	Round 2 PC 4	Round 2 PC 5	Incidental Round 2	Off Site Round 2	SWH Indicator Species (MNR, 2012) **Special Notes: (1) All migratory songbirds and migratory raptors are eligible for SWH 7E and 6E 1.1 "Landbird Migratory Stopover Area"); (2) All Special Concern and provincially rare S1-S3 species are eligible for SWH 7E and 6E 1.3 "Special Concern and Rare Wildlife Species"**	Internal Comments (Staff Only)
	X										Date:	May 25-22	May 25-22	May 25-22	May 25-22	May 25-22	May 25-22	May 25-22	Jun 24-22	Jun 24-22	Jun 24-22	Jun 24-22	Jun 24-22	Jun 24-22	Jun 24-22		
	X										Time:	718	748	651	705	735			732	707	759	744	719				
	X	**Anseriformes**																									
	X	***Anatidae***																									
		Mallard	MALL	*Anas platyrhynchos*	S5	G5			X	PO-H									1							Waterfowl stopover / staging (terrestrial) 6E	
	X																										
	X	**Columbiformes**																									
	X	***Columbidae***																									
		Mourning Dove	MODO	*Zenaida macroura*	S5	G5				PO-S											1						
	X																										
	X	**Piciformes**																									
	X	***Picidae***																									
		Red-bellied Woodpecker	RBWO	*Melanerpes carolinus*	S5	G5				PR-T						1								1			
		Downy Woodpecker	DOWO	*Dryobates pubescens*	S5	G5				PR-T					1	1					1						
		Northern Flicker	NOFL	*Colaptes auratus*	S5	G5				PO-H				1	1	1						1					
	X																										
	X	**Passeriformes**																									
	X	***Tyrannidae***																									
		Great Crested Flycatcher	GCFL	*Myiarchus crinitus*	S5B	G5				PR-P			1			1						2					
		Eastern Wood-Pewee	EAWP	*Contopus virens*	S4B	G5	SC	SC	X	PR-T						1				1		1	1				
	X																										
	X	***Vireonidae***																									
		Warbling Vireo	WAVI	*Vireo gilvus*	S5B	G5				PR-T		1						1	1			2					
		Red-eyed Vireo	REVI	*Vireo olivaceus*	S5B	G5				PR-T			2		1			1		1			1				
	X																										
	X	***Corvidae***																									
		Blue Jay	BLJA	*Cyanocitta cristata*	S5	G5				PO-H		1	1			1				1	1	2					
		American Crow	AMCR	*Corvus brachyrhynchos*	S5	G5				PO-H										1							
	X																										
	X	***Hirundinidae***																									
		Tree Swallow	TRES	*Tachycineta bicolor*	S4S5B	G5				CO-NY								4							4		
		Barn Swallow	BARS	*Hirundo rustica*	S4B	G5	THR	SC		PO-H		1															
	X																										
	X	***Paridae***																									
		Black-capped Chickadee	BCCH	*Poecile atricapillus*	S5	G5				PO-H						1				2			1				
	X																										
	X	***Sittidae***																									
		Red-breasted Nuthatch	RBNU	*Sitta canadensis*	S5	G5			X	PR-T						1				1	1					habitat 7E, 6E	
	X																										
	X	***Troglodytidae***																									
		House Wren	HOWR	*Troglodytes aedon*	S5B	G5				PO-S											1						
	X																										
	X	***Turdidae***																									
		American Robin	AMRO	*Turdus migratorius*	S5	G5				PR-T				2				2		1	2				1		
	X																										
	X	***Mimidae***																									
		Gray Catbird	GRCA	*Dumetella carolinensis*	S5B, S3N	G5				PO-S								1									
	X																										
	X	***Fringillidae***																									
		American Goldfinch	AMGO	*Spinus tristis*	S5	G5				PR-P		1						1	2								
	X																										
	X	***Passerellidae***																									
		Savannah Sparrow	SAVS	*Passerculus sandwichensis*	S5B, S3N	G5			X	PO-S		1						1								6E	
		Song Sparrow	SOSP	*Melospiza melodia*	S5	G5				PR-T		1		1					1		1						
		Eastern Towhee	EATO	*Pipilo erythrophthalmus*	S4B, S3N	G5			X	PO-S									1							breeding habitat 7E, 6E	
	X																										
	X	***Icteridae***																									
		Baltimore Oriole	BAOR	*Icterus galbula*	S4B	G5				PR-P			1			1		1				2	1				
		Red-winged Blackbird	RWBL	*Agelaius phoeniceus*	S5	G5				PR-P		2						5	2			1	1			7	
		Brown-headed Cowbird	BHCO	*Molothrus ater*	S5	G5				PO-S				1													
	X																										
	X	***Parulidae***																									
		American Redstart	AMRE	*Setophaga ruticilla*	S5B	G5				PO-S			1														
		Yellow Warbler	YWAR	*Setophaga petechia*	S5B	G5				PR-T		1			1								1				
	X																										
	X	***Cardinalidae***																									
		Northern Cardinal	NOCA	*Cardinalis cardinalis*	S5	G5				PR-A				1		1		3	1		2		1				
		Indigo Bunting	INBU	*Passerina cyanea*	S5B	G5				PO-S										1			1				
	X																										

Species Common Name and Scientific Name: Chesser, R. T., K. J. Burns, C. Cicero, J. L. Dunn, A. W. Kratter, I. J. Lovette, P. C. Rasmussen, J. V. Remsen, Jr., D. F. Stotz, B. M. Winger, and K. Winker. 2018. Check-list of North American Birds (online). American Ornithological Society. Available online: http://checklist.aou.org/taxa

Species Code: Consistent with the American Ornithologists' Union. 2018. Species 4-Letter-Codes. Available online: http://www.birdsontario.org/atlas/codes.jsp?lang=en&pg=species

Highest Breeding Evidence: Codes assigned for breeding evidence are consistent with the Ontario Breeding Bird Atlas (OBBA). 2018. Breeding Evidence Codes. Available online: http://www.birdsontario.org/atlas/codes.jsp?lang=en&pg=breeding&sortorder=aou

S ranks: Provincial ranks are from the Natural Heritage Information Centre; S1 (critically imperiled), S2 (imperlied), S3 (vulnerable), S4 (apparently secure), S5 (secure); ranks were updated using NHIC species list 2021. Available to download from: https://www.ontario.ca/page/get-natural-heritage-information

G ranks: Global ranks are from the Natural Heritage Information Centre; G1 (extremely rare), G2 (very rare), G3 (rare to uncommon), G4 (common), G5 (very common); ranks were updated using NHIC species list 2021. Available to download from: https://www.ontario.ca/page/get-natural-heritage-information

SARO (MECP): Ontario Species at Risk as listed by the Committee on the Status of Species at Risk in Ontario (from Ontario Regulation 230/08 Species at Risk in Ontario website: https://www.ontario.ca/laws/regulation/080230/); END - Endangered; THR - Threatened; SC - Special Concern; NAR - Not at Risk

COSEWIC: Assessed Species at Risk at the national level as listed by the Committee on the Status of Endangered Wildlife in Canada (from COSEWIC: https://wildlife-species.canada.ca/species-risk-registry/sar/index/default_e.cfm); END - Endangered, THR - Threatened, SC - Special Concern, NAR - Not at Risk

SWH Indicator Species: SWH refers to Significant Wildlife Habitat as defined by the MNRF (2015) Significant Wildlife Habitat Criteria Schedules for Ecoregions 7E and 6E (as appropriate for the Subject Lands). SWH indicator species are identified in this table and any potential SWH is discussed in the text of this report. Available online: http://www.townofnemi.on.ca/wp-content/uploads/2016/02/NEMI-OP-App-C-schedule-6e-jan-2015-access-ver-final-s.pdf

Acoustic Monitoring Station	ELC Community						High Frequency Calls								Total
		Hoary Bat	Big Brown Bat	Silver-haired Bat	Unknown Low Freqency	Total Low Frequency Calls	Eastern Red Bat	Eastern Small-footed Myotis	Northern Myotis	Little Brown Myotis	Tri-colored Bat	Unknown Myotis (40K Myotis Characteristics)	Unknown High Frequency	Total High Frequency Calls	
BAHT1	CUW	6	4	5	7	22	0	1	0	0	0	0	0	1	23
BAHT2	FOD5-1	42	33	29	34	138	2	0	0	0	0	1	0	3	141
BAHT3	FOD5-1	57	80	29	36	202	0	0	0	0	0	0	0	0	202
BAHT4	RES	26	454	40	15	535	112	0	0	0	0	0	0	112	647
Total		131	571	103	92	897	114	1	0	0	0	1	0	116	1013

Inside Study Area	Outside Study Area	COMMON NAME	Provincial Status (S RANK)	Global Status (G RANK)	SARO (MECP)	COSEWIC (Federal)	Local Status TRCA	SWH Indicator Species 6E	SWH Indicator Species 7E
X	X	**REPTILES**							
X		Eastern Gartersnake	S5	G5			L4	X	X
X	X								
X	X	**BIRDS**							
x		Mallard	S5	G5			L5	X	X
x		Mourning Dove	S5	G5			L5		
x		Red-bellied Woodpecker	S5	G5			L4		
x		Downy Woodpecker	S5	G5			L5		
x		Northern Flicker	S5	G5			L4		
x		Great Crested Flycatcher	S5B	G5			L4		
x		Eastern Wood-Pewee	S4B	G5	SC	SC	L4	X	X
x		Warbling Vireo	S5B	G5			L5		
x		Red-eyed Vireo	S5B	G5			L4		
x		Blue Jay	S5	G5			L5		
x		American Crow	S5	G5			L5		
x		Tree Swallow	S4S5B	G5			L4		
x		Barn Swallow	S4B	G5	THR	SC	L4		
x		Black-capped Chickadee	S5	G5			L5		
x		Red-breasted Nuthatch	S5	G5			L4	X	X
x		House Wren	S5B	G5			L5		
x		American Robin	S5	G5			L5		
x		Gray Catbird	S5B, S3N	G5			L4		
x		American Goldfinch	S5	G5			L5		
x		Savannah Sparrow	S5B, S3N	G5			L4	X	X
x		Song Sparrow	S5	G5			L5		
x		Eastern Towhee	S4B, S3N	G5			L3	X	X
x		Baltimore Oriole	S4B	G5			L5		
x		Red-winged Blackbird	S5	G5			L5		
x		Brown-headed Cowbird	S5	G5			L5		
x		American Redstart	S5B	G5			L3		
x		Yellow Warbler	S5B	G5			L5		
x		Northern Cardinal	S5	G5			L5		
x		Indigo Bunting	S5B	G5			L4		
X	X								
X	X	**MAMMALS**							
x		Eastern Small-footed Myotis	S2S3	G4	END				
x		Silver-haired Bat	S4	G3G4				X	X
x		Eastern Red Bat	S4	G3G4			LX		X
x		Big Brown Bat	S4	G5			L4	X	X
x		Hoary Bat	S4	G3G4			LX		X
x		Northern Raccoon	S5	G5			L5		
x		White-tailed Deer	S5	G5			L4	X	X

Inside Study Area	Outside Study Area	COMMON NAME	Provincial Status (S RANK)	Global Status (G RANK)	SARO (MECP)	COSEWIC (Federal)	Local Status TRCA	SWH Indicator Species 6E	SWH Indicator Species 7E
		SUMMARY							
		Total Odonata:	0						
		Total Butterflies:	0						
		Total Other Arthropods	0						
		Total Amphibians:	0						
		Total Reptiles:	1						
		Total Birds:	29						
		Total Breeding Birds:	21						
		Total Mammals:	7						
		SIGNIFICANT SPECIES							
		Global:	0						
		National:	2						
		Provincial:	3						
		Regional:	2						
		Local:	2						
		Explanation of Status and Acronymns							
		COSSARO: Committee on the Status of Species at Risk in Ontario							
		COSEWIC: Committee on the Status of Endangered Wildlife in Canada							
		S1: Critically Imperiled—Critically imperiled in the province (often 5 or fewer occurrences)							
		S2: Imperiled—Imperiled in the province, very few populations (often 20 or fewer),							
		S3: Vulnerable—Vulnerable in the province, relatively few populations (often 80 or fewer)							
		S4: Apparently Secure—Uncommon but not rare							
		S5: Secure—Common, widespread, and abundant in the province							
		SX: Presumed extirpated							
		SH: Possibly Extirpated (Historical)							
		SNR: Unranked							
		SU: Unrankable—Currently unrankable due to lack of information							
		SNA: Not applicable—A conservation status rank is not applicable because the species is not a suitable target for conservation activities.							
		S#S#: Range Rank—A numeric range rank (e.g., S2S3) is used to indicate any range of uncertainty about the status of the species							
		S#B- Breeding status rank							
		S#N- Non Breeding status rank							
		?: Indicates uncertainty in the assigned rank							
		G1: Extremely rare globally; usually fewer than 5 occurrences in the overall range							
		G1G2: Extremely rare to very rare globally							
		G2: Very rare globally; usually between 5-10 occurrences in the overall range							
		G2G3: Very rare to uncommon globally							
		G3: Rare to uncommon globally; usually between 20-100 occurrences							
		G3G4: Rare to common globally							
		G4: Common globally; usually more than 100 occurrences in the overall range							
		G4G5: Common to very common globally							
		G5: Very common globally; demonstrably secure							
		GU: Status uncertain, often because of low search effort or cryptic nature of the species; more data needed.							
		T: Denotes that the rank applies to a subspecies or variety							
		Q: Denotes that the taxonomic status of the species, subspecies, or variety is questionable.							
		END: Endangered							
		THR: Threatened							
		SC: Special Concern							
		NAR: Not At Risk							
		IND: Indeterminant, insufficient information to assign status							
		DD: Data Deficient							
		6: Rare in Site Region 6							
		7: Rare in Site Region 7							
		Area: Minimum patch size for area-sensitive species (ha)							
		H- highly significant in Hamilton Region (i.e. rare)							
		m- moderately significant in Hamilton Region (i.e. uncommon)							
		L1- extremely rare locally (Toronto Region)							
		L2- very rare locally (Toronto Region)							
		L3- rare to uncommon locally (Toronto Region)							
		HR- rare in Halton Region, highly significant							
		HU- uncommon in Halton Region, moderately significant							

Table 7: Significant Wildlife Habitat Assessment (7E)

SIGNIFICANT WILDLIFE HABITAT (SWH) TYPE	ELC ECOSITE(S) PRESENT	HABITAT CRITERIA MET	TARGETED FIELD STUDIES REQUIRED	DEFINING CRITERIA MET (MINIMUM ABUNDANCES AND/OR DIVERSITY REQUIRED TO CONFIRM SWH)	SWH TYPE PRESENT
1. SEASONAL CONCENTRATION AREAS					
Waterfowl Stopover and Staging Areas (terrestrial)	Yes – One CUM1 vegetation community is present within the Subject Lands.	No – This area does not have historical waterfowl stopover use and is not an area known for sheet water use. In addition, no flooded fields were observed in spring both on or within 120 m of the Subject Lands.	No	N/A	Not Present
Waterfowl Stopover and Staging Areas (aquatic)	No – Vegetation communities are absent from the Subject Lands.	N/A	No	N/A	Not Present
Shorebird Migratory Stopover Areas	No – Vegetation communities are absent from the Subject Lands.	N/A	No	N/A	Not Present
Raptor Wintering Areas	Yes – Forested communities (FOM and FOD) and upland (CUM and CUW) are present within the Subject Lands.	No – overall area of Forest and Upland communities is greater than 20 ha, however the meadow/field communities are less than 15 ha in size.	No	N/A	Not Present

Table 7: Significant Wildlife Habitat Assessment (7E)

SIGNIFICANT WILDLIFE HABITAT (SWH) TYPE	ELC ECOSITE(S) PRESENT	HABITAT CRITERIA MET	TARGETED FIELD STUDIES REQUIRED	DEFINING CRITERIA MET (MINIMUM ABUNDANCES AND/OR DIVERSITY REQUIRED TO CONFIRM SWH)	SWH TYPE PRESENT
Bat Hibernacula	No – Suitable vegetation communities are absent from the Subject Lands.	N/A	No	N/A	Not Present
Bat Maternity Colonies	Yes – Forested communities (FOD and FOM) communities are present within the Subject Lands.	Yes – Suitable snag densities per ha (>10 stems/ha) were met in all FOD and FOM communities.	Yes	No – Passive bat detectors were deployed over a period of twenty consecutive nights (see **Figure 5**, **Appendix A** for detector locations and **Table 5**, **Appendix B** for survey results). Abundance criteria was not met for Big Brown Bat or Silver-haired Bat.	No Present
Turtle Wintering Areas	No – Suitable vegetation communities are absent from the Subject Lands.	N/A	No	N/A	Not Present
Colonial Bird Nesting Sites (bank/cliff)	Yes – One CUM vegetation community is present on the Subject Lands.	No – Presence of exposed or eroding banks, hills, steep slopes and sand piles	No	N/A	Not Present

Table 7: Significant Wildlife Habitat Assessment (7E)

SIGNIFICANT WILDLIFE HABITAT (SWH) TYPE	ELC ECOSITE(S) PRESENT	HABITAT CRITERIA MET	TARGETED FIELD STUDIES REQUIRED	DEFINING CRITERIA MET (MINIMUM ABUNDANCES AND/OR DIVERSITY REQUIRED TO CONFIRM SWH)	SWH TYPE PRESENT
		are not present on the Subject Lands.			
Colonial Bird Nesting Sites (tree/shrubs)	No – Suitable vegetation communities are absent from the Subject Lands.	N/A	No	N/A	Not Present
Colonial Bird Nesting Sites (ground)	Yes – One CUM vegetation community is present on the Subject Lands.	Yes – No islands or peninsulas are present on the Subject Lands.	No	~~No – No wildlife associated with this SWH were observed during surveys. Therefore, the feature did not meet the threshold numbers required to confirm SWH.~~	Not Present
Reptile Hibernacula	Yes – Ecosites are present on the Subject Lands.	No – No anthropogenic or natural features provide any subsurface access below the frost line.	No	N/A	Not Present
Migratory Butterfly Stopover Areas	Yes – Forested communities (FOD and FOM) and field (CUM) are present within the Subject Lands.	No – The feature is > 5 km from Lake Ontario and Lake Erie.	No	N/A	Not Present

Table 7: Significant Wildlife Habitat Assessment (7E)

SIGNIFICANT WILDLIFE HABITAT (SWH) TYPE	ELC ECOSITE(S) PRESENT	HABITAT CRITERIA MET	TARGETED FIELD STUDIES REQUIRED	DEFINING CRITERIA MET (MINIMUM ABUNDANCES AND/OR DIVERSITY REQUIRED TO CONFIRM SWH)	SWH TYPE PRESENT
Migratory Landbird Stopover Areas	Yes – Forested communities (FOD and FOM) are present within the Subject Lands.	No –The feature is > 5 km from Lake Ontario and Lake Erie.	No	N/A	Not Present
Deer Winter Congregation Areas	No – Mapping from the MNRF LIO database did not depict any deer wintering areas on or adjacent to the Subject Lands	N/A	No	N/A	Not Present
2. RARE VEGETATION COMMUNITIES OR SPECIALIZED HABITAT FOR WILDLIFE					
2a. Rare Vegetation Communities					
Rare Vegetation Types (cliffs, talus slopes, sand barrens, alvars, old-growth forests, savannahs, and tallgrass prairies)	No – Rare vegetation communities are not found on the Subject Lands.	N/A	No	N/A	Not Present
Other Rare Vegetation Types (S1 to S3 communities)	No – All vegetation communities identified on the Subject Lands are culturally influenced.	N/A	No	N/A	Not Present

Table 7: Significant Wildlife Habitat Assessment (7E)

SIGNIFICANT WILDLIFE HABITAT (SWH) TYPE	ELC ECOSITE(S) PRESENT	HABITAT CRITERIA MET	TARGETED FIELD STUDIES REQUIRED	DEFINING CRITERIA MET (MINIMUM ABUNDANCES AND/OR DIVERSITY REQUIRED TO CONFIRM SWH)	SWH TYPE PRESENT
2b. Specialized Wildlife Habitat					
Waterfowl Nesting Area	No – Suitable vegetation communities are absent from the Subject Lands.	N/A	No	N/A	Not Present
Bald Eagle and Osprey Habitats	Yes – Forested communities (FOD and FOM) are present within the Subject Lands.	Yes – German Mills Creek is located adjacent to the Subject Lands with associated forest habitats present.	Yes	No – No wildlife or nests associated with this SWH were observed during surveys. Therefore, the feature did not meet the threshold numbers required to confirm SWH.	Not Present
Woodland Raptor Nesting Habitat	Yes – Forested communities (FOD and FOM) are present within the Subject Lands.	No – Feature does not meet the threshold (>30 ha) size with 10 ha of interior habitat required to support this habitat type.	No	N/A	Not Present
Turtle Nesting Areas	No – Suitable vegetation communities are absent from the Subject Lands.	N/A	No	N/A	Not Present

Table 7: Significant Wildlife Habitat Assessment (7E)

SIGNIFICANT WILDLIFE HABITAT (SWH) TYPE	ELC ECOSITE(S) PRESENT	HABITAT CRITERIA MET	TARGETED FIELD STUDIES REQUIRED	DEFINING CRITERIA MET (MINIMUM ABUNDANCES AND/OR DIVERSITY REQUIRED TO CONFIRM SWH)	SWH TYPE PRESENT
Seeps and Springs	Yes – Forested communities (FOD and FOM) are present within the Subject Lands.	No – No headwater areas are present within the Subject Lands.	No	N/A	Not Present
Woodland Amphibian Breeding Habitats (within or < 120m from woodland)	Yes – Forested communities (FOD and FOM) are present within the Subject Lands.	No – No wetlands or vernal pools were identified within the Subject Lands.	No	N/A	Not Present
Wetland Amphibian Breeding Habitats (wetland >120m from woodland)	No – Suitable vegetation communities are absent from the Subject Lands.	N/A	N/A	N/A	Not Present
Woodland Area-Sensitive Bird Breeding Habitat	Yes – Forested communities (FOD and FOM) are present within the Subject Lands.	No – Minimum size criteria is not met (>30 ha).	No	N/A	Not Present
3. SPECIES OF CONSERVATION CONCERN					
Marsh Bird Breeding Habitat	No – Suitable vegetation communities are absent from the Subject Lands.	N/A	No	N/A	Not Present

Table 7: Significant Wildlife Habitat Assessment (7E)

SIGNIFICANT WILDLIFE HABITAT (SWH) TYPE	ELC ECOSITE(S) PRESENT	HABITAT CRITERIA MET	TARGETED FIELD STUDIES REQUIRED	DEFINING CRITERIA MET (MINIMUM ABUNDANCES AND/OR DIVERSITY REQUIRED TO CONFIRM SWH)	SWH TYPE PRESENT
Open Country Bird Breeding Habitat	Yes – One CUM vegetation community is present on the Subject Lands.	No – Minimum size criteria is not met (>30 ha). Vegetation community is associated with German Mills Park that historically housed a landfill.	No	N/A	Not Present
Shrub/Early Successional Bird Breeding Habitat	Yes – One CUW vegetation community is present on the Subject Lands.	No – Minimum size criteria is not met (>10 ha).	No	N/A	Not Present
Terrestrial Crayfish	No – Suitable vegetation communities are absent from the Subject Lands.	N/A	No	N/A	Not Present
Special Concern and Rare Wildlife Species					
ii) Barn Swallow (*Hirundo rustica*)	N/A	Yes- Anthropogenic structures (barns, shed, bridges) used for nesting are present within or adjacent to the Subject Lands	Yes	Breeding Bird Survey were completed in 2022 within the Subject Lands. One Barn Swallow individual was observed in flight (**Table 4,**	Not Present

Table 7: Significant Wildlife Habitat Assessment (7E)

SIGNIFICANT WILDLIFE HABITAT (SWH) TYPE	ELC ECOSITE(S) PRESENT	HABITAT CRITERIA MET	TARGETED FIELD STUDIES REQUIRED	DEFINING CRITERIA MET (MINIMUM ABUNDANCES AND/OR DIVERSITY REQUIRED TO CONFIRM SWH)	SWH TYPE PRESENT
				Appendix B). No Barn Swallow nests were observed on any of the human structures/buildings within the Subject Lands.	
ii) Common Nighthawk (*Chordeiles minor*)	N/A	No- Open areas with little to no ground vegetation (logged or burned-over areas, forest clearings etc.) are not present within or adjacent to the Subject Lands	No	Breeding Bird Survey were completed in 2022 within the Subject Lands. Common Nighthawk was not identified despite survey effort (**Table 4, Appendix B**)	Not Present
iii) Eastern Wood-Pewee (*Contopus virens*)	N/A	Yes – Forested vegetation communities are present adjacent to the Subject Lands associated with Etobicoke Creek	Yes	Breeding Bird Survey were completed in 2022 within the Subject Lands. Eastern Wood-Pewee was identified within suitable mature deciduous and mixed forest	Present

Table 7: Significant Wildlife Habitat Assessment (7E)

SIGNIFICANT WILDLIFE HABITAT (SWH) TYPE	ELC ECOSITE(S) PRESENT	HABITAT CRITERIA MET	TARGETED FIELD STUDIES REQUIRED	DEFINING CRITERIA MET (MINIMUM ABUNDANCES AND/OR DIVERSITY REQUIRED TO CONFIRM SWH)	SWH TYPE PRESENT
				habitat (**Table 4, Appendix B**).	
iv) Golden-winged Warbler (*Vermivora chrysoptera*)	N/A	No- Shrubby habitats such as regenerating clearcuts, wet thickets, and tamarack bogs are not present within the Subject Lands	No	Breeding Bird Survey were completed in 2022 within the Subject Lands. Golden-winged Warbler was not identified despite survey effort (**Table 4, Appendix B**)	Not Present
v) Peregrine Falcon (*Falco peregrinus*)	N/A	No- While no suitable habitat is identified within the Subject Lands, a river valley associated with German Mills Creek is present adjacent to the Subject Lands	No	Breeding Bird Survey were completed in 2022 within the Subject Lands. Peregrine Falcon was not identified despite survey effort (**Table 4, Appendix B**)	Not Present
vi) Wood Thrush (*Hylocichla mustelina*)	N/A	Yes – Forested vegetation communities are present adjacent to the Subject Lands	Yes	Breeding Bird Survey were completed in 2022 within the Subject Lands. Wood	Not Present

Table 7: Significant Wildlife Habitat Assessment (7E)

SIGNIFICANT WILDLIFE HABITAT (SWH) TYPE	ELC ECOSITE(S) PRESENT	HABITAT CRITERIA MET	TARGETED FIELD STUDIES REQUIRED	DEFINING CRITERIA MET (MINIMUM ABUNDANCES AND/OR DIVERSITY REQUIRED TO CONFIRM SWH)	SWH TYPE PRESENT
		associated with Etobicoke Creek		Thrush was not identified despite survey effort (**Table 4, Appendix B**)	
vii) Northern Map Turtle (*Graptemys geographica*)	N/A	No- Suitable wetland vegetation communities are not present within the Subject Lands. While no suitable habitat is identified within the Subject Lands, German Mills Creek is associated with wetland communities adjacent to the Subject Lands	No	N/A	Not Present
viii) Snapping Turtle (*Chelydra serpentina*)	N/A	No- Suitable wetland vegetation communities are not present within the Subject Lands. While no suitable habitat is identified within the Subject Lands, German Mills Creek is associated with wetland	No	N/A	Not Present

Table 7: Significant Wildlife Habitat Assessment (7E)

SIGNIFICANT WILDLIFE HABITAT (SWH) TYPE	ELC ECOSITE(S) PRESENT	HABITAT CRITERIA MET	TARGETED FIELD STUDIES REQUIRED	DEFINING CRITERIA MET (MINIMUM ABUNDANCES AND/OR DIVERSITY REQUIRED TO CONFIRM SWH)	SWH TYPE PRESENT
		communities adjacent to the Subject Lands.			
ix) Monarch (*Danaus plexippus*)	N/A	No - Although CUM1 communities are present on the Subject Lands, no large congregations of Milkweed (*Asclepias sp.*) were observed, therefore breeding habitat is unlikely to be present (refer to Butterfly Stopover Habitat for further discussion on non-breeding Monarch habitat).	No	N/A	Not Present
4. ANIMAL MOVEMENT CORRIDORS					
Amphibian Movement Corridors	N/A	No – Amphibian breeding SWH types are absent from the Subject Lands.	No	N/A	Not Present

Table 8: Predicted Effects, Mitigation, Enhancement and Net Effects

NATURAL HERITAGE FEATURES AND ASSOCIATED FUNCTIONS	SIGNIFICANT CHARACTERISTICS AND SENSITIVITY	IMPACTOR	PREDICTED EFFECTS	AVOIDANCE, MITIGATION AND/OR RESTORATION	NET EFFECTS	MONITORING AND MANAGEMENT
PPS NATURAL HERITAGE FEATURES						
1. Significant Wetlands	Not Present.	N/A	N/A	N/A	N/A	N/A
2. Significant Coastal Wetlands	Not Present.	N/A	N/A	N/A	N/A	N/A
3. Significant Woodlands	The following ELC vegetation communities were assessed to determine their significance on the landscape: • FOD5-1 • FOM2-2 • FOM3-2 2.93 ha of significant woodlands were identified on the Subject Lands (**Figure 6**, **Appendix A**). These features are located within Greenway System and the Natural Heritage Network Lands as identified within the City of Markham's OP. The woodlands meet the test for significance as they meet the criteria outlined under the PPS (2010) and York Region Official Plan (2010). The significant woodlands are associated with the woodland communities associated with German Mills Creek, and they provide confirmed Significant Wildlife Habitat (Eastern Wood-Pewee). The following ELC vegetation communities were assessed as Candidate Significant Woodlands: • CUW1-3* • FODM7-7 Existing conditions do not support the designation of significance for communities characterized by non-native	A total of 0.03 ha (1% of the total significant woodland present within the Subject Lands) of encroachment into the significant woodland and 0.04 ha of encroachment into the significant woodland VPZ is proposed to accommodate a portion of the walkways, gardens and trails associated with the Temple. Potential impacts to the Significant Woodland on the Subject Lands may occur as a result of the following: • Development and site alteration within and adjacent to the woodlands; • Increased pedestrian use of the woodlands; • Increase in lighting from temple and parking lot; and • Construction activity adjacent to dripline. Grading impacts associated with the development will be assessed in more detail at the SPA stage.	Encroachment into 0.03 the Significant Woodland features and 0.04 into the associated VPZ will occur to accommodate development and/or alteration. • Removal of some habitat for common and generalist species of plants and wildlife. ○ Potential construction-related impacts from on-site grading and other machinery include: ○ Soil compaction and potential for micro-drainage changes that could cause localized ponding and inundation of rooting systems; ○ Introduction of non-native plant species and the disturbed margins of the developed footprint, displacing some native flora; and ○ Stress/dieback (root impact, contaminants, increased sediment). Without mitigation, the following effects to the Significant Woodland could potentially occur: • Wildlife disturbance due to increase in human access in the woodland; • Invasive species transport into the woodland may occur due to increased human access;	The following mitigative and restorative measures are proposed to avoid negative impacts to the significant woodland: • All tree/native vegetation removals should occur outside of the active bat window (April 1 to September 30) and the migratory bird window (April 1 to August 25); • Erosion and sediment control (ESC) measures should be installed around nearby/receiving hydrologic features to reduce sedimentation inputs; • To slow the spread of invasive species (such as Emerald Ash Borer), all trees (not just Ash) should be disposed of locally to reduce transportation to other local municipalities; • Where feasible, pre-stressing trees along the proposed new edge over a pre-construction period should be considered as this will allow the trees to experience less shock; • Where trees are proposed for removal, appropriate arboricultural best management practices should be taken to prevent damage to trunks and root systems of nearby retained trees; and	No negative Impacts are expected as a result of the proposed mitigative and restorative measures. While a minor encroachment is proposed (less than 0.05 ha) with 17 trees proposed for removal. An overall net gain is expected through the proposed restoration with a compensation ratio of approximately 5:1. This restoration and enhancement efforts will largely involve reforestation and the rehabilitation of the German Mills Creek floodplain. The reforestation will provide opportunities for other wildlife (e.g., foraging habitat for insects, birds and bats). And will eventually provide additional habitat and canopy cover within the Subject Lands and the surrounding landscape. Positive effects through the removal of the existing degraded CUW1 community and it's associated invasive presence are expected. The removal of these seed sources will protect the rest of the surrounding landscape	The following monitoring and management opportunities are suggested: • Monitor reforestation efforts to ensure mitigative and avoidance measures are effective; and • Monitor effectiveness of mitigation and restoration areas to ensure functioning as designed.

Table 8: Predicted Effects, Mitigation, Enhancement and Net Effects

NATURAL HERITAGE FEATURES AND ASSOCIATED FUNCTIONS	SIGNIFICANT CHARACTERISTICS AND SENSITIVITY	IMPACTOR	PREDICTED EFFECTS	AVOIDANCE, MITIGATION AND/OR RESTORATION	NET EFFECTS	MONITORING AND MANAGEMENT
	species, however, due to the communities connectivity to the larger woodland and the restoration and enhancement efforts proposed, these communities will likely be considered significant post restoration efforts		• Wildlife disturbance due to increase in light penetrating the woodland; • Potential construction-related impacts from on-site grading and other machinery including: ○ Stress/dieback (root impact, contaminants, increased sediment).	• Trees removed from the woodland will be felled away from the retained woodland. Tree protection measures (e.g., hoarding, fencing) should be installed to avoid effects on the residual woodland trees during construction. Tree protection measures are further presented within Schollen & Company's Tree Inventory and Assessment Report (2022b). • Native thorny shrubs (i.e. raspberry species) will be installed within the vegetated buffer to discourage woodland access by humans. An intensive restoration approach has been prepared by Schollen & Company through a Landscape Restoration and Enhancement Strategy (**Figure 10**, **Appendix A**). Through the reforestation efforts proposed within the Subject Lands and Study Area, a net benefit to the overall system is expected as it will work to (1) increase native diversity, (2) create additional habitat functions and benefits (e.g., habitat for Eastern Wood-Pewee) and (3) increase overall forested cover by providing an increased compensation ratio (~5:1).		
4. Significant Valleylands	One significant valleyland is present within the Subject Lands. This valleyland is associated with German Mills Creek, and based on the linkage assessment completed, is considered a significant valleyland.	A total of 0.22 ha of encroachment into the valleyland (within an existing RES community) and 0.03 ha of encroachment into the top of bank VPZ is proposed to accommodate the parking lot and trail required to support the	Alteration within the valleyland is proposed to accommodate a parking lot (0.22 ha) and Temple (top of bank VPZ encroachment - 0.03 ha). The form and function of the valleyland should not be impacted as a result of the	The following avoidance and mitigation measures are suggested to minimize impacts on the valleyland: • The selected alignment respects the surveyed dripline of the significant woodlands and is located	No negative Impacts are expected as a result of the proposed mitigative and restorative measures. Provided that the proposed mitigative and restorative measures are enacted and monitored, no negative impacts	The following monitoring and management opportunities are suggested: • Monitor retained SWH features during removal activities to ensure mitigative and avoidance measures are effective; and

Table 8: Predicted Effects, Mitigation, Enhancement and Net Effects

NATURAL HERITAGE FEATURES AND ASSOCIATED FUNCTIONS	SIGNIFICANT CHARACTERISTICS AND SENSITIVITY	IMPACTOR	PREDICTED EFFECTS	AVOIDANCE, MITIGATION AND/OR RESTORATION	NET EFFECTS	MONITORING AND MANAGEMENT
	The limit of the valleyland (i.e., TRCA Regulated Area) were identified on the Subject Lands on **Figure 6** (**Appendix A**).	Temple. Potential indirect impacts associated with the proposed development are largely associated with construction activities adjacent to the valleyland and potential for human interactions within the feature. Grading impacts associated with the development will be assessed in more detail at the SPA stage.	proposed alterations given the existing alteration within the Subject Lands within the valleylands. The proposed trail alignment does include encroachment into the top of bank VPZ , however, the trail alignment will still need to be confirmed, to limit the extent of required tree removals, though the majority of vegetation removals will be focused on Black Locust, Manitoba Maple and Common Buckthorn as well as other invasive species. Additional efforts will be required to support the final alignment of the trail (i.e., slope stability, drainage, vegetation inventory, habitat inventory etc.), this will be assessed at the SPA stage.	within an existing residential area. Access into this area already exists off Leslie Street and would limit the necessary grading within the valleyland. • Green and sustainable infrastructure opportunities (e.g., permeable pavement) will be prescribed through the detailed design at the SPA stage. • The trail will be designated as an all-season trail for accessibility. • The usage of salt during winter maintenance will be avoided to the greatest extent possible, to minimize negative impacts to the NHN. • Educational signage will be installed at each trail entrance to inform trail users of the importance of protecting the valleyland and NHN. • The trail alignment was previously discussed with the TRCA to limit the potential impacts. Native thorny plant material will be installed along the trail to discourage human interactions with the remainder of the NHN	are expected within the valleyland. An ecological benefit is expected as various areas within the existing valleyland will be revegetated and reincorporated into the existing NHN, further enhancing the overall system and establishing a more resilient NHN. More generally, the proposed restoration and enhancement efforts will largely involve reforestation and the rehabilitation of the German Mills Creek floodplain. The reforestation will provide opportunities for other wildlife (e.g., foraging habitat for insects, birds and bats). And will eventually provide additional habitat and canopy cover within the Subject Lands and the surrounding landscape.	Monitor effectiveness of mitigation and restoration areas to ensure functioning as designed.
5. Significant Wildlife Habitat	The following SWH types are found within the Subject Lands: • Candidate Habitat for Special Concern Species (Eastern Wood-Pewee) within the FOD and FOM communities. All SWH types identified within the Primary Study Area are illustrated on **Figure 6**, **Appendix A**. All SWH types are present within the significant	No direct impacts are anticipated due to the proposed development. Potential indirect impacts (i.e., related to proposed development) include: • Increased presence of people; • Loud disturbance during construction;	No direct impacts are anticipated due to the proposed development. Potential indirect effects include: 1 – Increased pedestrian usage • Increased invasive species transport • Degradation of surrounding vegetation	The following avoidance and mitigation measures are suggested to minimize impacts on retained SWH: • To avoid negative impacts to migratory birds and bats, trees should be removed outside of the active windows (April 1 to September 30). Where tree removals are proposed within this window,	No negative Impacts are expected as a result of the proposed mitigative and restorative measures. Positive effects are expected through the creation of the restoration and enhancement area, which will also target forest habitat suitable for Eastern Wood-Pewee.	The following monitoring and management opportunities are suggested: • Monitor retained SWH features during removal activities to ensure mitigative and avoidance measures are effective; and • Monitor effectiveness of mitigation and restoration

Table 8: Predicted Effects, Mitigation, Enhancement and Net Effects

NATURAL HERITAGE FEATURES AND ASSOCIATED FUNCTIONS	SIGNIFICANT CHARACTERISTICS AND SENSITIVITY	IMPACTOR	PREDICTED EFFECTS	AVOIDANCE, MITIGATION AND/OR RESTORATION	NET EFFECTS	MONITORING AND MANAGEMENT
	woodland remaining within the Subject Lands.	• Soil disturbance (soil compaction or erosion) during construction; and • Increased lighting.	2 – Increased lighting • Disrupt wildlife behaviours (i.e., disturbed day/night cycles) • Shade tolerant vegetation unable to prosper in areas of intense light	a qualified ecologist must complete targeted surveys to determine whether nesting/roosting is occurring within the specific stems prior to the proposed removal. • Following construction activities, increased noise in the vicinity of the NHN may occur; however, those interactions will be less common than those associated with other types of development (e.g., residential). Worshipers and their companion animals may use the trail systems. To avoid negative impacts with the NHN, educational signage will be installed to educate the users about the importance of maintaining and protecting the system and its associated wildlife. • Eastern Wood-Pewee will be considered when designing for the habitat compensation areas within the NHN. Opportunities to increase habitat diversity, increase native plant materials and provide foraging opportunities will be explored.	More generally, the proposed restoration and enhancement efforts will largely involve reforestation and the rehabilitation of the German Mills Creek floodplain. The reforestation will provide opportunities for other wildlife (e.g., foraging habitat for insects, birds and bats). And will eventually provide additional habitat and canopy cover within the Subject Lands and the surrounding landscape.	areas to ensure functioning as designed.
6. Fish Habitat	Not Present within the Subject Lands. However German Mills Creek is present within the broader Study Area and is considered direct fish habitat.	No direct impacts are anticipated due to the proposed development.	No direct impacts are anticipated due to the proposed development.	N/A	An ecological benefit is expected as various areas within the existing German Mills Creek valleyland will be revegetated and reincorporated into the existing NHN, further enhancing the overall aquatic system and establishing a more resilient NHN. More generally, the proposed restoration and enhancement efforts will largely involve	Monitor effectiveness of mitigation and restoration areas to ensure functioning as designed.

Table 8: Predicted Effects, Mitigation, Enhancement and Net Effects

NATURAL HERITAGE FEATURES AND ASSOCIATED FUNCTIONS	SIGNIFICANT CHARACTERISTICS AND SENSITIVITY	IMPACTOR	PREDICTED EFFECTS	AVOIDANCE, MITIGATION AND/OR RESTORATION	NET EFFECTS	MONITORING AND MANAGEMENT
					reforestation and the rehabilitation of the German Mills Creek floodplain.	
7. Habitat of Endangered and Threatened Species	The following SAR were identified within the Subject Lands: • Eastern Small-footed Myotis (*Myotis leibii*); and No habitat related to either of these species was determined to be present on the Subject Lands, and no habitat is proposed for removal. In addition, the adjacent German Mills Settlers Park to the north houses habitat for two threatened grassland bird species, Eastern Meadowlark and Bobolink. These species were not observed breeding in the vicinity of the Subject Lands, however they are expected to be nesting in the broader meadow habitat within the park.	No direct impacts are anticipated due to the proposed development.	No direct impacts are anticipated due to the proposed development.	N/A	Positive effects are expected through invasive species management, cultural meadow restoration and enhancement and mercury remediation of the northern CUM1 adjacent to the German Mills Settlers Park. The implementation of the restoration initiatives within Area 1 will result in the establishment of approximately 1.45 ha of new meadow habitat.	Monitor effectiveness of mitigation and restoration areas to ensure functioning as designed.
8. Significant Areas of Natural and Scientific Interest	Not Present.	N/A	N/A	N/A	N/A	N/A
OTHER PROVINCIAL PLANS						
1. Greenbelt Plan	Not Present.	N/A	N/A	N/A	N/A	N/A
2. Oak Ridges Moraine	Not Present.	N/A	N/A	N/A	N/A	N/A
OTHER FEATURES AND FUNCTIONS						
1. Other Treed Areas	The CUW1 vegetation community within the Subject Lands does not meet the	In support of the proposed development, the community	Removal of 0.53 ha of the treed community.	The following mitigative and restorative measures are proposed to avoid negative	No negative Impacts are expected as a result of the	The following monitoring and management opportunities are suggested:

Table 8: Predicted Effects, Mitigation, Enhancement and Net Effects

NATURAL HERITAGE FEATURES AND ASSOCIATED FUNCTIONS	SIGNIFICANT CHARACTERISTICS AND SENSITIVITY	IMPACTOR	PREDICTED EFFECTS	AVOIDANCE, MITIGATION AND/OR RESTORATION	NET EFFECTS	MONITORING AND MANAGEMENT
	minimum stem density requirements to be considered a woodland under the Forestry Act, Regional or City OPs.	(0.53 ha) will be removed from the landscape. Grading impacts associated with the development will be assessed in more detail at the SPA stage		impacts to the significant woodland: • All tree/native vegetation removals should occur outside of the active bat window (April 1 to September 30) and the migratory bird window (April 1 to August 25); • Erosion and sediment control (ESC) measures should be installed around nearby/receiving hydrologic features to reduce sedimentation inputs; • Where feasible, pre-stressing trees along the proposed new edge over a pre-construction period should be considered as this will allow the trees to experience less shock; • Where trees are proposed for removal, appropriate arboricultural best management practices should be taken to prevent damage to trunks and root systems of nearby retained trees; and • Trees removed from the woodland will be felled away from the retained woodland. Tree protection measures (e.g., hoarding, fencing) should be installed to avoid effects on the residual woodland trees during construction. Tree protection measures are further presented within Schollen & Company's Tree Inventory and Assessment Report (2022b). • Native thorny shrubs (i.e. raspberry species) will be installed within the vegetated	proposed mitigative and restorative measures. Positive effects are expected through the creation of the restoration and enhancement area. The proposed restoration and enhancement efforts will largely involve reforestation and the rehabilitation of the German Mills Creek floodplain. The reforestation will provide opportunities for other wildlife (e.g., foraging habitat for insects, birds and bats). And will eventually provide additional habitat and canopy cover within the Subject Lands and the surrounding landscape.	• Monitor retained SWH features during removal activities to ensure mitigative and avoidance measures are effective; and • Monitor effectiveness of mitigation and restoration areas to ensure functioning as designed.

Table 8: Predicted Effects, Mitigation, Enhancement and Net Effects

NATURAL HERITAGE FEATURES AND ASSOCIATED FUNCTIONS	SIGNIFICANT CHARACTERISTICS AND SENSITIVITY	IMPACTOR	PREDICTED EFFECTS	AVOIDANCE, MITIGATION AND/OR RESTORATION	NET EFFECTS	MONITORING AND MANAGEMENT
				buffer to discourage woodland access by humans. An intensive restoration approach has been prepared by Schollen & Company through a Landscape Restoration and Enhancement Strategy (**Figure 10**, **Appendix A**). Through the reforestation efforts proposed within the Subject Lands and Study Area, a net benefit to the overall system is expected as it will work to (1) increase native diversity, (2) create additional habitat functions and benefits (e.g., habitat for Eastern Wood-Pewee) and (3) increase overall forested cover by providing an increased compensation ratio (~5:1).		
2. Regionally and Locally Important Species	Not Present.	N/A	N/A	N/A	N/A	N/A
3. Environmentally Significant Areas	Not Present.	N/A	N/A	N/A	N/A	N/A
4. Other - Presence of Species Under the ***Migratory Birds Convention Act***	Presence of deciduous and coniferous trees and shrubs that may provide nesting habitat for breeding birds.	Removal of trees within the CUW1 community and tree removals associated with the anthropogenic and residential communities within the proposed development area.	Inadvertent harm to migratory birds or their eggs or nests.	Avoidance and mitigation will include: • Any tree or vegetation removal should occur outside of the migratory bird-nesting window of April 1 – August 31 (approximate). In rare circumstances where this window cannot be avoided, a nest search is recommended, and a buffer will be marked off surrounding any active nests that must be maintained until activity in the nest has ceased.	With the implementation of the mitigation measures, no negative impact is expected.	N/A With the implementation of the mitigation measures, no negative impact is expected.

Appendix C

Terms of Reference

March 18, 2022

City of Markham
101 Town Centre Boulevard
Markham, ON
L3R 9W3

Toronto and Region Conservation Authority
101 Exchange Ave,
Concord, ON
L4K 5R6

To Whom It May Concern:

RE: Scoped Environmental Impact Statement Terms of Reference
Baha'i National Centre Site 7200 and 7290 Leslie Street
City of Markham, Ontario

As outlined in the Feasibility Report, there are four (4) properties owned by The National Spiritual Assembly of the Bahá'í of Canada. The properties are generally described as four lots. These lots are described below:

- **Lot 1:** This lot encompasses the property at 7200 Leslie Street, located on the west side of Leslie Street and north of Steeles Avenue. The property is home to the existing Bahá'í National Centre ("BNC") and has an area of 1.16 ha.
- **Lot 2:** This lot includes a portion of the 7290 Leslie Street property immediately north of 7200 Leslie Street. The majority of this property is classified as woodland, however there is an existing log house with a detached garage, driveway and manicured lawn that is located on the east side of the property. This property is contiguous with Lot 3 and comprises 7.3 ha between the two lots.
- **Lot 3:** This lot includes the most northern portion of 7290 Leslie Street, where the lands were historically part of a landfill. This lot is included within the 7.3 ha as discussed above.
- **Lot 4:** This lot is associated with 7015 Leslie Street. This property was formerly the Mayfair Tennis Club and more recently the home of the Adventure Valley children's camp. These lands include 8.1 ha, with Duncan Woods Creek bisecting the lands in a north-south direction.

While all of these lots will be discussed within the full scope of the project, the final Scoped Environmental Impact Study will only be assessing the natural heritage features and associated functions within Lots 1 and 2, as this is where development is proposed. Lot 3 and Lot 4 will be used for restoration and enhancement purposes, targeting reforestation within the lots to achieve a net benefit to the landscape.

1. INTRODUCTION

GEI Consultants (GEI) has been retained by The National Spiritual Assembly of the Bahá'ís of Canada ("NSA Bahá'í Canada") to complete a Scoped Environmental Impact Study (EIS) for the proposed development of the Baha'i National Centre located at 7200 and 7290 Leslie Street in the City of Markham (herein referred to as the Subject Lands; **Figure 1**, **Appendix C1**). The Subject Lands are generally bounded by German Mill Settlers Park to the north, Bercy Park to the east, Waterloo Court to the south and Bayview Golf and Country Club to the west. A single detached residence currently occupies 7290 Leslie Street and is surrounded by woodland. Access for both properties is provided via a private road, which is also used by the Bayview Golf and Country Club.

The majority of the Subject Lands have been identified as woodland and occur within the Greenway System as per the City of Markham's Official Plan (OP). The proposed development includes the construction of a Baha'i National Temple within a portion of the Subject Lands that are currently identified as part of the Greenway System. As such, an Official Plan Amendment to the Town of Markham Official Plan and associated Zoning Bylaw Amendment will be required to support the development proposal, this Scoped EIS will be completed in support of this process.

Due to the complexities that come with proposing any development within the Greenway System, GEI understands that pre-consultation with the City of Markham (the City), Regional Municipality of York (the Region) and the Toronto and Region Conservation Authority (TRCA) was initially undertaken in 2019. In addition, a formal Pre-Consultation Meeting was held with City of Markham in 2019 to discuss the feasibility of the proposed temple and its location, from these initial discussions the location of the temple has been revised to an area that is predicted to have fewer constraints

1.1 Purpose of the Report

Consistent with the requirements of Section 3.5 of the City of Markham Official Plan (OP), the Scoped EIS is required to assess the potential impacts of the proposed development on the natural heritage features and associated functions on the Subject Lands and adjacent lands. This Terms of Reference (ToR) has been prepared in accordance with the TRCA Environmental Impact Statement Guidelines (2014).

The Scoped EIS will consider applicable provincial and municipal policies, including the natural heritage policies of the Provincial Policy Statement (PPS; MMAH 2020) and associated provincial implementation guidance contained in the Natural Heritage Reference Manual (NHRM; MNR 2010). In addition, this EIS considers the policies of the Region, the City and the TRCA. The study components include the following:

- A review of existing natural heritage background information, policies, and legislation applicable to the Subject Lands in its regional context;
- A field review of the natural heritage features on the Subject Lands and the immediately adjacent 120 (where applicable) through the completion of ecological surveys and inventories;
- An evaluation of the sensitivity of the natural heritage features and their associated functions on the Subject Lands;

- An assessment of whether any of the natural heritage features within the Subject Lands meet the test of "significant" as defined by the PPS;
- A description of the proposed undertaking and development proposal; and
- Impact assessment and identification of design and mitigation measures.

This Terms of Reference outlines the scope of work to be completed (**Section 2.3.2**), along with the preliminary results collected during the initial 2019 survey efforts (**Section 2.3.3**). Preliminary significance analysis has also be completed for the woodland communities within the Subject Lands (**Section 2.3.4.1**).

2. SCOPED EIS CONTENT

The Scoped EIS will consider and include the following information:

- Identification and characterization of natural heritage features in accordance with the PPS and City's Official Plan;
- Completion of a biophysical inventory as required by the City's and TRCA's EIS Guidelines;
- Confirmation of presence of Species at Risk (SAR) habitat to ensure compliance with the provincial Endangered Species Act, 2007; and
- An assessment of impacts from the existing development on the Subject Lands environmental features.

2.1 Natural Heritage Planning Considerations

The Subject Lands are subject to federal, provincial, and municipal legislation as well as land use policies established by the Region, the City, and the TRCA.

An assessment of the quality and extent of natural heritage features found on, and adjacent to, the Subject Lands and the potential impacts to these features from the proposed development application was completed to address the natural heritage components of the following regulatory agencies, local and regional municipalities, and/or legislation:

- Provincial Policy Statement (2020);
- Regional Municipality of York Official Plan (2010);
- City of Markham Official Plan (2014);
- Endangered Species Act, 2007;
- Fisheries Act, 1985;
- Migratory Birds Convention Act, 1994; and
- TRCA's The Living City Policies (2014).

2.1.1 Provincial Policy Statement

The PPS (MMAH 2020) provides direction on matters of provincial interest related to land use planning and development. It " supports a comprehensive, integrated and long-term approach to planning… " The PPS is to be read in its entirety and land use planners and decision-makers need to consider all relevant policies and how they work together.

This report addresses those policies that are specific to Natural Heritage (Section 2.1) with some reference to other policies with relevance to Natural Heritage and impact assessment consideration and areas of overlap (e.g., those related to Efficient and Resilient Development and Land Use Patterns, Section 1.1; Sewage, Water and Stormwater, Section 1.6.6; Water, Section 2.2; Natural Hazards, Section 3.1).

Eight types of significant natural heritage features are defined in the PPS, as follows:

- Significant wetlands;
- Significant coastal wetlands;
- Significant woodlands;
- Significant valleylands;
- Significant wildlife habitat (SWH);
- Fish habitat;
- Habitat of endangered and threatened species; and
- Significant areas of natural and scientific interest (ANSIs).

Development and site alteration shall not be permitted in significant wetlands, or in significant coastal wetlands. Development and site alteration shall not be permitted in significant woodlands, significant valleylands, SWH or significant ANSIs, unless it is demonstrated that there will be no negative impacts on the natural features or their ecological functions.

Development and site alteration shall not be permitted in the habitat of endangered and threatened species or in fish habitat, except in accordance with provincial and federal requirements. Development and site alteration may be permitted on lands adjacent to fish habitat provided it has been demonstrated that there will be no negative impacts on the natural feature or their ecological functions.

2.1.1.1 Natural Hazards

Section 3.1.1 of the PPS directs development to areas outside of hazardous lands adjacent to the shoreline of the Great Lakes – St. Lawrence River System (flooding, erosion and dynamic beach hazards), hazardous lands adjacent to river, steam and small inland lake systems (flooding and/or erosion hazards) and hazardous sites. Section 3.1.2 further prohibits development and site alteration within:

a) the dynamic beach hazard;
b) defined portions of the flooding hazard along connecting channels (the St. Marys, St. Clair, Detroit, Niagara and St. Lawrence Rivers);
c) areas that would be rendered inaccessible to people and vehicles during times of flooding hazards, erosion hazards and/or dynamic beach hazards, unless it has been demonstrated that the site has safe access appropriate for the nature of the development and the natural hazard; and
d) a floodway regardless of whether the area of inundation contains high points of land not subject to flooding.

The Subject Lands are not adjacent to a lake or connecting channels and, as such, subsections (a) and (b) of Section 3.1.2 are not applicable. Subsections (c) and (d) are also unlikely to be applicable, however due to the proximity of Duncan Woods Creek the Subject Lands will be addressed through the delineation of the Regional Storm flood plain. This will allow the Study Team to define the natural hazard limits within the Subject Lands.

2.1.2 York Region Official Plan

The York Region OP (2010; consolidated 2019) provides policy direction intended to "help co-ordinate and set the stage for more detailed planning by local municipalities" (Section 1.4). The Region's OP identifies and outlines protections for the Regional Greenlands System. Section 2.2 policies provide protection for key natural heritage and key hydrologic features, which are components of the Regional Greenlands System. Section 2.5 provides direction with respect to water systems, ensuring development is directed away from natural hazards and providing management direction regarding watershed planning and stormwater management (SWM).

The Subject Lands are designated Urban Area as per Map 2 of the Regions OP. In regard to the Regional Greenlands System, the Subject Lands are outside of the Regional Greenlands associated with Duncan Woods Creek where the Adventure Valley children's camp is located **Figure 2** (**Appendix C1**).

The designation of Regional Greenlands System is intended to protect natural heritage and hydrologic features, such as valleylands, stream corridors, sensitive groundwater features, woodlands, wetlands, and agricultural lands. The intent of the designation is to also support agricultural activities, protection of wildlife habitat, passive recreation uses, natural heritage enhancement opportunities and nature appreciations (Section 8.6).

2.1.3 City of Markham Official Plan

The City of Markham OP (2014) establishes key policy directions for detailed planning at the Secondary Plan level. The majority of the Subject Lands are designated as Greenway with a small portion designated as Residential Low-Rise per Map 3: Land Use. The majority of the Subject Lands also designated as Natural Heritage Network per Map 4: Greenway System. Specific features within the Greenway System are identified in Map 5: Natural Heritage Features and Landforms and Map 6: Hydrologic Features.

The Residential Low-Rise designation typically applies to existing residential neighbourhoods in the City and is categorized by lower-scale buildings such as detached, semi-detached, duplexes, and townhouse dwelling types that will experience minimal physical changes in the future (Section 8.2.3). This designation is present where the existing temple and administrative centre are located is designated Residential Low-Rise designation.

2.1.3.1 The Greenway System

The Greenway System is a natural heritage system defined in Policy 3.1.1.1 of the City's OP. The woodland communities identified within the Subject Lands are within the Greenway System. Within the Subject Lands, the Greenway System is composed of the Natural Heritage Network Lands as shown on **Figure 2** (**Appendix C1**).

Greenway designation allows the following land uses:

- Agricultural uses permitted in the Countryside designation;
- Archaeological activity;
- A Dwelling unit;
- Secondary suite;
- Ecological restoration;
- Forest, wildlife habitat and fisheries management and conservations;
- Watershed management;
- Trails and nature based public recreational activities;
- Park related uses;
- Transportation or servicing utility infrastructure; and
- Communications infrastructure.

Within Section 3.1.1.3 of the City's OP, it states that the Greenway System and associated natural heritage features "reflect the most accurate information available and are to be confirmed and may be refined or modified". The designation can be confirmed or modified as follows:

a) confirmation of the boundaries will be undertaken in the field, in consultation with appropriate agencies, and any corresponding changes to the mapping shall be undertaken without amendment to this Plan;
b) refinements to the boundaries may be considered as part of an application pursuant to the Planning Act, without an amendment to this Plan, where supported by a subwatershed study, master environmental servicing plan, environmental impact study or equivalent study; and
c) modifications to the boundaries, other than refinements, including the delineation of the boundaries of the Natural Heritage Network Enhancement Lands in accordance with Section 3.1.3.2, may be considered through an amendment to this Plan, where supported by a subwatershed study, master environmental servicing plan, environmental impact study or equivalent study.

2.1.4 Toronto and Region Conservation Authority

The *Conservation Authorities Act, 1990* (amended 2021) provides the legal basis for conservation authorities to undertake watershed planning and management programs that prevent, eliminate, or reduce risk to life and property from flood and erosion hazards and to encourage the conservation and restoration of natural features and resources. The TRCA administers Ontario *Regulation 166/06: Regulation of Development, Interference with Wetlands and Alterations to Shorelines and Watercourses*. Through this regulation and in accordance with Section 28.1 of the *Conservation Authorities Act*, the TRCA has the authority to:

- Prohibit, regulate, or provide permission for straightening, changing, diverting or interfering in any way with the existing channel of a river, creek, stream, watercourse or changing or interfering with a wetland; and
- Prohibit, regulate, or provide permission for development if the control of flooding, erosion, dynamic beaches, pollution or the conservation of land may be affected by the development.

Ontario Regulation 166/06 defines the extent of the regulated area within the TRCA watersheds. Regulated areas exist within the majority of the Greenway System, though it excludes the southwest corner of the woodland. Works within the regulated area will require permits from the TRCA for development or site alteration that would affect a river, creek, wetland, floodplain, or valleyland, as noted above.

The policies for the implementation of TRCA's regulation are contained in *The Living City Policies: for Planning and Development in the Watersheds of the Toronto and Region Conservation Authority* (2014). This policy document establishes the TRCA's Vision, Mission, Strategic Objectives, and Principles and provides policy direction for environmental planning.

2.1.5 Endangered Species Act

The Ministry of Environment, Conservation and Parks (MECP) administers the provincial *Endangered Species Act, 2007* (ESA; amended 2021), which was developed to:

- Identify species at risk (SAR), based upon best available science;
- Protect species at risk and their habitats and to promote the recovery of species at risk; and
- Promote stewardship activities that would support those protection and recovery efforts.

The ESA protects all Threatened, Endangered, and Extirpated species listed on the Species at Risk in Ontario List (Ontario Regulation 230/08). These species are legally protected from harm or harassment and their habitats are legally protected from damage or destruction, as defined under the ESA.

2.1.6 Fisheries Act

Fisheries and Oceans Canada (DFO) administers the federal *Fisheries Act, 1985* (amended 2019), which defines fish habitat as "spawning grounds and other areas, including nursery, rearing, food supply, and migration areas, on which fish depend directly or indirectly in order to carry out their life processes" [subsection (2)1]. The *Fisheries Act* prohibits the death of fish by means other than fishing [subsection 34.4 (1)] and the harmful alteration, disruption, or destruction of fish habitat [HADD; subsection 35. (1)]. A HADD is defined as "any temporary or permanent change to fish habitat that directly or indirectly impairs the habitat's capacity to support one or more life processes" (DFO 2019a).

Some projects may be eligible for exemption from the DFO review process, as specified under Step 3 of the DFO Fish and Fish Habitat Protection Program review process (DFO 2019b). Examples of exemptions include clear-span bridges and bridge maintenance projects where DFO mitigation measures are applied, artificial waterbodies with no hydrological connection to occupied fish habitat, and projects that follow the Standards and Codes of Practice defined by DFO.

All other projects or activities that have the potential to impact fish or fish habitat should be submitted to DFO through the "Request for Review" process. DFO will review the proposed project to determine whether there is potential to:

- impact an aquatic species at risk;

- cause the death of fish; or
- result in HADD of fish habitat.

The death of fish by means other than fishing or a HADD of fish habitat can be authorized by DFO under paragraphs 34.4(2)(b) or 35(2)(b) of the *Fisheries Act*. Authorizations require the preparation and submission of an application package identifying the impacts on fish and fish habitat; the avoidance, mitigation, and offsetting measures that will be implemented; and any monitoring that is proposed.

2.1.7 Migratory Bird Convention Act

Environment and Climate Change Canada (ECCC) administers the *Migratory Birds Convention Act, 1994* (amended 2017), which protects the nests of migratory bird species from destruction, including incidental take (i.e., the unintentional destruction of a nest), as well as from disturbance. The *Migratory Birds Convention Act* does not provide a set date where activities, such as tree removal, can be completed without the risk of incidental harm to the nests of birds. The requirement to ensure that there are no bird nests present within the work area rests with the proponent of the activity.

2.2 Data Collection Approach and Methodology

GEI completed initial assessment efforts in the fall of 2019. An additional scoped ecological field survey program is proposed for the 2022 field season to provide the data required to complete a significance assessment for the natural features present on and adjacent to the Subject Lands.

Ecological survey efforts completed in 2019 included the following:

- One-season Ecological Land Classification and botanical survey (fall); and
- Stem Density Survey

Ecological survey efforts to be completed in 2022 include the following:

- Two-season botanical survey (i.e., spring and summer);
- Bat Habitat Assessment;
- Bat Acoustic Survey;
- Breeding Bird Surveys; and
- Insect Surveys.

2.2.1 Background References

GEI has relied, in part, upon supporting background information to provide additional insight into the overall character of the Subject Lands. These resources included:

- MNRF Land Information Ontario (LIO) Natural Features Mapping;
- Natural Heritage Information Centre (NHIC) database;
- Provincial wildlife atlases (i.e., Ontario Breeding Bird Atlas, etc.);

- Citizen Science Databases (i.e., iNaturalist and eBird); and
- DFO Aquatic Species at Risk Distribution Mapping

The results of these background reviews are discussed in the following sections. Any additional background reports that are made available to GEI by reviewing agencies will be reviewed and incorporated into the EIS, as appropriate.

2.2.1.1 Land Information Ontario Natural Heritage Areas

Based on the Ministry of Natural Resources and Forestry (MNRF) Land Information Ontario (LIO) geographic database, the following features were identified on or adjacent to the Subject Lands (**Figure 1**, **Appendix C1**):

- Woodland
- Watercourse (Duncan Woods Creek)

No Areas of Natural and Scientific Interest (ANSIs) or Environmentally Significant Areas (ESAs) occur on or within 120 m of the Subject Lands.

2.2.1.2 Natural Heritage Information Centre

The NHIC database (MNRF 2021) was searched for records of provincially significant plants, vegetation communities and wildlife on, and in the vicinity of, the Subject Lands. The database provides occurrence data by 1 km x 1 km squares, with one square encompassing Subject Lands (17PJ3052).

A total of two species was recorded in the atlas squares that overlap with the Subject Lands, with the following species of interest noted:

- Species listed as Threatened or Endangered on the SARO list:
    - Redside Dace (*Clinostomus elongatus*) – Endangered; and
    - Eastern Meadowlark (*Sturnella magna*) – Threatened.

2.2.1.3 Ontario Breeding Bird Atlas

The OBBA contains detailed information on the population and distribution status of Ontario birds (Bird Studies Canada et al. 2006). The data are presented on 100 km2 area squares with one square overlapping the Subject Lands (17PJ35). It should be noted that the Subject Lands are a small component of the overall bird atlas square, and therefore it is unlikely that all bird species are found within the Subject Lands. Habitat type, availability and size are all contributing factors in bird species presence and use.

A total of 84 species was recorded in the atlas squares that overlap with the Subject Lands, with the following species of interest noted:

- Species listed as Threatened or Endangered on the SARO list:
    - Barn Swallow (*Hirundo rustica*) – Threatened;

  - Bank Swallow (*Riparia riparia*) – Threatened;
  - Bobolink (*Dolichonyx oryzivorus*) – Threatened;
  - Chimney Swift (*Chaetura pelagica*) – Threatened; and
  - Eastern Meadowlark – Threatened.
- Species of Conservation Concern (i.e., listed as Special Concern on the SARO list, or identified as an S1-S3 species):
  - Common Nighthawk (*Chordeiles minor*) – Special Concern;
  - Eastern Wood-Pewee (*Contopus virens*) – Special Concern;
  - Peregrine Falcon (*Falco peregrinus*) – Special Concern; and
  - Wood Thrush (*Hylocichla mustelina*) – Special Concern.

2.2.1.4 Ontario Reptile and Amphibian Atlas

The Ontario Reptile and Amphibian Atlas (Ontario Nature 2019) contains detailed information on the population and distribution status of reptiles and amphibians in Ontario. The database provides occurrence data by 10 km x 10 km squares. The Subject Lands is located within the atlas square 17PJ35, which was used to determine a potential reptile and amphibian species list for the area. The Subject Lands is a small component of the overall atlas square, and therefore all the reptile and amphibian species listed for this atlas square may not be found within the Subject Lands. Habitat type, availability, and size are all contributing factors to reptile and amphibian species presence and use.

A total of 17 reptile and amphibian species were recorded in atlas square 17PJ35, including five turtle species, five snake species, one salamander species, and six frog and toad species. Of these reported species, the following species of interest noted:

- Species listed as Threatened or Endangered on the SARO list:
  - Blanding's Turtle (*Emydoidea blandingii*) – Threatened.
- Species of Conservation Concern (i.e., listed as Special Concern on the SARO list, or identified as an S1-S3 species):
  - Northern Map Turtle (*Graptemys geographica*) – Special Concern; and
  - Snapping Turtle (*Chelydra serpentina*) – Special Concern.

2.2.1.5 Ontario Butterfly and Moth Atlases

The Ontario Butterfly and Moth Atlases (Toronto Entomologists' Association 2020a, 2020b) contain detailed information on the population and distribution status of butterflies and moths in Ontario. The database provides occurrence data by 10 km x 10 km squares. The Subject Lands is located within the atlas square 17PJ35, which was used to determine a potential butterfly and moth species list for the area. The Subject Lands is a small component of the overall atlas square, and therefore all the butterfly and moth species listed for this atlas square may not be found within the Subject Lands. Habitat type, availability, and size are all contributing factors to butterfly and moth species presence and habitat use.

A total of 49 butterfly species and 13 moth species were recorded in atlas square 17PJ35. Of these reported species, the following species of interest noted.

- Species of Conservation Concern (i.e., listed as Special Concern on the SARO list, or identified as an S1-S3 species):
    - Monarch (*Danaus plexippus*) – Special Concern.

2.2.1.6 Fisheries and Oceans Canada

Aquatic SAR distribution mapping (DFO 2021) was reviewed to identify any known occurrences of aquatic SAR, including fish and mussels, within the Subject Lands.

No aquatic SAR were identified on or within 120 m of the Subject Lands.

2.2.1.7 iNaturalist (Citizen Science)

The iNaturalist (2021) database is a large citizen science-based identification and data collection app. It allows any citizen to submit observations to be reviewed and identified by other naturalists and scientists to help provide accurate species observations. As the observations can be submitted by anyone, and the records are not officially vetted, the data obtained from this tool should not be used as a clear indicator of species presence, and species may be filtered out based on habitat and target survey efforts.

This online database was examined to identify observations made within the Subject Lands that were research grade. A total of three species of interest were recorded within 120 m of the Subject Lands:

- Species listed as Threatened or Endangered on the SARO list:
    - Eastern Meadowlark – Threatened.
- Species of Conservation Concern (i.e., listed as Special Concern on the SARO list, or identified as an S1-S3 species):
    - Eastern Wood-Pewee – Special Concern; and
    - Monarch – Special Concern.

2.2.1.8 eBird (Citizen Science)

The eBird (2021) database is a large citizen science-based project with a goal to gather bird diversity information in the form of checklists of birds, archive it, and share it to power new data-driven approaches to science, conservation and education. As the observations can be submitted by anyone, and the records are not officially vetted, the data obtained from this tool should not be used as a clear indicator of species presence, and species may be filtered out based on habitat and target survey efforts.

This online database was examined to identify observations made within the vicinity of the Subject Lands. One hot spot was located in close proximity to the Subject Lands within Markham's German Mills Park northeast of the Subject Lands boundary. A total of 168 species were recorded in the German Mills Park hotspot, with the following species of interest noted:

- Species listed as Threatened or Endangered on the SARO list:
    - Barn Swallow – Threatened;
    - Bank Swallow – Threatened;

  - Bobolink – Threatened;
  - Chimney Swift – Threatened; and
  - Eastern Meadowlark – Threatened.
- Species of Conservation Concern (i.e., listed as Special Concern on the SARO list, or identified as an S1-S3 species):
  - Common Nighthawk – Special Concern;
  - Eastern Wood-Pewee – Special Concern; and
  - Golden-winged Warbler (*Vermivora chrysoptera*) – Special Concern;
  - Peregrine Falcon – Special Concern; and
  - Wood Thrush – Special Concern.

2.2.2 Technical Methods and Field Studies

A scoped ecological field survey program is proposed for the 2022 field season to provide the data required to complete a significance assessment for the natural features present on and adjacent to the Subject Lands. Ecological field surveys to be conducted as part of the Scoped EIS will focus on the Subject Lands as shown on **Figure 2** (**Appendix C1**). Impacts to adjacent lands (i.e., within 120 m of the Subject Lands, as identified within the Natural Heritage Reference Manual; MNR 2010) will also be considered. Based on the City's and TRCA's EIS Guidelines, initial site reconnaissance and initial fieldwork completed in 2019, we propose the following ecological field surveys:

- Two-season botanical survey (i.e., spring and summer);
- Feature Staking;
- Bat Habitat Assessment;
- Bat Acoustic Survey;
- Breeding Bird Surveys; and
- Insect Surveys.

No reptile, amphibian or aquatic surveys are proposed given that it does not appear as though any suitable habitat is present on the Subject Lands based on aerial interpretation and the initial survey efforts completed in the fall of 2019. If potentially suitable habitat is identified on the Subject Lands once field investigations commence in early 2022 (i.e., vernal pools, potential hibernacula features), additional survey effort will be completed as necessary.

Survey methodology related to each specific survey type is described in the next sections in detail.

2.2.2.1 Botanical Inventory and Ecological Land Classification Methodology (2019, 2022)

The vegetation assessments have consisted of one (fall) botanical survey and ELC. Two additional botanical inventories (spring and summer) will be completed during the 2022 field season.

<u>Survey Methods</u>

Vegetation communities were first identified on aerial imagery and then verified in the field. Vegetation community types were confirmed, sampled and revised, if necessary, using the

sampling protocol of the ELC for Southern Ontario (Lee at al. 1998). ELC was completed to the finest level of resolution (Vegetation Type), where feasible. Species names generally follow nomenclature from the Flora Ontario – Integrated Botanical Information System (FOIBIS; Newmaster and Ragupathy 2012).

The provincial status of all plant species and vegetation communities is based on NHIC (2021). Identification of potentially sensitive native plant species is based on their assigned coefficient of conservatism (CC) value, as determined by Oldham et al. (1995). This CC value, ranging from 0 (low) to 10 (high), is based on a species tolerance of disturbance and fidelity to a specific natural habitat. Species with a CC value of 9 or 10 generally exhibit a high degree of fidelity to a narrow range of habitat parameters.

2.2.2.2 Stem Density Survey Methodology (2019)

Survey Methods

One initial round of ELC was completed on the Subject Lands in 2019, which identified a variety of woodland ecosites, such as cultural woodlands, and deciduous and mixed forests. Unless explicitly stated in local policy, "woodland" as defined by southern Ontario ELC (Lee et al 1998) is often not used to guide presence/absence of woodland – a classification method that relies on percent canopy cover. This is likely because a broad, all-encompassing definition of "woodland" is not provided in the ELC manual (e.g., the definition does not include forests or treed swamps, but instead refers specifically to cultural woodlands).

The City of Markham's Official Plan relies on Region of York's Official Plan with respect to the definition of a 'Woodland' which includes minimum stem density numbers for a range of tree sizes, this definition matches the one included within the Forestry Act (1990):

> "Woodlands" means land with at least:
>
> (a) 1,000 trees of any size, per hectare,
>
> (b) 750 trees, measuring over five centimetres in diameter, per hectare,
>
> (c) 500 trees, measuring over 12 centimetres in diameter, per hectare, or
>
> (d) 250 trees, measuring over 20 centimetres in diameter, per hectare

Circular plots were used to develop a statistically representative estimate of stem density within each targeted ELC feature. Plot locations were selected through imagery interpretation and knowledge of on-site conditions; the positioning of these plots was designed to capture variability of density and maturity of woody species within each feature. Plot size was determined based on the size of the ELC unit and anticipated woody density; where feasible, 10 m radius plots were used, with 5 m radius plots reserved for smaller features. Plot coverage was 13.8%. As per the Ontario Woodlot Association (2003), a sampling intensity from 2% to 10% is common for the purposes of determining tree stem density.

Within each plot, all trees that were 1.37 m tall or greater were counted. A tally system was used to count each tree; diameter at breast height (DBH) was used to categorize trees as ≤5 cm, 6-12 cm, 13-20 cm, or >20 cm, following the Forestry Act categorization. The collective plot data was used to calculate stem density within each feature. Tall shrubs, such as European Buckthorn (*Rhamnus cathartica*), Sumac (*Rhus typhina*) and Hawthorn (*Crataegus spp*.) were excluded from this survey.

2.2.2.3 Dripline Staking Methodology (2022)

Pre-staking of woodland driplines within the Subject Lands was completed by Schollen & Company during the Tree Inventory and Assessment survey effort. Should it be required, dripline staking efforts will also be completed with agencies (TRCA and the City of Markham) to confirm the boundary of the woodland communities.

2.2.2.4 Breeding Bird Survey Methodology (2022)

Survey Methods

Breeding bird surveys will be conducted following protocols set forth by the OBBA (Cadman et al. 2007) the Ontario Forest Bird Monitoring Program (Cadman et al. 1998) and the Marsh Monitoring Program (Bird Studies Canada 2014). These protocols generally follow the Bird and Bird Habitats: Guidelines for Wind Power Projects (OMNR 2010) recommended under the SWH Criteria Schedules for Ecoregion 7E and 6E (MNRF 2015a and b) but have been adjusted, based on professional experience, to implement a more comprehensive approach that combines area search and point count techniques.

Surveys will be conducted between dawn and five hours after dawn with suitable wind conditions, and no thick fog or precipitation (Cadman et al. 2007). The point count stations will be placed throughout the Subject Lands. Point count stations will be surveyed in various habitat types, where present and combined with area searches to help determine the presence, variety and abundance of bird species. Each point count station was surveyed for ten minutes for birds within 100 m and outside 100 m. All species recorded on a point-count will be mapped to provide specific spatial information and will be observed for signs of breeding behaviour. Surveys will be conducted at least seven days apart.

2.2.2.5 Insect Survey Methodology (2022)

Scoped Insect surveys will be conducted within the Subject Lands to identify the presence and abundance of one insect Order: Butterflies (Order: Lepidoptera; super-family: Papilionoidea). These insects are excellent indicators of habitat diversity and quality (Hall et. al. 2014, Catling and Brownell 2000). As no water features are present within the Subject Lands proposed for development, Odonata are not anticipated to be using the habitat present.

Survey Methods

Insect surveys do not currently have a set protocol in Ontario. Species detection is dependent on repeated visits during the appropriate flight times for a given species in suitable habitat. Butterflies are conspicuous, easily observed and have plentiful resources to aid in identification of Ontario species and as a result, focus is on these groups during surveying.

Surveys will be conducted between mid-morning and noon or late afternoon to sunset with mostly sunny skies, suitable low wind conditions, no thick fog or precipitation. Temperatures will be between 18°C and 25°C such that insect activity is optimal. Area searches will be placed within all habitats present within the Subject Lands to help determine the presence, variety and abundance of insect species. In order to provide comprehensive coverage of all insect species flight periods, two survey periods are chosen:

- Mid-May to mid June
- Mid June to mid July

During insect surveys, vegetation and landscape features will be assessed for potential presence of SAR habitat. If suitable habitat or food plants (butterflies only) are encountered or individuals were observed, standard protocols are utilized (in consultation with MNRF).

2.2.2.6 Bat Habitat Survey Methodology (2022)

Survey Methods

Bat habitat assessments are used to determine whether identified features are to be considered candidate SWH, or if the habitat provides conditions favourable for SAR bats. The presence of snags is considered an indicator of high-quality bat maternity roost habitat, and these surveys are required as the first step in confirming presence of bat maternity colony SWH (as per the PPS). Snags may also indicate the presence of high-quality SAR bat habitat, however all SAR bat habitat, regardless of quality, is protected under the ESA, 2007.

Suitable bat roosting tree density surveys will be completed in all appropriate ELC communities present on the Subject Lands, including Cultural Woodland (CUW), Deciduous Swamp (SWD) and Deciduous and Mixed Forest (FOD/FOM) communities.

2.2.2.7 Bat Acoustic Survey Methodology (2022)

Survey Methods

Survey methods were developed based on guidance from Ontario Ministry of the Environment, Conservation and Parks (MECP), professional experience and MNRF survey guidelines as outlined in "Bats and Bat Habitats: Guidelines for Wind Power Projects" (MNR 2011).

Survey stations will be selected based on aerial interpretation, bat habitat assessment results, and ELC vegetation community types. Surveys to detect bat species will be carried out in June 2022 should suitable habitat be identified. The survey efforts will be completed using Wildlife Acoustics Song Meter SM4BAT recording devices over a duration of ten consecutive evenings.

Passive acoustic recorders will be programmed to begin recording at sunset and to end recording at sunrise. In addition, the SM4BAT passive recorder microphones will be elevated approximately 2 m above the ground to reduce background noise and echo.

All ultrasonic recordings will be filtered to eliminate recordings with high levels of noise or with no bat calls, and then further analyzed using SonoBat's auto-classification tool. Any calls with a positive identification are to be manually vetted by a wildlife ecologist with training in bat species

identification by sonogram. Calls that were not identifiable to species by SonoBat will be manually reviewed by a wildlife ecologist with training in bat species identification by sonogram to identify those calls with characteristics of SAR bats (i.e., calls with frequencies greater than 40kHz). Where recorded, these calls are classified as Unknown Myotis calls in accordance with MECP guidance.

2.2.3 Preliminary Results (2019)

2.2.3.1 Ecological Land Classification Results (2019)

Survey Results

The Subject Lands are largely characterized by woodland, however areas of cultural meadow and anthropogenic and residential areas were also present. The following ELC communities (**Figure 3**, **Appendix C1**) were identified within the Subject Lands:

- CUM1: Mineral Cultural Meadow
- CUW1: Mixed Cultural Woodland
- CUW1-3*: Black Locust Cultural Woodland
- FOD5-1: Dry-Fresh Sugar Maple Deciduous Forest
- FOM2-2: Dry-Fresh White Pine - Sugar Maple Mixed Forest
- FOM3-2: Dry-Fresh Sugar Maple - Hemlock Mixed Forest
- HR: Hedgerow
- RES: Residential
- ANTH: Anthropogenic

A detailed list and description of each of the ELC units will be provided in the final Scoped EIS submission. No locally rare vegetation communities were present on the Subject Lands (NHIC 2021).

2.2.3.2 Stem Density Survey Results (2019)

Survey Results

The results of the stem density analysis are summarized in **Table 1** below.

Table 1: Stem Density Count Results

Trees /ha	Criteria met? (all trees)	Woodland Criteria
502	No	(a) 1,000 trees of any size, per hectare,
382	No	(b) 750 trees, measuring over five centimeters in diameter, per hectare,
295	No	(c) 500 trees, measuring over 12 centimeters in diameter, per hectare, or
223	No	(d) 250 trees, measuring over 20 centimeters in diameter, per hectare

The CUW1 was surveyed using 4 plots accounting for 13.8% coverage of the community. None of the minimum stem density numbers were met, with the closest being 223 tree/ha measuring over 20 cm in diameter. Therefore, although the community is part of contiguous woodland, it does not meet the woodland criteria as specified by the Region, and therefore is not considered to be a woodland despite its designation of woodland as per both the Region and City's designation mapping.

2.2.4 Natural Heritage Features Analysis

Eight types of significant natural heritage features or areas are defined in the PPS (MMAH 2020), as follows:

- Significant wetlands;
- Significant coastal wetlands;
- Significant woodlands;
- Significant valleylands;
- Significant wildlife habitat;
- Fish habitat;
- Habitat of endangered and threatened species; and
- Significant areas of natural and scientific interest.

All significant natural heritage feature types defined under the PPS (MMAH 2020) will be evaluated. Significant Wildlife Habitat (SWH) will be assessed in accordance with the SWH Criteria Schedules for Ecoregion 7E (MNRF 2015).

In addition to PPS policies, the Scoped EIS will include an evaluation of the City of Markham's natural heritage policies related to the greenway system and associated natural heritage network lands, particularly where those policies may be more restrictive than the PPS (MMAH 2020).

SAR and their habitats are considered provincially sensitive information. Due to the sensitive nature of this information, all correspondence and precise location-related information will remain with the Ministry of Environment, Conservation and Parks (MECP). As required, all SAR information will be disclosed to the MECP through their Information Gathering Form, or a similar process upon completion of the Scoped EIS prior to site alteration/development.

2.2.4.1 Initial Significance Analysis

When assessing significance and the associated level of impact, it is GEI's intent to assess the two communities, CUW1 and FOM2-2, separately. However, GEI acknowledges that the City considers each community as part of a whole feature comprising the woodland.

As described above in Section 2.3.3.1, there are five woodland communities present within the boundary of the Subject Lands. All woodlands within the Subject Lands are within the Greenway System, however as discussed above the CUW1 community did not meet the minimum density threshold to be considered a woodland. Further ecological studies will be conducted do determine the functional value the community provides to the landscape. Of these, two of the communities on the Subject Lands are within or adjacent to the proposed development, these communities are discussed below.

Significant woodlands are classified as a "key natural heritage feature" within the Region's OP, and are to be protected and enhanced, where possible. However, the Region's objective for all significant woodlands is to protect and enhanced their biodiversity and encourage reforestation. Though impacts are proposed within the existing communities, as described below, there will be a large restoration effort to enhance the existing communities and the surrounding lands with diverse and native tree cover.

Preliminary Assessment of Significant Woodlands

Within the Region's OP, Section 2.2.44 states that *"…development and site alteration is prohibited within significant woodlands and their associated vegetation protection zone except as provided for elsewhere within this Plan.*" Furthermore, Section 2.2.45 requires that "*significant woodlands be verified on a site-by-site basis and shall include those woodlands meeting one of the following criteria:*

a. *is 0.5 hectares or larger and:*
    i. *Directly supports globally or provincially rare plants, animals or communities as assigned by the Natural Heritage Information Centre; or,*
    ii. *Directly supports threatened or endangered species, with the exception of specimens deemed not requiring protection by the Province (e.g. as is sometimes the case with Butternut); or,*
    iii. *Is within 30 metres of a provincially significant wetland or wetland as identified on Map 4, waterbody, permanent stream or intermittent stream;…"*
b. *is 2.0 hectares or larger and:*
    i. *is located outside of the Urban Area and is within 100 metres of a Life Science Area of Natural and Scientific Interest, a provincially significant wetland or wetland as identified on Map 4, significant valleyland, Environmentally Significant Area, or fish habitat; or,*
    ii. *occurs within the Regional Greenlands System; …"*

Mixed Cultural Woodland

Based on the criteria outlined within the Region's OP, the CUW1 community is required to be assessed based on both the 0.5 ha and 2 ha criteria as outlined above. The community is larger than 0.5 ha in size but beyond 30 metres from German Mills Creek. Currently, it is not known whether the woodland supports globally or provincially rare species or if it supports the habitat of endangered or threatened species. These functions will be assessed during the 2022 ecological field program. The community is also larger than 2 ha but is located within the designated Urban Area and is not within 100 m of an ANSI and occurs outside of the Regional Greenlands Systems as per Map 2 (Region's OP). Therefore, the final assessment of significance will be completed within the final Scoped EIS submission.

Generally, the CUW1 community is characterized by the remaining Apple and Red Pines present from the historical land use of orchard and plantation. These species are present along with a native species such as White Spruce, Eastern White Cedar and Black Walnut. The CUW1 also includes a substantial invasive presence, including both Common Buckthorn and Dog-Strangling Vine, and a number of non-native species such as Norway Maple and Manitoba Maple. A portion of this community is proposed as the location for the temple.

As discussed within Section 2.3.3.2, a stem density survey was completed to determine if the CUW1 met the woodland criteria as stated within the Region of York's Official Plan. The definition of a 'Woodland' includes minimum stem density numbers for a range of tree sizes, this definition matches the one included within the Forestry Act (1990):

> "Woodlands" means land with at least:
>
> a) 1,000 trees of any size, per hectare,
>
> b) 750 trees, measuring over five centimetres in diameter, per hectare,
>
> c) 500 trees, measuring over 12 centimetres in diameter, per hectare, or
>
> d) 250 trees, measuring over 20 centimetres in diameter, per hectare.

Based on the survey efforts within the CUW1 community the minimum stem density numbers were met, with the closest being 223 tree/ha measuring over 20 cm in diameter. Therefore, although the community is part of contiguous woodland, it does not meet the woodland criteria as specified by the Region, and therefore is not considered to be a woodland despite its designation of woodland as per both the Region and City's designation mapping.

Dry-Fresh White Pine - Sugar Maple Mixed Forest

Based on the criteria outlined within the Region's OP, the FOM2-2 community is larger than 0.5 ha in size but beyond 30 metres from German Mills Creek. Currently, it is not known whether the woodland supports globally or provincially rare species or if it supports the habitat of endangered or threatened species. These functions will be assessed during the 2022 ecological field program. The community is also larger than 2 ha, but is located within the designated Urban Area and is not within 100 m of an ANSI and occurs outside of the Regional Greenlands Systems as per Map 2 (Region's OP). Therefore, the final assessment of significance will be completed within the final Scoped EIS submission

In general, the FOM2-2 community is a healthier community that is anticipated to provide a high quality of ecological function than the CUW1. It is characterized by White Pine, Eastern White Cedar, Sugar Maple, American Basswood and Canadian Hemlock. The FOM2-2 also includes the presence of Common Buckthorn, and a minor presence of non-native species such as Manitoba Maple and Black Locust. This community is partially divided by the presence of a residence and associated driveway and open lawn. This area is proposed to house a green at-grade parking lot.

2.2.5 Description of Development Proposal

The development proposal involves the construction of a new and expanded Baha'i National Centre to replace the existing one located at 7200 Leslie Street in Markham, the construction of a new Baha'i National Temple and associated infrastructure (i.e., parking lot). The new building will provide administration functions, institutional functions, learning venues and temporary stay dormitories. The Baha'i National Temple and associated infrastructure, is proposed within lands currently identified within the Greenway System of the Town of Markham OP. As such, an Official Plan Amendment to the Town of Markham Official Plan and associated Zoning Bylaw Amendment will be required to support the development proposal.

A conceptual site plan has been drafted and shows the locations and initial constraints. The final Scoped EIS will include a more detailed site plan and will include overlaying significant natural heritage features once they have been identified. Key details outlined within engineering reports will be discussed within this section. Any potential impacts associated with site alteration or development will be discussed within the impact assessment portion of the report. Within this section of the report, ecological buffer zones will be discussed and illustrated on the conceptual plan.

2.2.6 Impact Assessment, Avoidance and Mitigation Measures

The Scoped EIS will present and discuss the natural heritage features and associated functions that occur on, and adjacent to, the Subject Lands. Where available, engineering reports will be incorporated into the impact assessment to assess potential impacts to the Subject Lands.

The Scoped EIS will assess the potential effects to natural heritage features and functions that may occur over various periods of time (short and long term) following the implementation and construction of a conceptual site plan. The Scoped EIS will also identify planning, design and construction practices that are recommended to maintain, and where possible, improve or restore the health, diversity and size of natural heritage features located on, and adjacent to, the Subject Lands. Impact avoidance, mitigation and/or restoration measures will be identified along with predicted net effects. Recommended monitoring strategies will be provided to assess the effectiveness of mitigation measures.

The impact assessment will identify direct and indirect impacts, as well as cumulative impacts associated with site alteration and/or development, while the mitigation measures section will specifically target discussions around measures proposed to eliminate or reduce impacts (e.g., restoration and enhancement, avoidance, invasive species management, adaptive management, erosion and sediment control). Setbacks from natural heritage features (e.g., dripline) will be provided within the impact assessment section.

3. PROPOSED TIMELINE

Below is the proposed timeline for the Scoped EIS.

Table 2: Proposed Timeline

TIME PERIOD	KEY ACTIVITIES
March – July 2022	Complete Ecological Field Program
July – August 2022	Prepare Scoped EIS Report
July – August 2022	Submit Scoped EIS Report to Reviewing Agencies with Planning Application

4. FINAL REMARKS

We trust that the above information and proposed TOR will be met with your approval. Should you have any questions or comments, please do not hesitate to contact the undersigned.

Yours truly,
GEI Consultants

Laura Williamson
Project Manager
289-668-9835
lwilliamson@geiconsultants.com

Rick Hubbard
Project Director
647-280-5200
rhubbard@geiconsultants.com

Attachments (1)

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APPENDICES

Appendix C1 – Figures

NOTES:
1. Coordinate System: NAD 1983 UTM Zone 17N.
2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2022.

Legend

- Subject Lands
- Railway
- Municipal Boundary, Lower/Single Tier
- Municipal Boundary, Upper Tier
- Watercourse
- Waterbody
- Wooded Area

Project 8061

Lagerfeld Drive Extension
Baha'i Community of Canada

Figure 1
Location of Subject Lands

0 500 m
1:25,000

N

GEI Consultants

Project 8061

NOTES:

1. Coordinate System: NAD 1983 UTM Zone 17N.
2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2022.
3. Orthoimagery © First Base Solutions, 2022. Imagery taken in 2021.
4. Markham OP Greenway system boundary subdivided into Natural Heritage Network, Natural Heritage Restoration Areas and Other Greenway System Lands based on digitized boundaries from 'Map 4- Greenway system, June 2014' (approximate).

Legend

- Subject Lands
- Railway
- Highway
- Road
- Trail Segment (OTN)
- Municipal Boundary, Lower/Single Tier
- Municipal Boundary, Upper Tier
- Watercourse (LIO)
- Waterbody (LIO)
- Wooded Area (LIO)
- York Region Greenlands System
- Markham OP Greenway System Boundary
- Natural Heritage Network*
- Natural Heritage Restoration Areas
- Other Greenway System Lands

Lagerfeld Drive Extension
Baha'i Community of Canada

Figure 2
Landscape Setting

0 20 m
1:15,000

N

GEI Consultants

NOTES:
1. Coordinate System: NAD 1983 UTM Zone 17N.
2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2022.
3. Orthoimagery © First Base Solutions, 2022. Imagery taken in 2021.

Legend

- Subject Lands
- Watercourse
- Ecological Land Classification

ELC Legend

ELC Code, ELC Description

ANTH, Antrhopogenic
CUM1, Mineral Cultural Meadow
CUW1, Mixed Cultural Woodland
CUW1-3*, Black Locust Cultural Woodland
FOD5-1, Dry-Fresh Sugar Maple Deciduous Forest
FOM2-2, Dry-Fresh White Pine - Sugar Maple Mixed Forest
FOM3-2, Dry-Fresh Sugar Maple - Hemlock Mixed Forest
HR, Hedgerow
RES, Residential

Project 8061

Lagerfeld Drive Extension
Baha'i Community of Canada

Figure 3
Ecological Land Classification

0 20 m
1:2,200

N

GEI Consultants

Appendix D

Agency Correspondence

May 18, 2022 CFN 66380.04

BY E-MAIL ONLY (treasury@bahai.ca; ahrynyk@mgp.ca)

Ravin Paltoo and Mehran Anvari
National Spiritual Assembly of the Baha'is of Canada
7200 Leslie Street
City of Markham, ON L3T 6L8

Dear Ravin Paltoo and Mehran Anvari:

Re: TRCA Concept Development Application
7015, 7200 and 7290 Leslie Street, City of Markham
Owner: National Spiritual Assembly of the Baha'is of Canada - Ravin Paltoo and Mehran Anvari
Agent: Malone Given Parsons Ltd. - Allyssa Hrynyk

Thank you for the opportunity to meet with you and your consultants on site and to review your conceptual development proposal associated with the above noted properties through our Concept Development Application process. The purpose of this letter is to provide Toronto and Region Conservation Authority (TRCA) comments regarding the feasibility-level issues and requirements for your development proposal to assist you with preparing future planning and permit applications to the City of Markham and TRCA. The following materials submitted to TRCA on March 24, 2022 were reviewed:

- Preliminary Feasibility Assessment, prepared by Malone Given Parsons, dated March 24, 2022 (Including Attachments A to H); and,
- Topographic Sketch, prepared by ERTL Surveyors, dated March 9, 2022.

Proposed Development

We understand that the owner is proposing to expand the existing Bahai National Centre currently located at 7200 Leslie Street into a complex of buildings including a National Temple, a supporting visitor's centre, parking and trails at 7290 Leslie Street (Lots 2 and 3), and a new multi-functional Bahai National Centre building at 7200 Leslie Street (Lot 1) which provides space for administrative, community and educational uses and a dormitory for short-stay overnight accommodations. Part of the property located at 7015 Leslie Street (Lot 4), formerly used as a day camp, is being considered for ecological restoration.

We understand the proposed development will require applications for an Official Plan Amendment and Zoning By-law Amendment through the City of Markham. The proposed development will also require a permit from TRCA in accordance with Ontario Regulation 166/06 made under the *Conservation Authorities Act.*

TRCA provides comments on this proposal based on our roles as a conservation authority, including:

- A public commenting body under the *Planning Act*, including a delegated responsibility of representing the provincial interest on natural hazards encompassed by Section 3.1 of the Provincial Policy Statement;
- A regulator under section 28 of the *Conservation Authorities Act* and TRCA's associated regulation Ontario Regulation 166/06 (Development, Interference with Wetlands, and Alterations to Shorelines and Watercourses);
- A resource management agency; and,
- A service provider as per our Memorandum of Understanding (MOU) with the Region of York and City of Markham wherein we provide technical environmental advice to municipal approval authorities.

Applicable TRCA Regulations and Policies

Provincial Policy Statement (2020)

The Provincial Policy Statement (PPS) provides policy direction on matters of provincial interest related to land use planning and development. As outlined in the Conservation Ontario / Ministry of Natural Resources and Forestry / Ministry of Municipal Affairs and Housing Memorandum of Understanding (MOU) on Conservation Authorities Delegated Responsibilities, Conservation Authorities have been delegated the responsibility of representing the provincial interest on natural hazards encompassed by Section 3.1 of the PPS. Section 3.1 of the PPS generally directs development and site alteration to locations outside of hazardous lands that would be impacted by flooding hazards and/or erosion hazards and prohibits development in areas that would be rendered inaccessible to people and vehicles during times of flooding hazards or erosion hazards, unless it has been demonstrated that the site has safe access. The PPS also directs planning authorities to consider the potential impacts of climate change that may increase the risk associated with natural hazards. Further, through our MOU with our municipal partners TRCA provides comments regarding other sections of the PPS related to the natural environment (e.g., Sections 2.1 and 2.2).

Municipal Policies

As noted above, TRCA has a MOU with both the Regional Municipality of York and the City of Markham wherein we provide plan review and technical expertise to assist the municipalities in making decisions on planning applications in accordance with provincial and municipal policies concerning the natural environment (such as natural hazards, natural heritage, stormwater management). It is our understanding that the 2010 York Region Official Plan and the 2014 City of Markham Official Plan are applicable to this proposal.

Living City Policies for Planning and Development in the Watersheds of the TRCA

The Living City Policies for Planning and Development in the Watersheds of the TRCA (LCP) is a TRCA policy document that guides the implementation of TRCA's legislated and delegated roles and responsibilities in the planning and development approvals process. The LCP describes a "Natural System" of water resources, natural features and areas, natural hazards, potential natural cover and/or buffers that is generally to be protected from development, site alteration and infrastructure. The LCP also provides policies for developing adjacent to, and in, the "Natural System" (where permitted), while meeting natural hazard management requirements, and maintaining and enhancing the functions of the protected Natural System. These policies guide TRCA's review of the subject application, along with those found in other Provincial and municipal plans, documents and guidelines as applicable.

Ontario Regulation 166/06, as amended

The *Conservation Authorities Act* provides the legal basis for TRCA's mandate to undertake watershed planning and management programs that prevent, eliminate, or reduce the risk to life and property from flood hazards and erosion hazards, as well as encourage the conservation and restoration of natural resources. Under the provisions of Section 28 of the *Conservation Authorities Act,* TRCA administers

Ontario Regulation 166/06 (Development, Interference with Wetlands and Alteration to Shorelines and Watercourses), as amended.

The property located at 7015 Leslie Street is entirely within TRCA's Regulated Area of the Don River Watershed as it is located within a valley and Regulatory flood plain associated with German Mills Creek which traverses the property, and contains unevaluated wetlands. Most of 7290 Leslie Street is within TRCA's Regulated Area as it is located within a valley, and a small portion of 7200 Leslie Street is within TRCA's Regulated Area as it is adjacent to a valley. In accordance with Ontario Regulation 166/06, as amended, (Development, Interference with Wetlands and Alteration to Shorelines and Watercourses), a permit is required from the TRCA prior to any of the following works taking place within TRCA's Regulated Area:

a. straightening, changing, diverting or interfering in any way with the existing channel of a river, creek, stream or watercourse, or for changing or interfering in any way with a wetland;
b. development, if in the opinion of the Authority, the control of flooding, erosion, dynamic beaches or pollution or the conservation of land may be affected by the development.

Development is defined as:

i. the construction, reconstruction, erection or placing of a building or structure of any kind;
ii. any change to a building or structure that would have the effect of altering the use or potential use of the building or structure, increasing the size of the building or structure or increasing the number of dwelling units in the building or structure;
iii. site grading; or,
iv. the temporary or permanent placing, dumping or removal of any material, originating on the site or elsewhere.

High-Level Comments

TRCA staff have reviewed the submitted Preliminary Feasibility Assessment (including Appendices) and topographic information and have identified the following high-level matters that will need to be addressed before we are in a position to support future development applications:

1. **Safe Access** – Safe access to the proposed development will need to be demonstrated to the satisfaction of TRCA and the City of Markham in accordance with the PPS, provincial technical guidelines, TRCA policies and, as applicable, local emergency service provider. The proposed emergency access through the unopened Leslie Street Right of Way does not provide safe access as most of the proposed road is located within an erosion hazard. TRCA staff recommend that the applicant investigate other opportunities to provide safe access to the proposed development.

2. **Limits of Development** – Once safe access has been demonstrated, the limit of development (including construction of buildings and structures, parking and hardscaping, on site stormwater infrastructure, grading, etc.) needs to be established to the satisfaction of TRCA and the City of Markham and in accordance with the PPS, municipal policies and TRCA's policies. This includes the following additional information and studies:

    a. defining the limits of natural features and natural hazards through a staking of the physical top of slope and vegetation community limits;

    b. a slope stability assessment to define the Long Term Stable Top of Slope;

    c. an Environmental Impact Study to further study limits of development in relation to other features, impacts, compensation/restoration strategy; and,

d. an environmental constraints figure plan to show all development (with the exception of trails outside of natural features, natural hazards and their setbacks, as well as restoration areas). Please be advised that a 10-metre setback from the Long Term Stable Top of Slope is required under TRCA's Living City Policies.

Application Review Fee

TRCA staff thank the proponent for remitting the Concept Development Application fee of $ 6,370 (2021 TRCA Planning Services Fee Schedule – Concept Development/Property Inquiry - Institutional - Complex). This fee covers one review and any additional reviews requested under this application may require additional fees. Please note that, any future municipal planning or TRCA Permit Applications will be subject to separate review fees in accordance with TRCA's Permitting Services Fee Schedule.

Conclusion

Thank you for the early engagement on this project. Based on our review of this submission TRCA has identified high-level matters that will need to be addressed including safe access and defining the limits of development. We provide detailed comments in Appendix 'A' of this letter to guide this preliminary review process. TRCA staff look forward to working with you, and we highly recommend that the key matters and comments in Appendix 'A' be addressed to our satisfaction prior to the submission of any applications under the *Planning Act*. TRCA would be pleased to meet with you and the City of Markham to discuss the necessary information and revisions to move forward with the planning process.

I trust these comments are of assistance and provide clear guidance to the applicant. Should you have any questions, please contact me at 416-661-6600 extension 5618 or at michelle.bates@trca.ca.

Sincerely,

Michelle Bates
Senior Planner
Development Planning and Permits

Copy: Steve Heuchert, TRCA (steve.heuchert@trca.ca)
Clement Messere, City of Markham (cmessere@markham.ca)
Patrick Wong, City of Markham (patrickwong@markham.ca)

March 18, 2022

City of Markham
101 Town Centre Boulevard
Markham, ON
L3R 9W3

Toronto and Region Conservation Authority
101 Exchange Ave,
Concord, ON
L4K 5R6

To Whom It May Concern:

RE: Scoped Environmental Impact Statement Terms of Reference
Baha'i National Centre Site 7200 and 7290 Leslie Street
City of Markham, Ontario

As outlined in the Feasibility Report, there are four (4) properties owned by The National Spiritual Assembly of the Bahá'í of Canada. The properties are generally described as four lots. These lots are described below:

- **Lot 1:** This lot encompasses the property at 7200 Leslie Street, located on the west side of Leslie Street and north of Steeles Avenue. The property is home to the existing Bahá'í National Centre ("BNC") and has an area of 1.16 ha.
- **Lot 2:** This lot includes a portion of the 7290 Leslie Street property immediately north of 7200 Leslie Street. The majority of this property is classified as woodland, however there is an existing log house with a detached garage, driveway and manicured lawn that is located on the east side of the property. This property is contiguous with Lot 3 and comprises 7.3 ha between the two lots.
- **Lot 3:** This lot includes the most northern portion of 7290 Leslie Street, where the lands were historically part of a landfill. This lot is included within the 7.3 ha as discussed above.
- **Lot 4:** This lot is associated with 7015 Leslie Street. This property was formerly the Mayfair Tennis Club and more recently the home of the Adventure Valley children's camp. These lands include 8.1 ha, with Duncan Woods Creek bisecting the lands in a north-south direction.

While all of these lots will be discussed within the full scope of the project, the final Scoped Environmental Impact Study will only be assessing the natural heritage features and associated functions within Lots 1 and 2, as this is where development is proposed. Lot 3 and Lot 4 will be used for restoration and enhancement purposes, targeting reforestation within the lots to achieve a net benefit to the landscape.

While Lots 3 and 4 are not to be fully assessed, the City would recommend that ELC and vegetation assessments be completed on these properties. It is recognized that potential enhancements will be proposed and attention will need to be paid to control of invasive species. Specific recommendations and methods to control invasive species during enhancement works should be detailed in the EIS.

1. INTRODUCTION

GEI Consultants (GEI) has been retained by The National Spiritual Assembly of the Bahá'ís of Canada ("NSA Bahá'í Canada") to complete a Scoped Environmental Impact Study (EIS) for the proposed development of the Baha'i National Centre located at 7200 and 7290 Leslie Street in the City of Markham (herein referred to as the Subject Lands; **Figure 1**, **Appendix C1**). The Subject Lands are generally bounded by German Mill Settlers Park to the north, Bercy Park to the east, Waterloo Court to the south and Bayview Golf and Country Club to the west. A single detached residence currently occupies 7290 Leslie Street and is surrounded by woodland. Access for both properties is provided via a private road, which is also used by the Bayview Golf and Country Club.

The majority of the Subject Lands have been identified as woodland and occur within the Greenway System as per the City of Markham's Official Plan (OP). The proposed development includes the construction of a Baha'i National Temple within a portion of the Subject Lands that are currently identified as part of the Greenway System. As such, an Official Plan Amendment to the Town of Markham Official Plan and associated Zoning Bylaw Amendment will be required to support the development proposal, this Scoped EIS will be completed in support of this process.

Due to the complexities that come with proposing any development within the Greenway System, GEI understands that pre-consultation with the City of Markham (the City), Regional Municipality of York (the Region) and the Toronto and Region Conservation Authority (TRCA) was initially undertaken in 2019. In addition, a formal Pre-Consultation Meeting was held with City of Markham in 2019 to discuss the feasibility of the proposed temple and its location, from these initial discussions the location of the temple has been revised to an area that is predicted to have fewer constraints

1.1 Purpose of the Report

Consistent with the requirements of Section 3.5 of the City of Markham Official Plan (OP), the Scoped EIS is required to assess the potential impacts of the proposed development on the natural heritage features and associated functions on the Subject Lands and adjacent lands. This Terms of Reference (ToR) has been prepared in accordance with the TRCA Environmental Impact Statement Guidelines (2014).

The Scoped EIS will consider applicable provincial and municipal policies, including the natural heritage policies of the Provincial Policy Statement (PPS; MMAH 2020) and associated provincial implementation guidance contained in the Natural Heritage Reference Manual (NHRM; MNR 2010). In addition, this EIS considers the policies of the Region, the City and the TRCA. The study components include the following:

- A review of existing natural heritage background information, policies, and legislation applicable to the Subject Lands in its regional context;
- A field review of the natural heritage features on the Subject Lands and the immediately adjacent 120 (where applicable) through the completion of ecological surveys and inventories;
- An evaluation of the sensitivity of the natural heritage features and their associated functions on the Subject Lands;

- An assessment of whether any of the natural heritage features within the Subject Lands meet the test of "significant" as defined by the PPS;
- A description of the proposed undertaking and development proposal; and
- Impact assessment and identification of design and mitigation measures.

This Terms of Reference outlines the scope of work to be completed (**Section 2.3.2**), along with the preliminary results collected during the initial 2019 survey efforts (**Section 2.3.3**). Preliminary significance analysis has also be completed for the woodland communities within the Subject Lands (**Section 2.3.4.1**).

2. SCOPED EIS CONTENT

The Scoped EIS will consider and include the following information:

- Identification and characterization of natural heritage features in accordance with the PPS and City's Official Plan;
- Completion of a biophysical inventory as required by the City's and TRCA's EIS Guidelines;
- Confirmation of presence of Species at Risk (SAR) habitat to ensure compliance with the provincial Endangered Species Act, 2007; and
- An assessment of impacts from the existing development on the Subject Lands environmental features.

2.1 Natural Heritage Planning Considerations

The Subject Lands are subject to federal, provincial, and municipal legislation as well as land use policies established by the Region, the City, and the TRCA.

An assessment of the quality and extent of natural heritage features found on, and adjacent to, the Subject Lands and the potential impacts to these features from the proposed development application was completed to address the natural heritage components of the following regulatory agencies, local and regional municipalities, and/or legislation:

- Provincial Policy Statement (2020);
- Regional Municipality of York Official Plan (2010);
- City of Markham Official Plan (2014);
- Endangered Species Act, 2007;
- Fisheries Act, 1985;
- Migratory Birds Convention Act, 1994; and
- TRCA's The Living City Policies (2014).

2.1.1 Provincial Policy Statement

The PPS (MMAH 2020) provides direction on matters of provincial interest related to land use planning and development. It " supports a comprehensive, integrated and long-term approach to planning… " The PPS is to be read in its entirety and land use planners and decision-makers need to consider all relevant policies and how they work together.

This report addresses those policies that are specific to Natural Heritage (Section 2.1) with some reference to other policies with relevance to Natural Heritage and impact assessment consideration and areas of overlap (e.g., those related to Efficient and Resilient Development and Land Use Patterns, Section 1.1; Sewage, Water and Stormwater, Section 1.6.6; Water, Section 2.2; Natural Hazards, Section 3.1).

Eight types of significant natural heritage features are defined in the PPS, as follows:

- Significant wetlands;
- Significant coastal wetlands;
- Significant woodlands;
- Significant valleylands;
- Significant wildlife habitat (SWH);
- Fish habitat;
- Habitat of endangered and threatened species; and
- Significant areas of natural and scientific interest (ANSIs).

Development and site alteration shall not be permitted in significant wetlands, or in significant coastal wetlands. Development and site alteration shall not be permitted in significant woodlands, significant valleylands, SWH or significant ANSIs, unless it is demonstrated that there will be no negative impacts on the natural features or their ecological functions.

Development and site alteration shall not be permitted in the habitat of endangered and threatened species or in fish habitat, except in accordance with provincial and federal requirements. Development and site alteration may be permitted on lands adjacent to fish habitat provided it has been demonstrated that there will be no negative impacts on the natural feature or their ecological functions.

2.1.1.1 Natural Hazards

Section 3.1.1 of the PPS directs development to areas outside of hazardous lands adjacent to the shoreline of the Great Lakes – St. Lawrence River System (flooding, erosion and dynamic beach hazards), hazardous lands adjacent to river, steam and small inland lake systems (flooding and/or erosion hazards) and hazardous sites. Section 3.1.2 further prohibits development and site alteration within:

a) the dynamic beach hazard;
b) defined portions of the flooding hazard along connecting channels (the St. Marys, St. Clair, Detroit, Niagara and St. Lawrence Rivers);
c) areas that would be rendered inaccessible to people and vehicles during times of flooding hazards, erosion hazards and/or dynamic beach hazards, unless it has been demonstrated that the site has safe access appropriate for the nature of the development and the natural hazard; and
d) a floodway regardless of whether the area of inundation contains high points of land not subject to flooding.

The Subject Lands are not adjacent to a lake or connecting channels and, as such, subsections (a) and (b) of Section 3.1.2 are not applicable. Subsections (c) and (d) are also unlikely to be applicable, however due to the proximity of Duncan Woods Creek the Subject Lands addressed through the delineation of the Regional Storm flood plain. This will allow th Team to define the natural hazard limits within the Subject Lands.

revise all references of Duncan Woods Creek to German Mills Creek.

2.1.2 York Region Official Plan

The York Region OP (2010; consolidated 2019) provides policy direction intended to "help co-ordinate and set the stage for more detailed planning by local municipalities" (Section 1.4). The Region's OP identifies and outlines protections for the Regional Greenlands System. Section 2.2 policies provide protection for key natural heritage and key hydrologic features, which are components of the Regional Greenlands System. Section 2.5 provides direction with respect to water systems, ensuring development is directed away from natural hazards and providing management direction regarding watershed planning and stormwater management (SWM).

The Subject Lands are designated Urban Area as per Map 2 of the Regions OP. In regard to the Regional Greenlands System, the Subject Lands are outside of the Regional Greenlands associated with Duncan Woods Creek where the Adventure Valley children's camp is located **Figure 2** (**Appendix C1**).

The designation of Regional Greenlands System is intended to protect natural heritage and hydrologic features, such as valleylands, stream corridors, sensitive groundwater features, woodlands, wetlands, and agricultural lands. The intent of the designation is to also support agricultural activities, protection of wildlife habitat, passive recreation uses, natural heritage enhancement opportunities and nature appreciations (Section 8.6).

2.1.3 City of Markham Official Plan

The City of Markham OP (2014) establishes key policy directions for detailed planning at the Secondary Plan level. The majority of the Subject Lands are designated as Greenway with a small portion designated as Residential Low-Rise per Map 3: Land Use. The majority of the Subject Lands also designated as Natural Heritage Network per Map 4: Greenway System. Specific features within the Greenway System are identified in Map 5: Natural Heritage Features and Landforms and Map 6: Hydrologic Features.

The Residential Low-Rise designation typically applies to existing residential neighbourhoods in the City and is categorized by lower-scale buildings such as detached, semi-detached, duplexes, and townhouse dwelling types that will experience minimal physical changes in the future (Section 8.2.3). This designation is present where the existing temple and administrative centre are located is designated Residential Low-Rise designation.

2.1.3.1 The Greenway System

The Greenway System is a natural heritage system defined in Policy 3.1.1.1 of the City's OP. The woodland communities identified within the Subject Lands are within the Greenway System. Within the Subject Lands, the Greenway System is composed of the Natural Heritage Network Lands as shown on **Figure 2** (**Appendix C1**).

Greenway designation allows the following land uses:

- Agricultural uses permitted in the Countryside designation;
- Archaeological activity;
- A Dwelling unit;
- Secondary suite;
- Ecological restoration;
- Forest, wildlife habitat and fisheries management and conservations;
- Watershed management;
- Trails and nature based public recreational activities;
- Park related uses;
- Transportation or servicing utility infrastructure; and
- Communications infrastructure.

Within Section 3.1.1.3 of the City's OP, it states that the Greenway System and associated natural heritage features "reflect the most accurate information available and are to be confirmed and may be refined or modified". The designation can be confirmed or modified as follows:

a) confirmation of the boundaries will be undertaken in the field, in consultation with appropriate agencies, and any corresponding changes to the mapping shall be undertaken without amendment to this Plan;
b) refinements to the boundaries may be considered as part of an application pursuant to the Planning Act, without an amendment to this Plan, where supported by a subwatershed study, master environmental servicing plan, environmental impact study or equivalent study; and
c) modifications to the boundaries, other than refinements, including the delineation of the boundaries of the Natural Heritage Network Enhancement Lands in accordance with Section 3.1.3.2, may be considered through an amendment to this Plan, where supported by a subwatershed study, master environmental servicing plan, environmental impact study or equivalent study.

2.1.4 Toronto and Region Conservation Authority

The *Conservation Authorities Act, 1990* (amended 2021) provides the legal basis for conservation authorities to undertake watershed planning and management programs that prevent, eliminate, or reduce risk to life and property from flood and erosion hazards and to encourage the conservation and restoration of natural features and resources. The TRCA administers Ontario *Regulation 166/06: Regulation of Development, Interference with Wetlands and Alterations to Shorelines and Watercourses*. Through this regulation and in accordance with Section 28.1 of the *Conservation Authorities Act*, the TRCA has the authority to:

- Prohibit, regulate, or provide permission for straightening, changing, diverting or interfering in any way with the existing channel of a river, creek, stream, watercourse or changing or interfering with a wetland; and
- Prohibit, regulate, or provide permission for development if the control of flooding, erosion, dynamic beaches, pollution or the conservation of land may be affected by the development.

Ontario Regulation 166/06 defines the extent of the regulated area within the TRCA watersheds. Regulated areas exist within the majority of the Greenway System, though it excludes the southwest corner of the woodland. Works within the regulated area will require permits from the TRCA for development or site alteration that would affect a river, creek, wetland, floodplain, or valleyland, as noted above.

The policies for the implementation of TRCA's regulation are contained in *The Living City Policies: for Planning and Development in the Watersheds of the Toronto and Region Conservation Authority* (2014). This policy document establishes the TRCA's Vision, Mission, Strategic Objectives, and Principles and provides policy direction for environmental planning.

2.1.5 Endangered Species Act

The Ministry of Environment, Conservation and Parks (MECP) administers the provincial *Endangered Species Act, 2007* (ESA; amended 2021), which was developed to:

- Identify species at risk (SAR), based upon best available science;
- Protect species at risk and their habitats and to promote the recovery of species at risk; and
- Promote stewardship activities that would support those protection and recovery efforts.

The ESA protects all Threatened, Endangered, and Extirpated species listed on the Species at Risk in Ontario List (Ontario Regulation 230/08). These species are legally protected from harm or harassment and their habitats are legally protected from damage or destruction, as defined under the ESA.

2.1.6 Fisheries Act

Fisheries and Oceans Canada (DFO) administers the federal *Fisheries Act, 1985* (amended 2019), which defines fish habitat as "spawning grounds and other areas, including nursery, rearing, food supply, and migration areas, on which fish depend directly or indirectly in order to carry out their life processes" [subsection (2)1]. The *Fisheries Act* prohibits the death of fish by means other than fishing [subsection 34.4 (1)] and the harmful alteration, disruption, or destruction of fish habitat [HADD; subsection 35. (1)]. A HADD is defined as "any temporary or permanent change to fish habitat that directly or indirectly impairs the habitat's capacity to support one or more life processes" (DFO 2019a).

Some projects may be eligible for exemption from the DFO review process, as specified under Step 3 of the DFO Fish and Fish Habitat Protection Program review process (DFO 2019b). Examples of exemptions include clear-span bridges and bridge maintenance projects where DFO mitigation measures are applied, artificial waterbodies with no hydrological connection to occupied fish habitat, and projects that follow the Standards and Codes of Practice defined by DFO.

All other projects or activities that have the potential to impact fish or fish habitat should be submitted to DFO through the "Request for Review" process. DFO will review the proposed project to determine whether there is potential to:

- impact an aquatic species at risk;

- cause the death of fish; or
- result in HADD of fish habitat.

The death of fish by means other than fishing or a HADD of fish habitat can be authorized by DFO under paragraphs 34.4(2)(b) or 35(2)(b) of the *Fisheries Act*. Authorizations require the preparation and submission of an application package identifying the impacts on fish and fish habitat; the avoidance, mitigation, and offsetting measures that will be implemented; and any monitoring that is proposed.

2.1.7 Migratory Bird Convention Act

Environment and Climate Change Canada (ECCC) administers the *Migratory Birds Convention Act, 1994* (amended 2017), which protects the nests of migratory bird species from destruction, including incidental take (i.e., the unintentional destruction of a nest), as well as from disturbance. The *Migratory Birds Convention Act* does not provide a set date where activities, such as tree removal, can be completed without the risk of incidental harm to the nests of birds. The requirement to ensure that there are no bird nests present within the work area rests with the proponent of the activity.

2.2 Data Collection Approach and Methodology

GEI completed initial assessment efforts in the fall of 2019. An additional scoped ecological field survey program is proposed for the 2022 field season to provide the data required to complete a significance assessment for the natural features present on and adjacent to the Subject Lands.

Ecological survey efforts completed in 2019 included the following:

- One-season Ecological Land Classification and botanical survey (fall); and
- Stem Density Survey

Ecological survey efforts to be completed in 2022 include the following:

- Two-season botanical survey (i.e., spring and summer);
- Bat Habitat Assessment;
- Bat Acoustic Survey;
- Breeding Bird Surveys; and
- Insect Surveys.

2.2.1 Background References

GEI has relied, in part, upon supporting background information to provide additional insight into the overall character of the Subject Lands. These resources included:

- MNRF Land Information Ontario (LIO) Natural Features Mapping;
- Natural Heritage Information Centre (NHIC) database;
- Provincial wildlife atlases (i.e., Ontario Breeding Bird Atlas, etc.);

- Citizen Science Databases (i.e., iNaturalist and eBird); and
- DFO Aquatic Species at Risk Distribution Mapping

The results of these background reviews are discussed in the following sections. Any additional background reports that are made available to GEI by reviewing agencies will be reviewed and incorporated into the EIS, as appropriate.

2.2.1.1 Land Information Ontario Natural Heritage Areas

Based on the Ministry of Natural Resources and Forestry (MNRF) Land Information Ontario (LIO) geographic database, the following features were identified on or adjacent to the Subject Lands (**Figure 1**, **Appendix C1**):

- Woodland
- Watercourse (Duncan Woods Creek)

No Areas of Natural and Scientific Interest (ANSIs) or Environmentally Significant Areas (ESAs) occur on or within 120 m of the Subject Lands.

2.2.1.2 Natural Heritage Information Centre

The NHIC database (MNRF 2021) was searched for records of provincially significant plants, vegetation communities and wildlife on, and in the vicinity of, the Subject Lands. The database provides occurrence data by 1 km x 1 km squares, with one square encompassing Subject Lands (17PJ3052).

A total of two species was recorded in the atlas squares that overlap with the Subject Lands, with the following species of interest noted:

- Species listed as Threatened or Endangered on the SARO list:
    - Redside Dace (*Clinostomus elongatus*) – Endangered; and
    - Eastern Meadowlark (*Sturnella magna*) – Threatened.

2.2.1.3 Ontario Breeding Bird Atlas

The OBBA contains detailed information on the population and distribution status of Ontario birds (Bird Studies Canada et al. 2006). The data are presented on 100 km2 area squares with one square overlapping the Subject Lands (17PJ35). It should be noted that the Subject Lands are a small component of the overall bird atlas square, and therefore it is unlikely that all bird species are found within the Subject Lands. Habitat type, availability and size are all contributing factors in bird species presence and use.

A total of 84 species was recorded in the atlas squares that overlap with the Subject Lands, with the following species of interest noted:

- Species listed as Threatened or Endangered on the SARO list:
    - Barn Swallow (*Hirundo rustica*) – Threatened;

  - Bank Swallow (*Riparia riparia*) – Threatened;
  - Bobolink (*Dolichonyx oryzivorus*) – Threatened;
  - Chimney Swift (*Chaetura pelagica*) – Threatened; and
  - Eastern Meadowlark – Threatened.
- Species of Conservation Concern (i.e., listed as Special Concern on the SARO list, or identified as an S1-S3 species):
  - Common Nighthawk (*Chordeiles minor*) – Special Concern;
  - Eastern Wood-Pewee (*Contopus virens*) – Special Concern;
  - Peregrine Falcon (*Falco peregrinus*) – Special Concern; and
  - Wood Thrush (*Hylocichla mustelina*) – Special Concern.

2.2.1.4 Ontario Reptile and Amphibian Atlas

The Ontario Reptile and Amphibian Atlas (Ontario Nature 2019) contains detailed information on the population and distribution status of reptiles and amphibians in Ontario. The database provides occurrence data by 10 km x 10 km squares. The Subject Lands is located within the atlas square 17PJ35, which was used to determine a potential reptile and amphibian species list for the area. The Subject Lands is a small component of the overall atlas square, and therefore all the reptile and amphibian species listed for this atlas square may not be found within the Subject Lands. Habitat type, availability, and size are all contributing factors to reptile and amphibian species presence and use.

A total of 17 reptile and amphibian species were recorded in atlas square 17PJ35, including five turtle species, five snake species, one salamander species, and six frog and toad species. Of these reported species, the following species of interest noted:

- Species listed as Threatened or Endangered on the SARO list:
  - Blanding's Turtle (*Emydoidea blandingii*) – Threatened.
- Species of Conservation Concern (i.e., listed as Special Concern on the SARO list, or identified as an S1-S3 species):
  - Northern Map Turtle (*Graptemys geographica*) – Special Concern; and
  - Snapping Turtle (*Chelydra serpentina*) – Special Concern.

2.2.1.5 Ontario Butterfly and Moth Atlases

The Ontario Butterfly and Moth Atlases (Toronto Entomologists' Association 2020a, 2020b) contain detailed information on the population and distribution status of butterflies and moths in Ontario. The database provides occurrence data by 10 km x 10 km squares. The Subject Lands is located within the atlas square 17PJ35, which was used to determine a potential butterfly and moth species list for the area. The Subject Lands is a small component of the overall atlas square, and therefore all the butterfly and moth species listed for this atlas square may not be found within the Subject Lands. Habitat type, availability, and size are all contributing factors to butterfly and moth species presence and habitat use.

A total of 49 butterfly species and 13 moth species were recorded in atlas square 17PJ35. Of these reported species, the following species of interest noted.

- Species of Conservation Concern (i.e., listed as Special Concern on the SARO list, or identified as an S1-S3 species):
    - Monarch (*Danaus plexippus*) – Special Concern.

2.2.1.6 Fisheries and Oceans Canada

Aquatic SAR distribution mapping (DFO 2021) was reviewed to identify any known occurrences of aquatic SAR, including fish and mussels, within the Subject Lands.

No aquatic SAR were identified on or within 120 m of the Subject Lands.

2.2.1.7 iNaturalist (Citizen Science)

The iNaturalist (2021) database is a large citizen science-based identification and data collection app. It allows any citizen to submit observations to be reviewed and identified by other naturalists and scientists to help provide accurate species observations. As the observations can be submitted by anyone, and the records are not officially vetted, the data obtained from this tool should not be used as a clear indicator of species presence, and species may be filtered out based on habitat and target survey efforts.

This online database was examined to identify observations made within the Subject Lands that were research grade. A total of three species of interest were recorded within 120 m of the Subject Lands:

- Species listed as Threatened or Endangered on the SARO list:
    - Eastern Meadowlark – Threatened.
- Species of Conservation Concern (i.e., listed as Special Concern on the SARO list, or identified as an S1-S3 species):
    - Eastern Wood-Pewee – Special Concern; and
    - Monarch – Special Concern.

2.2.1.8 eBird (Citizen Science)

The eBird (2021) database is a large citizen science-based project with a goal to gather bird diversity information in the form of checklists of birds, archive it, and share it to power new data-driven approaches to science, conservation and education. As the observations can be submitted by anyone, and the records are not officially vetted, the data obtained from this tool should not be used as a clear indicator of species presence, and species may be filtered out based on habitat and target survey efforts.

This online database was examined to identify observations made within the vicinity of the Subject Lands. One hot spot was located in close proximity to the Subject Lands within Markham's German Mills Park northeast of the Subject Lands boundary. A total of 168 species were recorded in the German Mills Park hotspot, with the following species of interest noted:

- Species listed as Threatened or Endangered on the SARO list:
    - Barn Swallow – Threatened;
    - Bank Swallow – Threatened;

  - Bobolink – Threatened;
  - Chimney Swift – Threatened; and
  - Eastern Meadowlark – Threatened.
- Species of Conservation Concern (i.e., listed as Special Concern on the SARO list, or identified as an S1-S3 species):
  - Common Nighthawk – Special Concern;
  - Eastern Wood-Pewee – Special Concern; and
  - Golden-winged Warbler (*Vermivora chrysoptera*) – Special Concern;
  - Peregrine Falcon – Special Concern; and
  - Wood Thrush – Special Concern.

Observations of these species of concern and SAR is noteworthy given the surrounding urban context. In the analysis, particularly restoration/enhancement discussion, please explore opportunities to improve landscape connectivity and interior core habitat in this section of the Don Watershed.

will focus on the Subject Lands as shown on **Figure 2** (**Appendix C1**). Impacts to adjacent lands (i.e., within 120 m of the Subject Lands, as identified within the Natural Heritage Reference Manual; MNR 2010) will also be considered. Based on the City's and TRCA's EIS Guidelines, initial site reconnaissance and initial fieldwork completed in 2019, we propose the following ecological field surveys:

- Two-season botanical survey (i.e., spring and summer);
- Feature Staking;
- Bat Habitat Assessment;
- Bat Acoustic Survey;
- Breeding Bird Surveys; and
- Insect Surveys.

No reptile, amphibian or aquatic surveys are proposed given that it does not appear as though any suitable habitat is present on the Subject Lands based on aerial interpretation and the initial survey efforts completed in the fall of 2019. If potentially suitable habitat is identified on the Subject Lands once field investigations commence in early 2022 (i.e., vernal pools, potential hibernacula features), additional survey effort will be completed as necessary.

Survey methodology related to each specific survey type is described in the next sections in detail.

2.2.2.1 Botanical Inventory and Ecological Land Classification Methodology (2019, 2022)

The vegetation assessments have consisted of one (fall) botanical survey and ELC. Two additional botanical inventories (spring and summer) will be completed during the 2022 field season.

<u>Survey Methods</u>

Vegetation communities were first identified on aerial imagery and then verified in the field. Vegetation community types were confirmed, sampled and revised, if necessary, using the

sampling protocol of the ELC for Southern Ontario (Lee at al. 1998). ELC was completed to the finest level of resolution (Vegetation Type), where feasible. Species names generally follow nomenclature from the Flora Ontario – Integrated Botanical Information System (FOIBIS; Newmaster and Ragupathy 2012).

The provincial status of all plant species and vegetation communities is based on NHIC (2021). Identification of potentially sensitive native plant species is based on their assigned coefficient of conservatism (CC) value, as determined by Oldham et al. (1995). This CC value, ranging from 0 (low) to 10 (high), is based on a species tolerance of disturbance and fidelity to a specific natural habitat. Species with a CC value of 9 or 10 generally exhibit a high degree of fidelity to a narrow range of habitat parameters.

2.2.2.2 Stem Density Survey Methodology (2019)

Survey Methods

One initial round of ELC was completed on the Subject Lands in 2019, which identified a variety of woodland ecosites, such as cultural woodlands, and deciduous and mixed forests. Unless explicitly stated in local policy, "woodland" as defined by southern Ontario ELC (Lee et al 1998) is often not used to guide presence/absence of woodland – a classification method that relies on percent canopy cover. This is likely because a broad, all-encompassing definition of "woodland" is not provided in the ELC manual (e.g., the definition does not include forests or treed swamps, but instead refers specifically to cultural woodlands).

The City of Markham's Official Plan relies on Region of York's Official Plan with respect to the definition of a 'Woodland' which includes minimum stem density numbers for a range of tree sizes, this definition matches the one included within the Forestry Act (1990):

> "Woodlands" means land with at least:
>
> (a) 1,000 trees of any size, per hectare,
>
> (b) 750 trees, measuring over five centimetres in diameter, per hectare,
>
> (c) 500 trees, measuring over 12 centimetres in diameter, per hectare, or
>
> (d) 250 trees, measuring over 20 centimetres in diameter, per hectare

Circular plots were used to develop a statistically representative estimate of stem density within each targeted ELC feature. Plot locations were selected through imagery interpretation and knowledge of on-site conditions; the positioning of these plots was designed to capture variability of density and maturity of woody species within each feature. Plot size was determined based on the size of the ELC unit and anticipated woody density; where feasible, 10 m radius plots were used, with 5 m radius plots reserved for smaller features. Plot coverage was 13.8%. As per the Ontario Woodlot Association (2003), a sampling intensity from 2% to 10% is common for the purposes of determining tree stem density.

Within each plot, all trees that were 1.37 m tall or greater were counted. A tally system was used to count each tree; diameter at breast height (DBH) was used to categorize trees as ≤5 cm, 6-12 cm, 13-20 cm, or >20 cm, following the Forestry Act categorization. The collective plot data was used to calculate stem density within each feature. Tall shrubs, such as European Buckthorn (*Rhamnus cathartica*), Sumac (*Rhus typhina*) and Hawthorn (*Crataegus spp*.) were excluded from this survey.

2.2.2.3 Dripline Staking Methodology (2022)

Pre-staking of woodland driplines within the Subject Lands was completed by Schollen & Company during the Tree Inventory and Assessment survey effort. Should it be required, dripline staking efforts will also be completed with agencies (TRCA and the City of Markham) to confirm the boundary of the woodland communities.

2.2.2.4 Breeding Bird Survey Methodology (2022)

Survey Methods

Breeding bird surveys will be conducted following protocols set forth by the OBBA (Cadman et al. 2007) the Ontario Forest Bird Monitoring Program (Cadman et al. 1998) and the Marsh Monitoring Program (Bird Studies Canada 2014). These protocols generally follow the Bird and Bird Habitats: Guidelines for Wind Power Projects (OMNR 2010) recommended under the SWH Criteria Schedules for Ecoregion 7E and 6E (MNRF 2015a and b) but have been adjusted, based on professional experience, to implement a more comprehensive approach that combines area search and point count techniques.

Surveys will be conducted between dawn and five hours after dawn with suitable wind conditions, and no thick fog or precipitation (Cadman et al. 2007). The point count stations will be placed throughout the Subject Lands. Point count stations will be surveyed in various habitat types, where present and combined with area searches to help determine the presence, variety and abundance of bird species. Each point count station was surveyed for ten minutes for birds within 100 m and outside 100 m. All species recorded on a point-count will be mapped to provide specific spatial information and will be observed for signs of breeding behaviour. Surveys will be conducted at least seven days apart.

2.2.2.5 Insect Survey Methodology (2022)

Scoped Insect surveys will be conducted within the Subject Lands to identify the presence and abundance of one insect Order: Butterflies (Order: Lepidoptera; super-family: Papilionoidea). These insects are excellent indicators of habitat diversity and quality (Hall et. al. 2014, Catling and Brownell 2000). As no water features are present within the Subject Lands proposed for development, Odonata are not anticipated to be using the habitat present.

Survey Methods

Insect surveys do not currently have a set protocol in Ontario. Species detection is dependent on repeated visits during the appropriate flight times for a given species in suitable habitat. Butterflies are conspicuous, easily observed and have plentiful resources to aid in identification of Ontario species and as a result, focus is on these groups during surveying.

Surveys will be conducted between mid-morning and noon or late afternoon to sunset with mostly sunny skies, suitable low wind conditions, no thick fog or precipitation. Temperatures will be between 18°C and 25°C such that insect activity is optimal. Area searches will be placed within all habitats present within the Subject Lands to help determine the presence, variety and abundance of insect species. In order to provide comprehensive coverage of all insect species flight periods, two survey periods are chosen:

- Mid-May to mid June
- Mid June to mid July

During insect surveys, vegetation and landscape features will be assessed for potential presence of SAR habitat. If suitable habitat or food plants (butterflies only) are encountered or individuals were observed, standard protocols are utilized (in consultation with MNRF).

2.2.2.6 Bat Habitat Survey Methodology (2022)

Survey Methods

Bat habitat assessments are used to determine whether identified features are to be considered candidate SWH, or if the habitat provides conditions favourable for SAR bats. The presence of snags is considered an indicator of high-quality bat maternity roost habitat, and these surveys are required as the first step in confirming presence of bat maternity colony SWH (as per the PPS). Snags may also indicate the presence of high-quality SAR bat habitat, however all SAR bat habitat, regardless of quality, is protected under the ESA, 2007.

Suitable bat roosting tree density surveys will be completed in all appropriate ELC communities present on the Subject Lands, including Cultural Woodland (CUW), Deciduous Swamp (SWD) and Deciduous and Mixed Forest (FOD/FOM) communities.

2.2.2.7 Bat Acoustic Survey Methodology (2022)

Survey Methods

Survey methods were developed based on guidance from Ontario Ministry of the Environment, Conservation and Parks (MECP), professional experience and MNRF survey guidelines as outlined in "Bats and Bat Habitats: Guidelines for Wind Power Projects" (MNR 2011).

Survey stations will be selected based on aerial interpretation, bat habitat assessment results, and ELC vegetation community types. Surveys to detect bat species will be carried out in June 2022 should suitable habitat be identified. The survey efforts will be completed using Wildlife Acoustics Song Meter SM4BAT recording devices over a duration of ten consecutive evenings.

Passive acoustic recorders will be programmed to begin recording at sunset and to end recording at sunrise. In addition, the SM4BAT passive recorder microphones will be elevated approximately 2 m above the ground to reduce background noise and echo.

All ultrasonic recordings will be filtered to eliminate recordings with high levels of noise or with no bat calls, and then further analyzed using SonoBat's auto-classification tool. Any calls with a positive identification are to be manually vetted by a wildlife ecologist with training in bat species

identification by sonogram. Calls that were not identifiable to species by SonoBat will be manually reviewed by a wildlife ecologist with training in bat species identification by sonogram to identify those calls with characteristics of SAR bats (i.e., calls with frequencies greater than 40kHz). Where recorded, these calls are classified as Unknown Myotis calls in accordance with MECP guidance.

2.2.3 Preliminary Results (2019)

2.2.3.1 Ecological Land Classification Results (2019)

Survey Results

The Subject Lands are largely characterized by woodland, however areas of cultural meadow and anthropogenic and residential areas were also present. The following ELC communities (**Figure 3**, **Appendix C1**) were identified within the Subject Lands:

- CUM1: Mineral Cultural Meadow
- CUW1: Mixed Cultural Woodland
- CUW1-3*: Black Locust Cultural Woodland
- FOD5-1: Dry-Fresh Sugar Maple Deciduous Forest
- FOM2-2: Dry-Fresh White Pine - Sugar Maple Mixed Forest
- FOM3-2: Dry-Fresh Sugar Maple - Hemlock Mixed Forest
- HR: Hedgerow
- RES: Residential
- ANTH: Anthropogenic

A detailed list and description of each of the ELC units will be provided in the final Scoped EIS submission. No locally rare vegetation communities were present on the Subject Lands (NHIC 2021).

2.2.3.2 Stem Density Survey Results (2019)

Survey Results

The results of the stem density analysis are summarized in **Table 1** below.

Table 1: Stem Density Count Results

Trees /ha	Criteria met? (all trees)	Woodland Criteria
502	No	(a) 1,000 trees of any size, per hectare,
382	No	(b) 750 trees, measuring over five centimeters in diameter, per hectare,
295	No	(c) 500 trees, measuring over 12 centimeters in diameter, per hectare, or
223	No	(d) 250 trees, measuring over 20 centimeters in diameter, per hectare

The CUW1 was surveyed using 4 plots accounting for 13.8% coverage of the community. None of the minimum stem density numbers were met, with the closest being 223 tree/ha measuring over 20 cm in diameter. Therefore, although the community is part of contiguous woodland, it does not meet the woodland criteria as specified by the Region, and therefore is not considered to be a woodland despite its designation of woodland as per both the Region and City's designation mapping.

As discussed in meetings with the applicants in 2019, City staff do not support the survey of stem density for discrete sections of a woodland for the purposes of identifying woodland exclusions. As per the NHRM, City staff consider the CUW woodland as part of one overall woodland feature that spans the entire width of the German Mills valleylands. Nevertheless, the information is potentially useful to determining relative woodland condition, health and significance.

2.2.4 Natural Heritage Features Analysis

Eight types of significant natural heritage features as follows:

- Significant wetlands;
- Significant coastal wetlands;
- Significant woodlands;
- Significant valleylands;
- Significant wildlife habitat;
- Fish habitat;
- Habitat of endangered and threatened species; and
- Significant areas of natural and scientific interest.

All significant natural heritage feature types defined under the PPS (MMAH 2020) will be evaluated. Significant Wildlife Habitat (SWH) will be assessed in accordance with the SWH Criteria Schedules for Ecoregion 7E (MNRF 2015).

In addition to PPS policies, the Scoped EIS will include an evaluation of the City of Markham's natural heritage policies related to the greenway system and associated natural heritage network lands, particularly where those policies may be more restrictive than the PPS (MMAH 2020).

SAR and their habitats are considered provincially sensitive information. Due to the sensitive nature of this information, all correspondence and precise location-related information will remain with the Ministry of Environment, Conservation and Parks (MECP). As required, all SAR information will be disclosed to the MECP through their Information Gathering Form, or a similar process upon completion of the Scoped EIS prior to site alteration/development.

2.2.4.1 Initial Significance Analysis

When assessing significance and the associated level of impact, it is GEI's intent to assess the two communities, CUW1 and FOM2-2, separately. However, GEI acknowledges that the City considers each community as part of a whole feature comprising the woodland.

As described above in Section 2.3.3.1, there are five woodland communities present within the boundary of the Subject Lands. All woodlands within the Subject Lands are within the Greenway System, however as discussed above the CUW1 community did not meet the minimum density threshold to be considered a woodland. Further ecological studies will be conducted do determine the functional value the community provides to the lar
on the Subject Lands are within or adjacent to the prop
discussed below.

City staff are not in a position to support this conclusion in a ToR. We suggest that the CUW may potentially be more appropriately identified as a non-significant woodland based on distinct condition and health, and which may be considered for removal subject to mitigation and a demonstration of a large overall net gain of woodland cover and ecological function. Please see s.3.2.1. of the Markham OP.

Significant woodlands are classified as a "key natural heritage feature" within the Region's OP, and are to be protected and enhanced, where possible. However, the Region's objective for all significant woodlands is to protect and enhanced their biodiversity and encourage reforestation. Though impacts are proposed within the existing communities, as described below, there will be a large restoration effort to enhance the existing communities and the surrounding lands with diverse and native tree cover.

Preliminary Assessment of Significant Woodlands

Within the Region's OP, Section 2.2.44 states that *"…development and site alteration is prohibited within significant woodlands and their associated vegetation protection zone except as provided for elsewhere within this Plan.*" Furthermore, Section 2.2.45 requires that "*significant woodlands be verified on a site-by-site basis and shall include those woodlands meeting one of the following criteria:*

a. *is 0.5 hectares or larger and:*
    i. *Directly supports globally or provincially rare plants, animals or communities as assigned by the Natural Heritage Information Centre; or,*
    ii. *Directly supports threatened or endangered species, with the exception of specimens deemed not requiring protection by the Province (e.g. as is sometimes the case with Butternut); or,*
    iii. *Is within 30 metres of a provincially significant wetland or wetland as identified on Map 4, waterbody, permanent stream or intermittent stream;…"*
b. *is 2.0 hectares or larger and:*
    i. *is located outside of the Urban Area and is within 100 metres of a Life Science Area of Natural and Scientific Interest, a provincially significant wetland or wetland as identified on Map 4, significant valleyland, Environmentally Significant Area, or fish habitat; or,*
    ii. *occurs within the Regional Greenlands System; …"*

Mixed Cultural Woodland

Based on the criteria outlined within the Region's OP, the CUW1 community is required to be assessed based on both the 0.5 ha and 2 ha criteria as outlined above. The community is larger than 0.5 ha in size but beyond 30 metres from German Mills Creek. Currently, it is not known whether the woodland supports globally or provincially rare species or if it supports the habitat of endangered or threatened species. These functions will be assessed during the 2022 ecological field program. The community is also larger than 2 ha but is located within the designated Urban Area and is not within 100 m of an ANSI and occurs outside of the Regional Greenlands Systems as per Map 2 (Region's OP). Therefore, the final assessment of significance will be completed within the final Scoped EIS submission.

Generally, the CUW1 community is characterized by the remaining Apple and Red Pines present from the historical land use of orchard and plantation. These species are present along with a native species such as White Spruce, Eastern White Cedar and Black Walnut. The CUW1 also includes a substantial invasive presence, including both Common Buckthorn and Dog-Strangling Vine, and a number of non-native species such as Norway Maple and Manitoba Maple. A portion of this community is proposed as the location for the temple.

As discussed within Section 2.3.3.2, a stem density survey was completed to determine if the CUW1 met the woodland criteria as stated within the Region of York's Official Plan. The definition of a 'Woodland' includes minimum stem density numbers for a range of tree sizes, this definition matches the one included within the Forestry Act (1990):

> "Woodlands" means land with at least:
>
> a) 1,000 trees of any size, per hectare,
>
> b) 750 trees, measuring over five centimetres in diameter, per hectare,
>
> c) 500 trees, measuring over 12 centimetres in diameter, per hectare, or
>
> d) 250 trees, measuring over 20 centimetres in diameter, per hectare.

Based on the survey efforts within the CUW1 community the minimum stem density numbers were met, with the closest being 223 tree/ha measuring over 20 cm in diameter. Therefore, although the community is part of contiguous woodland, it does not meet the woodland criteria as specified by the Region, and therefore is not considered to be a woodland despite its designation of woodland as per both the Region and City's designation mapping.

Dry-Fresh White Pine - Sugar Maple Mixed Forest

Based on the criteria outlined within the Region's OP, the FOM2-2 community is larger than 0.5 ha in size but beyond 30 metres from German Mills Creek. Currently, it is not known whether the woodland supports globally or provincially rare species or if it supports the habitat of endangered or threatened species. These functions will be assessed during the 2022 ecological field program. The community is also larger than 2 ha, but is located within the designated Urban Area and is not within 100 m of an ANSI and occurs outside of the Regional Greenlands Systems as per Map 2 (Region's OP). Therefore, the final assessment of significance will be completed within the final Scoped EIS submission

In general, the FOM2-2 community is a healthier community that is anticipated to provide a high quality of ecological function than the CUW1. It is characterized by White Pine, Eastern White Cedar, Sugar Maple, American Basswood and Canadian Hemlock. The FOM2-2 also includes the presence of Common Buckthorn, and a minor presence of non-native species such as Manitoba Maple and Black Locust. This community is partially divided by the presence of a residence and associated driveway and open lawn. This area is proposed to house a green at-grade parking lot.

2.2.5 Description of Development Proposal

The development proposal involves the construction of a new and expanded Baha'i National Centre to replace the existing one located at 7200 Leslie Street in Markham, the construction of a new Baha'i National Temple and associated infrastructure (i.e., parking lot). The new building will provide administration functions, institutional functions, learning venues and temporary stay dormitories. The Baha'i National Temple and associated infrastructure, is proposed within lands currently identified within the Greenway System of the Town of Markham OP. As such, an Official Plan Amendment to the Town of Markham Official Plan and associated Zoning Bylaw Amendment will be required to support the development proposal.

The proposed trails through the woodlands and valleylands need to be added to this list.

A conceptual site plan has been drafted and shows the locations and initial constraints. The final Scoped EIS will include a more detailed site plan and will include overlaying significant natural heritage features once they have been identified. Key details outlined within engineering reports will be discussed within this section. Any potential impacts associated with site alteration or development will be discussed within the impact assessment portion of the report. Within this section of the report, ecological buffer zones will be discussed and illustrated on the conceptual plan.

2.2.6 Impact Assessment, Avoidance and Mitigation Measures

The Scoped EIS will present and [illegible] that occur on, and adjacent to, th[illegible] incorporated into the impact asses[illegible]

Potential off-site works for safe access/road upgrades shall be included in the impact assessment/mitigation recommendations, where appropriate.

The Scoped EIS will assess the potential effects to natural heritage features and functions that may occur over various periods of time (short and long term) following the implementation and construction of a conceptual site plan. The Scoped EIS will also identify planning, design and construction practices that are recommended to maintain, and where possible, improve or restore the health, diversity and size of natural heritage features located on, and adjacent to, the Subject Lands. Impact avoidance, mitigation and/or restoration measures will be identified along with predicted net effects. Recommended monitoring strategies will be provided to assess the effectiveness of mitigation measures.

The impact assessment will identify direct and indirect impacts, as well as cumulative impacts associated with site alteration and/or development, while the mitigation measures section will specifically target discussions around measures proposed to eliminate or reduce impacts (e.g., restoration and enhancement, avoidance, invasive species management, adaptive management, erosion and sediment control). Setbacks from natural heritage features (e.g., dripline) will be provided within the impact assessment section.

A comprehensive assessment of ecological restoration and enhancement opportunities shall be included. The EIS shall identify which opportunities are feasible and proposed to be implemented as part of the development application. Based on the site visit with the applicant, staff agree that there are significant opportunities to improve existing ecological conditions and provide for an overall net benefit to the natural heritage system.

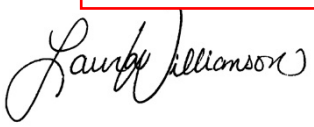
TIME PERIOD	KEY ACTIVITIES
March – July 2022	Complete Ecological Field Program
July – August 2022	Prepare Scoped EIS Report
July – August 2022	Submit Scoped EIS Report to Reviewing Agencies with Planning Application

4. FINAL REMARKS

We trust that the above information and proposed TOR will be met with your approval. Should you have any questions or comments, please do not hesitate to contact the undersigned.

Based on the proposed development within the Greenway, City staff will be reviewing the need for a peer review of the EIS. Staff will work with the applicants to confirm such need following the formal submission.

Yours tr
GEI Co



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Attachments (1)

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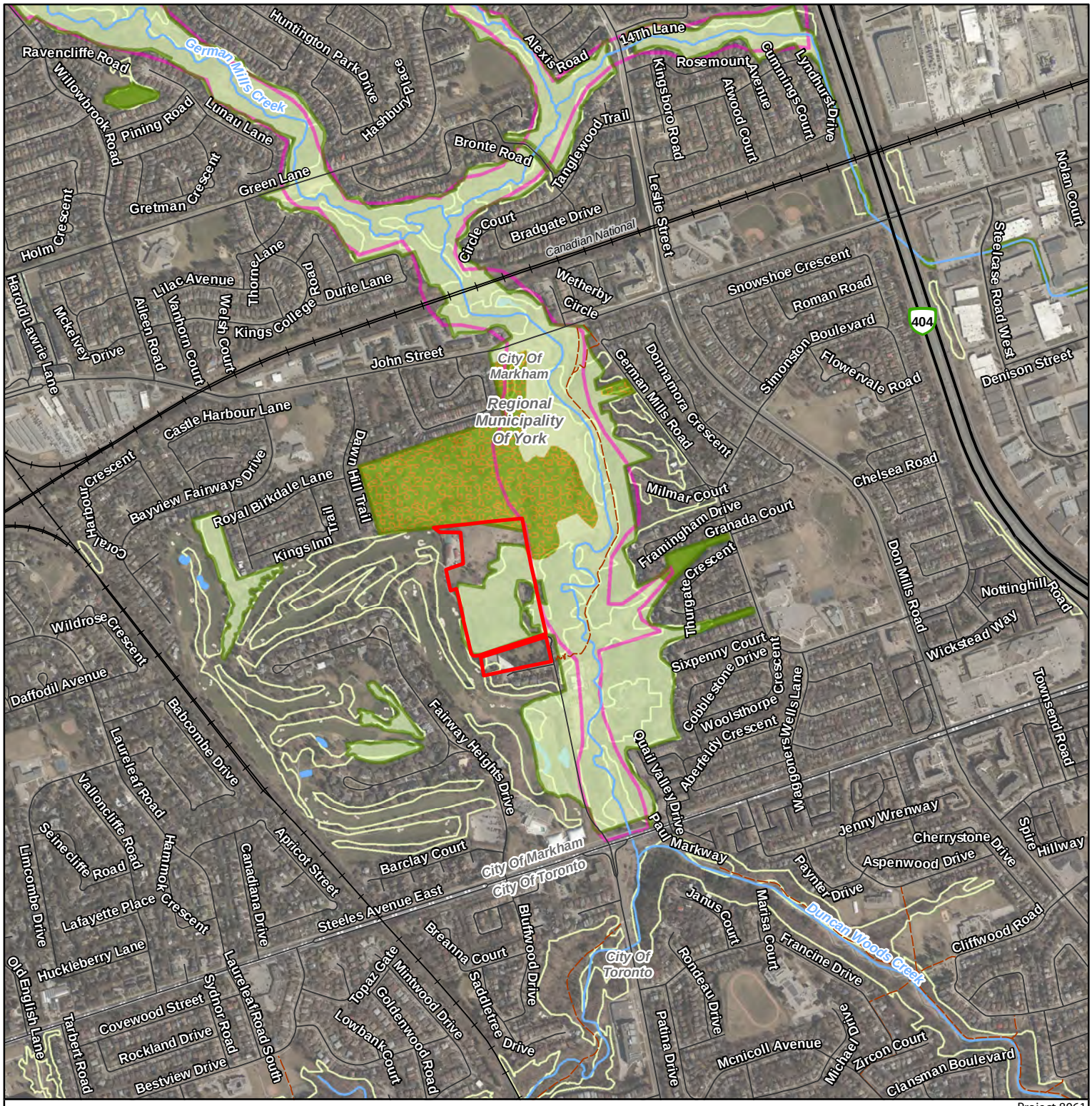
APPENDICES

Appendix C1 – Figures

NOTES:
1. Coordinate System: NAD 1983 UTM Zone 17N.
2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2022.

Legend

- Subject Lands
- Railway
- Municipal Boundary, Lower/Single Tier
- Municipal Boundary, Upper Tier
- Watercourse
- Waterbody
- Wooded Area



Project 8061

NOTES:

1. Coordinate System: NAD 1983 UTM Zone 17N.
2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2022.
3. Orthoimagery © First Base Solutions, 2022. Imagery taken in 2021.
4. Markham OP Greenway system boundary subdivided into Natural Heritage Network, Natural Heritage Restoration Areas and Other Greenway System Lands based on digitized boundaries from 'Map 4- Greenway system, June 2014' (approximate).

Legend

- Subject Lands
- Railway
- Highway
- Road
- Trail Segment (OTN)
- Municipal Boundary, Lower/Single Tier
- Municipal Boundary, Upper Tier
- Watercourse (LIO)
- Waterbody (LIO)
- Wooded Area (LIO)
- York Region Greenlands System
- Markham OP Greenway System Boundary
- Natural Heritage Network*
- Natural Heritage Restoration Areas
- Other Greenway System Lands

Lagerfeld Drive Extension
Baha'i Community of Canada

Figure 2
Landscape Setting

0 20 m
1:15,000

N

GEI Consultants

NOTES:

1. Coordinate System: NAD 1983 UTM Zone 17N.
2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2022.
3. Orthoimagery © First Base Solutions, 2022. Imagery taken in 2021.

Legend

- Subject Lands
- Watercourse
- Ecological Land Classification

ELC Legend

ELC Code, ELC Description

ANTH, Antrhopogenic
CUM1, Mineral Cultural Meadow
CUW1, Mixed Cultural Woodland
CUW1-3*, Black Locust Cultural Woodland
FOD5-1, Dry-Fresh Sugar Maple Deciduous Forest
FOM2-2, Dry-Fresh White Pine - Sugar Maple Mixed Forest
FOM3-2, Dry-Fresh Sugar Maple - Hemlock Mixed Forest
HR, Hedgerow
RES, Residential

Project 8061

Lagerfeld Drive Extension
Baha'i Community of Canada

Figure 3
Ecological Land Classification

0 20 m
1:2,200

N

GEI Consultants

Appendix 'A': Detailed Comments

TRCA provides the following comments to assist the applicant with further reviews and ultimately prepare future planning and permit applications. Please be advised that these comments are based on the current proposal as well as current technical information, practices and policies which may change from time to time. Please note the comments above do not include input from City of Markham staff and it is recommended to concurrently consult with the City regarding their requirements.

Development Planning and Permits	
DPP-1	The proposed works are located within TRCA's Regulated Area under Ontario Regulation 166/06. A permit from TRCA will be required prior to the commencement of any development. A permit application can be made to TRCA once the project advances through the planning stages.
DPP-2	The Feasibility Assessment does not provide an interpretation and analysis of the proposal in relation to the *Conservation Authorities Act*, TRCA's Regulation (Ontario Regulation 166/06) and TRCA's Living City Policies. Please provide a policy overview and describe how the proposal is in keeping with our policies, regulation and legislation.
DPP-3	The existing access through the open Leslie Street Right of Way does not provide safe access as most of the road is within an erosion hazard and would be subject to substantial flooding during a Regional Storm event. The proposed emergency access through the unopened Leslie Street Right of Way would not have safe access as most of this road is within a valley (erosion hazard). TRCA staff recommend that the applicant investigate other opportunities to provide safe access to the proposed development (e.g., secure access through the golf course to nearby municipal roads) in accordance with the PPS, provincial technical guidelines, TRCA policies and, as applicable, local emergency service provider.
DPP-4	Limits of Development – The limit of development (including construction of buildings and structures, parking and hardscaping, on site stormwater infrastructure, grading, etc.) need to be established to the satisfaction of TRCA and the City of Markham and in accordance with the PPS, municipal policies and TRCA's policies. This includes the following additional information and studies: a. defining the limits of natural features and natural hazards through a staking of the physical top of slope and vegetation community limits; b. a slope stability assessment to define the Long Term Stable Top of Slope; c. an Environmental Impact Study to further study limits of development in relation to other features, impacts, compensation/restoration; and, d. an environmental constraints figure plan to show all development (with the exception of trails outside of natural features, natural hazards and their setbacks, as well as restoration areas. Please be advised that a 10-metre setback from the Long Term Stable Top of Slope is required under TRCA's Living City Policies. Please see technical comments below for more information regarding these hazards and features.
DPP-5	It is our understanding that the log cabin and ancillary structure on 7290 Leslie Street are proposed to be relocated and converted to a visitor centre (no expansions to the buildings are proposed), and a new parking lot is proposed on 7290 Leslie Street to support the visitor centre. Please address the following comments: a. TRCA staff are concerned with the proposed location of the log cabin due to its proximity to the toe of the slope. Further, as the log cabin and ancillary structure are located within the valley, TRCA staff encourage the applicant to consider re-locating

	the structures to a safer location away from of the Long Term Stable Top and Toe of Slope and sensitive natural features. b. TRCA is not able to support the proposed parking lot location as it is located within the valley corridor and is associated with a new and intensified land use within the valley. As discussed with your Architect, Mr. Pontarini, a parking lot at this location is also unlikely to be in keeping with protecting the ecological and cultural integrity of this valley landscape. Please relocate the parking area to an appropriate location outside of the Long Term Stable Top of Slope and sensitive natural features.
DPP-6	TRCA encourages the applicant to consider additional areas on 7015 Leslie Street for restoration, including the removal of buildings and/or structures, as this would provide a meaningful improvement to the Natural System.
DPP-7	Please provide a copy of the topographic survey delineating the flood plain that is signed by the Ontario Land Surveyor.
Planning Ecology	
PE-1	While the Feasibility Assessment provides detailed analysis of the project in relation to various policies, various background studies and analysis are underway. The results of these studies should be used to inform the Master Plan and Preliminary Site Plan – as such, the conceptual plans provided at this time should be flexible in order to accommodate any recommendations or requirements that result of these studies.
PE-2	In accordance with the Feasibility Assessment, there is a proposed visitors centre and parking lot in Lot 2 where the existing log cabin, driveway and manicured lawn is located. Initial project discussions had targeted this area for restoration and enhancement. The existing log cabin and associated manicured area are within the valley – development within the valley is not supported by TRCA Living City Policies. Please reconsider opportunities to site access roads, parking, and visitor's facilities outside of the Natural System. TRCA encourages that existing disturbed areas within the valley be targeted for restoration and enhancement.
PE-3	The Feasibility Assessment contemplates trails within the woodland. Considering the sensitivity of this woodland, and the steep slopes associated with the valley, trails that 'meander' through the forest will cause significant and permanent ecological impacts, as well as long term impacts associated with increased access and encroachment. Any proposed trails should be located within areas of existing linear disturbance (e.g., existing formal or informal trails), should avoid sensitive habitats and sensitive species, should avoid natural hazards, and should avoid or minimize filling or grading requirements, in accordance with TRCA Living City Policies (See 7.4.5.1(h)). Please ensure that conceptual trail plans and associated access, grading and filling requirements are identified early in the planning process. Efforts to minimize the number of trails and efforts to minimize impacts from trail alignment and design should be demonstrated. TRCA looks forward to working with the City of Markham and the project team to develop a trail network that respects natural features and hazards and minimizes short- and long-term impacts on the Natural System. TRCA notes that the technical feasibility of the proposed trail network shown on Figure 4 should be assessed in relation to site constraints, sensitive features and species, and constructability.
PE-4	Section 5 of the Feasibility Assessment provides estimates for tree removal compensation. Please note that, where applicable, the TRCA Guideline for Determining Ecosystem Compensation should be followed. Thus, there may be compensation requirements that differ from what is proposed in the Feasibility Assessment. Compensation requirements for proposed removal of individual trees and for features should be discussed in relation to applicable Region of York, City of Markham and TRCA policies and guidelines. This information should be detailed in the EIS, with a compensation strategy developed as the conceptual and site planning process advances.
PE-5	TRCA Planning Ecology supports the proposed restoration plan and Forest Management Plan as outlined in Section 6.0 of the Feasibility Assessment. Additional restoration opportunities should be considered on the subject properties, in all areas within the valley

	that are disturbed. TRCA looks forward to working with the project team on the development of a comprehensive restoration, enhancement and management plan as the project progresses.
PE-6	TRCA Planning Ecology agrees with the interpretation of Region of York Official Plan significant woodland policies, as outlined in Section 8.2 of the Feasibility Assessment, and their applicability to the CUW1 community. An evaluation of significance for the remaining woodlands on the subject properties remains outstanding and will be undertaken as part of the EIS.
PE-7	As outlined in the Feasibility Study, please demonstrate that the intent of Markham Official Plan policies, particularly those associated with woodlands and the Greenway System, will be met. Please carry this analysis forward into the EIS. In order to meet Policy 3.1.1.3, a site meeting with TRCA and City of Markham staff may be required to confirm feature boundaries and discuss any proposed refinements to the Greenway System.
PE-8	TRCA Planning Ecology notes that the Feasibility Assessment does not provide an interpretation and analysis of the proposal in relation to the *Conservation Authorities Act*, Regulations and applicable TRCA Living City Policies. The feasibility of proposed development within the Natural System should be discussed. Opportunities to reconfigure the conceptual site plan to avoid and minimize impacts to the Natural System should be considered. Please describe any alternative site plan concepts that have been explored, and discuss the feasibility of options to access the site and provide parking and visitors facilities outside of the Natural System.
PE-9	In reviewing the Master Plan and Preliminary Site Plan. There are considerable opportunities for restoration and enhancement of the German Mills Creek valley corridor and associated woodland communities. The proposed Temple location may be feasible so long as the intent of applicable policies can be met, and restoration and enhancement opportunities be implemented. There are challenges, however, in terms of the feasibility of the parking and visitor centre within the valley, and the proposed trail networks through sensitive woodlands. Through ongoing study, the opportunities and challenges should be further explored in relation to applicable legislation and policies. The Master Plan should be refined to demonstrate avoidance and minimization of impacts to the Natural System and that an overall net gain will be achieved. To this end, TRCA Planning Ecology looks forward to working with the project team on completing background studies and analysis and advancing a master plan that achieves a balance between protecting the Natural System and meeting the objectives of The National Spiritual Assembly of the Baha'í's of Canada.
PE-10	TRCA Planning Ecology staff have reviewed the Scoped Environmental Impact Statement Terms of Reference. Please see the following comments in this regard. 1. The ToR outlines that only Lots 1 and 2 will be subject to assessment of natural heritage features and functions, given the development is limited to these lots. That said, it is recommended that targeted and scoped information be obtained for Lots 3 and 4, as a basic understanding of current features and functions will help inform restoration objectives. Please include assessment of ELC communities, incidental wildlife observations, identification of any degraded areas (e.g., previous disturbance, invasive species, debris, remnant infrastructure, etc.) and preliminary assessment of potential species at risk habitat that could be enhanced as part of the work. 2. Section 2.1.1.1 should note the need to define the hazards associated with the valleyland. Please see TRCA Geotechnical Engineering comments in this regard.

	3. In Section 2.2, please include incidental wildlife observations and incidental observations of potential habitat features such as vernal pools, dens, burrows, deer bedding areas, snake hibernacula, etc. 4. As per Section 2.2.3, dripline staking should be undertaken with TRCA in attendance. 5. TRCA supports the assessment of the woodland outlined in Section 2.2.3.2 and agrees with the conclusion that the CUW1 community does not meet the definition of woodland as described in the Region of York Official Plan. TRCA further supports the ToR proposal to undertake further ecological studies to determine the functional value of the community as outlined in Section 2.2.4.1. 6. Through the additional analysis of the CUW community, please ensure to discuss this feature in the context of contiguous vegetation to the valley, and applicable TRCA Living City Policies related to the conservation of land. 7. Please ensure that the EIS discusses required buffers to features / hazards in accordance with applicable policy. Please discuss areas where an increased buffer is recommended to support the function of features. Should buffer encroachments be proposed, please discuss these impacts in relation to the potential impacts on features and identify opportunities to offset any buffer losses. 8. Section 2.2.6 should be expanded to outline that feature impacts will be subject to TRCA's Compensation Guideline, as applicable. Please demonstrate best efforts to avoid, mitigate and minimize impacts – compensation should be considered as a last resort. Please note that basal area calculations may be required to determine compensation requirements associated with woodland removals, including cultural communities. Please consult TRCA's Compensation Guidelines. 9. In section 2.2.6, measures to mitigate impacts are outlined. TRCA supports the example measures outlined in the ToR, however, please ensure to provide recommendations on construction practices to minimize and mitigate impacts, which can then be carried forward to detail design.
Geotechnical Engineering	
GE-1	A number of the proposed works are located close to the slopes, on the slopes or will need to alter the slopes. As a result, a slope stability assessment must be conducted to identify the stability of the existing slopes and to determine the position of the Long-term Stable Top of Slope (LTSTOS) with a minimum factor of safety of 1.50 as per the TRCA Geotechnical Design and Submission Requirements (November 2007). Based on the slope stability assessments, the areas at risk need to be identified as well as those proposed works at risk. The appropriate risk mitigation measures must be provided and implemented. TRCA staff note that page 7 of the Feasibility Assessment Letter by MGP; Dated March 24, 2022 refers to a geotechnical study to determine the LTSTSOS; however, this report is outstanding. Please ensure this report is updated to reflect the comments contained within this letter and future staking of the physical top of slope.
GE-2	In addition to the slope stability assessment for the determination of the erosion hazards, the physical top of slope must be staked by TRCA staff in accordance with TRCA's Field Staking Protocol (December 2017).
GE-3	Both the physical top of slope and the Long-term Stable Top of Slope (LTSTOS) (to be determined by geotechnical slope stability study) must be plotted on all site plans and cross sections;
GE-4	A boardwalk/ramp is proposed on the slope and a trail is proposed on the slope to reach to the tableland. Please provide the following to determine the feasibility of these works:

	a. Please provide a site plan, cross-sections and longitudinal profile illustrating the extent of grading and alterations for the proposed boardwalk/ramp and trail, and how the grade differentials will be managed; b. The slope stability analysis must show that the proposed boardwalk/ramp and trail alignment are not at risk of slope instability and erosion, with a minimum factor of safety of 1.50 for slope stability; a. The slope stability analysis must confirm that the grading and alterations will not destabilize the slope and global stability is met with a minimum factor of safety of 1.50; b. The geotechnical engineer needs to provide the appropriate foundation system for the proposed boardwalk/ramp against the slope instability with a factor of safety of 1.50 to ensure that the suitable foundation system has been developed for the slope, so that it is not impacted by slope instability and will not destabilize the slope by the loads; c. The geotechnical engineer must develop appropriate slope instability and erosion risk mitigative measures for the boardwalk/ramp, trail alignment and management of grade differentials; d. All geotechnical and stability recommendations need to be demonstrated on the site plans, cross-sections, and other pertinent drawings (e.g., engineering drawings). All necessary mitigative measures against the risk of slope instability and erosion need to be provided accordingly.
GE-5	Some servicing facilities including the stormwater, sanitary and watermain pipes are proposed to run through the slope from the tableland. Further assessment and information must be provided in order to determine their feasibility. Please see below: a. The slope stability analysis needs to show that the proposed alignments for servicing elements running through the slope are not at risk of slope instability and erosion hazard with a minimum factor of safety of 1.50 for slope stability; b. The cross-sections extended from the tableland throughout the slope to the base of slope are needed to be provided to show the alignment of the proposed servicing including the elevations vs existing grade; c. If the open-cut installation is adopted, the limit of disturbance due to the open-cut including those needed to facilitate the stable side slope for the temporary excavations during the construction of the proposed servicing facilities are needed to be accurately shown on the site plan; d. It is required that geotechnical engineer develops how the disturbed areas on the slope will be reconstructed and/or engineered to ensure the long-term stability with a factor of safety of 1.5 after the completion of the proposed servicing works. All geotechnical recommendations are needed to be developed in this regard.
GE-6	The site grading plan (at concept level at this stage) must be provided to show the grading strategy and how the grading differentials are managed by this development. A review by geotechnical engineer is required and must ensure the stability of the adopted grading strategy;
GE-7	It appears that some grading on the tableland in the area of proposed temple has been introduced; however, the grading information has not been provided. Please also provide those pieces of information. The grading close to the top of slope may exacerbate the slope

	stability issues, and therefore, will need to be reviewed and approved by a geotechnical engineer following an assessment of the potential impact on the overall slope stability;
GE-8	Page 4 (Natural Hazards) of the Terms of Reference, prepared by GEI, dated March 18, 2022 did not include erosion hazards which are applicable due to the presence of slopes at this site. The terms of reference need to include the geotechnical slope stability study to assess the risk of erosion hazard and to develop the appropriate measures against being impacted by the risk of erosion hazards. The general terms of reference for the geotechnical studies can be found in the TRCA Geotechnical Engineering and Design and Submission Requirements (November 2007).
Water Resources Engineering	
WRE-1	Floodplain – The floodplain limits shown on the figures and drawings provided appears to be consistent with the latest TRCA floodplain. Please note that the latest TRCA floodplain information in this area was dated January 2021 and TRCA will review/confirm the accuracy of the floodplain delineation with the detailed topographic information in subsequent detailed submission.
WRE-2	Floodplain – As described in the Feasibility Assessment letter, the existing floodplain overtops a significant portion of Leslie Street north of Steeles Avenue and creates safe access issues for both existing and proposed developments. The letter briefly described an alternative emergency access being proposed from the north. Water Resources Engineering understands that Planning staff are not in a position to support this as safe access due to its location within a valley (erosion hazard). Once a viable route for safe access has been determined please provide details for review (i.e. preliminary alignment, confirmation from the City).
WRE-3	Site Servicing – It appears that a new outfall is proposed to service the proposed development. Please consider combining the proposed storm sewers with the existing storm network and outfall to avoid introducing a new additional outlet to the valley corridor.
WRE-4	Stormwater Management – The letter briefly described that the LIDs will be proposed to address the stormwater management targets for the proposed development. At detailed design please provide a stormwater management (SWM) report prepared and stamped by a qualified professional engineer to demonstrate how TRCA SWM criteria (i.e. water quality, water quantity, erosion control, water balance) have been satisfied.

Williamson, Laura

From: Michelle Bates <Michelle.Bates@trca.ca>
Sent: Thursday, September 1, 2022 2:52 PM
To: Allyssa Hrynyk
Cc: Williamson, Laura; Mark Schollen; Miren Etxezarreta-Aranburu; Shaz Nasiri; Rick Cefaratti ; Iacobelli, Tony; Wong, Patrick
Subject: [EXT] RE: 7200 Leslie St Bahai - Surveyed Features

EXTERNAL EMAIL

Hi Allyssa,

TRCA staff are satisfied that the staked lines have been delineated accurately, however, we have a few minor comments regarding the labeling and preparation of the survey plan prior to sending out a staking acceptance letter:

- The label 'limit of cultural woodland' should be 'Divide of CUW / FOD Community' for the cultural community at the west, while the label for the community in the valley should read 'Limit of FOM Community'
- Please revise the label "measured top of bank" to be "**staked** top of bank". This would b a more accurate description as we do not measure it in the field.
- Please add the stake #s but (if available)
- Please have the staking survey signed by an Ontario Land Surveyor.
- Please submit a revised staking survey addressing the above to TRCA.

Please note this feedback is absent from input by the City of Markham and they may wish to also provide feedback.

If you have any questions please let me know.

Thanks,

Michelle Bates

From: Michelle Bates
Sent: September 1, 2022 1:28 PM
To: Allyssa Hrynyk <ahrynyk@mgp.ca>
Cc: Williamson, Laura <lwilliamson@geiconsultants.com>; Mark Schollen <marks@schollenandcompany.com>; Miren Etxezarreta-Aranburu <metxezarreta-aranburu@hp-arch.com>; Shaz Nasiri <snasiri@hp-arch.com>; Rick Cefaratti <RCefaratti@markham.ca>; Iacobelli, Tony <TIacobelli@markham.ca>; Wong, Patrick <patrickwong@markham.ca>
Subject: RE: 7200 Leslie St Bahai - Surveyed Features

Hi Allyssa,

My apologies for the delay. I will get back to you this afternoon.

Thanks,

Michelle Bates

From: Allyssa Hrynyk <ahrynyk@mgp.ca>
Sent: August 29, 2022 3:52 PM
To: Michelle Bates <Michelle.Bates@trca.ca>
Cc: Williamson, Laura <lwilliamson@geiconsultants.com>; Mark Schollen <marks@schollenandcompany.com>; Miren Etxezarreta-Aranburu <metxezarreta-aranburu@hp-arch.com>; Shaz Nasiri <snasiri@hp-arch.com>; Rick Cefaratti <RCefaratti@markham.ca>; Iacobelli, Tony <TIacobelli@markham.ca>; Wong, Patrick <patrickwong@markham.ca>
Subject: RE: 7200 Leslie St Bahai - Surveyed Features

Hi Michelle,
Just following up on the email below to see if TRCA is satisfied with the survey. We are gearing up for a submission in the coming weeks that is based on this survey.

Thanks
Allyssa

From: Michelle Bates <Michelle.Bates@trca.ca>
Sent: August 3, 2022 4:58 PM
To: Allyssa Hrynyk <ahrynyk@mgp.ca>
Cc: Williamson, Laura <lwilliamson@geiconsultants.com>; Mark Schollen <marks@schollenandcompany.com>; Miren Etxezarreta-Aranburu <metxezarreta-aranburu@hp-arch.com>; Shaz Nasiri <snasiri@hp-arch.com>; Rick Cefaratti <RCefaratti@markham.ca>; Iacobelli, Tony <TIacobelli@markham.ca>; Wong, Patrick <patrickwong@markham.ca>
Subject: RE: 7200 Leslie St Bahai - Surveyed Features

Hi Allyssa,

Thank you, I will forward this along to our technical staff to review. Provided that we are satisfied with the survey, I'll issue a letter accepting the staking survey for both of our records.

By way of this email I am also sharing the staking survey with City staff that attended the site visit.

Regards,

Michelle Bates
Senior Planner - York East Review Area
Development Planning and Permits | Development Planning and Engineering Services

T: 437-880-2287
E: michelle.bates@trca.ca
A: 101 Exchange Avenue, Vaughan, ON, L4K 5R6 | trca.ca

Please note:
- My working hours may be different. Please do not feel you need to reply outside of your scheduled working hours.
- Digital submissions and documents related to properties in York Region municipalities can be submitted to the following e-mail address: yorkplan@trca.ca using a file sharing link where possible.

From: Allyssa Hrynyk <ahrynyk@mgp.ca>
Sent: August 3, 2022 4:04 PM
To: Michelle Bates <Michelle.Bates@trca.ca>
Cc: Williamson, Laura <lwilliamson@geiconsultants.com>; Mark Schollen <marks@schollenandcompany.com>; Miren Etxezarreta-Aranburu <metxezarreta-aranburu@hp-arch.com>; Shaz Nasiri <snasiri@hp-arch.com>
Subject: 7200 Leslie St Bahai - Surveyed Features
Importance: High

Hi Michelle,
We received the attached survey back from the surveyor illustrating the feature limits that were staked and surveyed in the field for the Bahai property.

I wasn't able to attend but I understand from Mark Schollen and Laura Williamson that the survey is correct based on the staking exercise. Could you please confirm the surveyed limits are as you understood them as well.

Thanks
Allyssa

Allyssa Hrynyk, MCIP, RPP, AICP, MUDS
Senior Planner and Urban Designer

MGP Malone Given Parsons.

Over 40 years of making great places.
140 Renfrew Drive, Suite 201, Markham, ON, L3R 6B3 Canada www.mgp.ca
T: 1.905.513.0170 x134 M: 1.226.220.8521

TO: Rick Cefaratti, Senior Planner II, West District

CC: Michelle Bates, Toronto and Region Conservation Authority

FROM: Patrick Wong, Senior Planner II, Natural Heritage
Tony Iacobelli, Manager, Natural Heritage

DATE: February 2, 2023

RE: 7200 Leslie St– PLAN 22 262723
Bahá'í National Centre and Temple
Natural Heritage Review

Natural heritage staff have reviewed the above-noted Official Plan amendment and Zoning By-law amendment applications to permit a place of worship and administration centre on the west side of Leslie Street, north of Steeles Ave (known municipally as 7200 and 7290 Leslie St). We provide our comments in relation to the application's conformity with the natural heritage policies of the Provincial Policy Statement and the Markham Official Plan 2014.

It is noted that the application requires the redesignation of over 0.8 hectares of Greenway lands and the removal of a similar area of natural vegetation in order to facilitate the Place of Worship building. We wish to acknowledge the applicant's effort in co-ordinating multiple site visits and pre-consultation meetings to facilitate a shared understanding of the natural heritage resources on the subject lands. The applicants have worked closely in collaboration with City natural heritage staff to prepare satisfactory terms of reference for the Environmental Impact Study.

Overall Comments

1. City staff agree with the overall findings that the cultural woodland (CUW1) is of low ecological diversity and contains a high proportion of non-native plant species. Nevertheless, staff believe this woodland community to be an important component of the City's natural heritage system given that it is contiguous with a large native woodland and valleyland feature. Its location on the landscape helps to improve the overall habitat size and shape and supports wildlife movement through the urban area and Don River watershed.

   As outlined below in comment #5, staff consider the CUW1 community to be a woodland feature and believe that any removal of this woodland should be compensated for in accordance with the principles of the TRCA Ecosystem Compensation Protocol and the City's Official Plan woodland policies. Revisions to the EIS and compensation plans are recommended to identify appropriate compensation ratios for the woodland feature. In staff's opinion, compensation of this natural features using conventional tree

replacement ratios and tree appraisals is not appropriate as this approach does not adequately value the loss of ecological function and ecosystem services.

A significant net ecological gain is required to be demonstrated. In this regard, staff will be considering factors such as the increase in overall net area of the Greenway System, increase of woodland area, improvement of ecological function and enhancement of existing natural features.

2. In principle, staff are supportive of the Landscape Restoration and Enhancement Strategy. The plan would expand forest cover and would add new lands to the natural heritage system.

   Land Area: The removal of ~0.75 ha of Greenway designated lands is offset through the restoration and protection of 2.0 ha of land at Restoration Area #1 (north portion of 7200 Leslie St. It is requested that these lands to be reforested be re-designated Greenway as part of the Official Plan and Zoning by-law Amendment.

   Ecological Function and Forest Area: The removal of ~0.75 ha of cultural woodland and encroachment into ~0.15 ha of vegetation protection zones are offset through the restoration of ~4.5 ha of lands.

   The intent of the TRCA Ecosystem Compensation Protocol to offset the land area and ecological function appears to have been achieved. The applicant is asked to revise the EIS to identify appropriate compensation ratios for the purposes of calculating ecosystem compensation amounts. Please also see Point #4 below to minimize encroachment in the significant woodland and/or VPZ.

3. The development requires a new parking lot, three welcome structures (two of which are existing structures), and an emergency access road below the top of bank and within an existing manicured area of the valley system. In general, development is to be directed away from hazard lands as defined under the Provincial Policy Statement and the Markham Official Plan (s.3.2.1.5). City staff defers to the TRCA to confirm that the policies of the PPS related to natural hazards have been met to their satisfaction.

   As it relates to natural heritage considerations, the establishment of new uses and the addition of new impervious surfaces and human activity within the valley system has the potential to impair ecological connectivity and wildlife movement. Stormwater run-off and erosion risks are also increased. The Markham Official Plan generally prohibits development in valleyland features (s.3.1.2.13) and seeks to maintain or improve landscape connectivity between natural heritage features (s.3.1.1.11). Staff have concerns that, without proper mitigation or restoration, there would be a net negative impact to the Greenway System and valleyland feature.

   It is recognized that some removals of existing hard surfaces are proposed, however it would be highly desirable from an ecological perspective if all existing uses to the east of German Mills Creek could be converted into natural cover. These lands are at risk

of flooding and erosion and are likely imparing natural wildlife movements along the main valley corridor. From staff's perspective, the decommissioning of these existing uses would further assist in demonstrating an overall reduction of risk to life and property as well as a net ecological gain within the valleyland feature.

The next submission of the EIS should provide a discussion on how this has been duly considered and how this may be feasible or not for the Applicant.

4. Please review the ability to avoid encroachments into the vegetation protection zones of the significant woodland/valleyland features by shifting building and landscaping elements to the west. Based on the significant impact to vegetation on this site, all efforts shall be made to avoid impacts on the remaining key natural heritage features.

Technical Comments (EIS)

5. Status of Cultural Woodland (CUW1) community: City staff remain of the opinion that the application of stem density to discrete portions of a woodland community is not appropriate. Staff are particularly concerned with the precedent of applying this to discrete sub-units of a woodland as this could potentially affect areas of woodlands that have been affected by natural disturbances or other activities. Where necessary, stem density tests should only be applied across an entire contiguous woodland patch. Staff does not agree with the conclusion that the CUW1 community is not a woodland feature, however staff are of the opinion that portions of the cultural woodland may be considered for removal subject to a demonstration of overall net ecological gain to the natural heritage system.

6. Significant Valleyland: The EIS does not provide sufficient justification to conclude that German Mills Creek is a non-significant valleyland. The EIS suggests that only the "nine major river valleys" may be significant valleylands. Per the Natural Heritage Reference Manuals, tributaries may be assessed as Significant Valleyland. In staff's opinion, German Mills Creek meets criteria for significant valley given it has a valley width >25m, contains natural ecosystems and provides a functional ecological connection to surrounding natural heritage corridors. We note that within the existing urban area, the minimum vegetation protection zone for significant valleylands is considered to be 10 metres from the top of bank or floodplain. Additional VPZs beyond the 10m standard are not required.

7. Figure 6 – Significant Natural Heritage Features: The CUW1-3 and FODM7-7 are considered significant woodland features by the City. Please add these two ELC communities to the Significant Woodland layer in the EIS.

8. Access Road through City lands: More information is required to be provided to fully assess potential ecological impacts on City lands. In particular, please identify the limits of grading required to upgrade the access road, and any potential impacts to vegetation within German Mills Meadow and Natural Habitat Park. Should any impacts be identified,

please provide an overall mitigation plan for the re-establishment of vegetation. City staff note that this park is actively managed for grassland SAR birds, Bobolink and Eastern Meadowlark. Please ensure that all work in this area respect the City's management objectives.

9. Direct Trail between parking lot and place of worship: The applicant is encouraged to review the feasibility for the direct trail based on the potential for significant alteration and disturbance to the valley slope. Please consider the ability to co-locate a direct pathway through the existing road access to the south.

Technical Comments (OPA/ZBLA)

10. Please revise the draft Amendment schedules to include the CUM1-1 community proposed for reforestation (Restoration Area #1 in the EIS) to be re-designated and re-zoned to 'Greenway'. These restoration lands are intended for long term protection.

11. The implementing OPA/ZBLA should be revised to require the preparation and implementation of a woodland compensation plan (Landscape Restoration and Enhancement Strategy) to the satisfaction of City staff.

Matters for Detailed Design / Site Plan

12. The City Official Plan encourages conveyance of natural heritage lands and particularly hazard lands, into public ownership for their protection and stewardship. Staff recognize that certain portions of the natural heritage system are integral to the function of the campus site and are proposed to maintain in private ownership. Please review whether any of the lands (e,g., east side of Leslie St at Steeles Ave) are surplus to the overall operations and whether such lands would be appropriate for conveyance into public ownership.

13. City staff look forward to working with the applicant at detailed design on trail design details. Staff support the general approach of the secondary, meandering trail which helps to minimize alterations to the valley slope and to avoid significant trees. Staff would be pleased to review specific alignments on-site with the applicant.

14. Detailed restoration plans will be reviewed at site plan. Staff have discussed with the applicant the abundant presence of invasive species in this location. Deer browse on newly planted vegetation will also need to be mitigated. We recommend a robust monitoring and adaptive management plan be prepared to ensure the long term success of restoration works. At site plan, further discussion is required on timing and sequencing of restoration relative to the timing for removals. Restoration works shall occur as early in the process as possible.

Conclusion

A revised EIS is required in support of the Official Plan or zoning by-law amendment applications. If you have any questions, please feel free to contact me at patrickwong@markham.ca.

February 13, 2023 CFN 66410.04

By E-Plan

Rick Cefaratti
Senior Planner II, West District
City of Markham
101 Town Centre Blvd
Markham, ON L3R 9W3

Dear Mr. Cefaratti:

Re: Major Official Plan Amendment & Major Zoning By-law Amendment Application – PLAN 22 262723 – Submission 1
7200 Leslie Street, City of Markham
Owner: National Spiritual Assembly of the Baha'is of Canada - Ravin Paltoo and Mehran Anvari
Agent: Malone Given Parsons Ltd. - Allyssa Hrynyk

This letter provides comments on the above noted Major Official Plan Amendment (OPA) and Major Zoning By-law Amendment (ZBA) Application in the City of Markham, circulated to Toronto and Region Conservation Authority (TRCA) on December 5, 2022 (via E-Plan). This letter includes review and comment by TRCA staff, including site visit and discussions with the municipality and applicant, prior to January 1, 2023. A list of the documents received can be found in Appendix 'A' of this letter.

Purpose of the Application

We understand that the purpose of these applications is to facilitate the expansion of a new Bahá'í National Centre and Canadian National Temple, as outlined below. The OPA is required for the proposed development on Lot 2 as it is located within the Greenway designation, whereas the ZBA is required for Lots 1 and 2 to establish site-specific zoning regulations that support the building envelopes, parking and other parameters while also refining the extent of the natural areas.

- Lot 1 (7200 Leslie Street) – Demolition of existing Bahá'í National Centre and development of a new Bahá'í National Centre (including loading rooms, administrative offices, meeting rooms, multi-purpose educational and conference facility), surface parking and underground parking.

- Lot 2 (7290 Leslie Street) – Development of a National Temple and accessory building at the top of the valley, a trail system providing a connection from the top of the valley to the bottom of the valley, along with additions to the existing one storey log house and garage, new accessory building (washroom/reception) and new parking lot at the bottom of the valley.

Staff note that some of the restoration works associated with the development on Lot 2 are proposed on other lands owned by the applicant at 7015 Leslie Street. However, 7015 Leslie Street is not subject to the OPA and ZBA and according to the applicant, this property is intended to be retained and used for various events.

Applicable TRCA Regulations and Policies

Provincial Policy Statement (2020)

The Provincial Policy Statement (PPS) provides policy direction on matters of provincial interest related to land use planning and development. Conservation Authorities have been delegated the responsibility of representing the provincial interest on natural hazards encompassed by Section 3.1 of the PPS. Section 3.1 of the PPS generally directs development and site alteration to locations outside of hazardous lands that would be impacted by flooding hazards and/or erosion hazards and prohibits development in areas that would be rendered inaccessible to people and vehicles during times of flooding hazards or erosion hazards, unless it has been demonstrated that the site has safe access. The PPS also directs planning authorities to consider the potential impacts of climate change that may increase the risk associated with natural hazards.

Living City Policies for Planning and Development in the Watersheds of the TRCA

The Living City Policies for Planning and Development in the Watersheds of the TRCA (LCP) is a TRCA policy document that guides the implementation of TRCA's legislated and delegated roles and responsibilities in the planning and development approvals process. The LCP describes a "Natural System" of water resources, natural features and areas, natural hazards, potential natural cover and/or buffers that is generally to be protected from development, site alteration and infrastructure. The LCP also provides policies for developing adjacent to, and in, the "Natural System" (where permitted), while meeting natural hazard management requirements, and protecting, maintaining and enhancing the functions of the system. These policies guide TRCA's review of the subject application, along with those found in other Provincial and municipal plans, documents and guidelines as applicable.

Ontario Regulation 166/06, as amended

Under Section 28 of the *Conservation Authorities Act,* TRCA administers Ontario Regulation 166/06 (Development, Interference with Wetlands and Alteration to Shorelines and Watercourses), as amended.

The property located at 7015 Leslie Street is entirely within the Regulated Area of the Don River Watershed as it is located within hazardous lands (a valley) and Regulatory floodplain associated with German Mills Creek which traverses the property, and contains unevaluated wetlands. Most of 7290 Leslie Street is within the Regulated Area as it is located within hazardous lands (a valley), and a small portion of 7200 Leslie Street is within the Regulated Area as it is adjacent to hazardous lands. In accordance with Ontario Regulation 166/06, a permit is required from the TRCA prior to any of the following works taking place within the Regulated Area:

a. straightening, changing, diverting or interfering in any way with the existing channel of a river, creek, stream or watercourse, or for changing or interfering in any way with a wetland;
b. development, if in the opinion of the Authority, the control of flooding, erosion, dynamic beaches or pollution or the conservation of land may be affected by the development.

Development is defined as:

i. the construction, reconstruction, erection or placing of a building or structure of any kind;
ii. any change to a building or structure that would have the effect of altering the use or potential use of the building or structure, increasing the size of the building or structure or increasing the number of dwelling units in the building or structure;
iii. site grading; or,
iv. the temporary or permanent placing, dumping or removal of any material, originating on the site or elsewhere.

Comments

TRCA staff have reviewed the materials in Appendix 'A' and provide our detailed comments in Appendix 'B'. Overall, staff have identified the following fundamental matters that will need to be addressed before we are able to recommend approval of the OPA and ZBA:

1. **Safe Access** – Safe access to the proposed development will need to be demonstrated to the satisfaction of TRCA and the City of Markham in accordance with the PPS, provincial technical guidelines, TRCA policies and, as applicable, local emergency service provider. Based on the comments in Appendix 'B', further information regarding the existing hazard limits and the location and design of the future north access road is required to determine if it can be considered safe access.

2. **Limits of Development** – Once safe access has been demonstrated, the limit of development (including construction of buildings and structures, parking and hardscaping, on site stormwater infrastructure, grading, etc.) needs to be established to the satisfaction of TRCA and the City of Markham and in accordance with the PPS, municipal policies and TRCA's policies. Based on the comments in Appendix 'B' TRCA requires that the Temple (and associated site alteration) and new parking, accessory buildings and additions at 7290 Leslie Street be relocated outside of the Natural System (including hazardous lands and buffer), consistent with comments from the City of Markham regarding the Natural Heritage System.

3. **OPA & ZBA Text and Schedule Modifications** – The OPA and ZBA wording and schedules must ensure that a 10 metre buffer from natural hazards are designated and zoned for protection. In this regard, minor changes are required.

4. **Stormwater Management** – A stormwater management strategy needs to be provided demonstrating how TRCA's stormwater management criteria will be satisfied. To support the stormwater management strategy, seasonal high ground water levels are also required.

5. **Trail System** – An appropriate trail location and design needs to be provided which minimizes impacts to the hazardous lands (valley) and does not aggravate erosion/slope stability or create new risks. Additional information and revisions to the current trail system are required as per Appendix 'B'.

   Note: While trails may ultimately be deferred to detailed design, given the complexities of this site and that determining an appropriate trail system and design may be an iterative process, TRCA recommends that the applicant continue working towards the trail solution through the OPA and ZBA process.

The list above captures overarching issues that need to be resolved prior to TRCA's support of the OPA and ZBA. This list is not exhaustive and the applicant is advised to review and address all comments in Appendix 'B'.

Application Review Fee

In accordance with TRCA's 2022 Planning Services Fee Schedule, a review fee in the amount of $14,330.00 (OPA/ZBA - Major) is required. Please provide a cheque in this amount payable to Toronto and Region Conservation Authority to TRCA's Office (101 Exchange Avenue, Vaughan ON L4K 5R6). Please note, this fee covers our review of up to three submissions and up to two meetings. Additionally, any future municipal planning or TRCA Permit Applications will be subject to separate review fees in accordance with TRCA's Permitting Services Fee Schedule in effect at that time.

Recommendation

TRCA appreciates the applicant's early engagement on this project which has helped to progress certain matters. At this time there are matters related to safe access, limits of development, amendments to text and schedules, and stormwater management that need to be addressed prior to TRCA's support of an OPA and ZBA. We understand that the access and parking issues are complex and staff would be pleased to meet with the applicant and City and work towards solutions in an effort to expedite approvals. . Following this we request a re-submission addressing our comments.

We trust this is of assistance. Should you have any questions or comments, please do not hesitate to contact the undersigned at 437-880-2287 or michelle.bates@trca.ca.

Sincerely,

Michelle Bates
Senior Planner, Development Planning and Permits

Appendix 'A': Materials Reviewed by TRCA

- Official Plan Amendment, prepared by Malone Given Parsons (MGP)
- Zoning By-law Amendment, prepared by MGP
- Master Plan and Preliminary Architectural Drawings, prepared by Hariri Pontarini Architects, dated September 15, 2022
- Planning Opinion Report, prepared by MGP, dated October 2022
- Design Brief, prepared by MGP, Hariri Pontarini Architects, SCS, GEI, and Schollen & Company, dated October 2022
- Scoped Environmental Impact Study, prepared by GEI, dated October 2022
- Landscape Restoration and Enhancement Strategy, prepared by GEI and Schollen & Company, dated October 13, 2022
- Tree Inventory & Assessment Report, prepared by Jeremy Dilks and Schollen & Company, dated October 7, 2022
- Functional Servicing and Stormwater Management Report, prepared by SCS, dated October 2022
- Geotechnical Investigation and Slope Stability Assessment, prepared by Terraprobe, dated October 25, 2022
- Hydrogeological Study, prepared by Terraprobe, dated November 7, 2022
- Phase 1 ESA, prepared by Terraprobe, dated August 16, 2022
- Phase 2 ESA, prepared by Terraprobe, dated September 19, 2022
- Topographic survey, prepared by ertl surveyors, dated September 9, 2022 (and staking survey)
- Landscape Concept Plan, prepared by Schollen & Company, dated September 22, 2022

Appendix 'B': Detailed Comments

TRCA provides the following comments to assist the applicant with further reviews and ultimately prepare future planning and permit applications. Please be advised that these comments are based on the current proposal as well as current technical information, practices and policies which may change from time to time. Please note the comments above do not include input from City of Markham staff and it is recommended to concurrently consult with the City regarding their requirements.

#	TRCA Comment (Submission 1 – February 2023)	Applicant Response (To be completed for Submission 2)
DEVELOPMENT PLANNING AND PERMITS (DPP)		
DPP-1	**TRCA Permit** Please note the proposed works are located within the Regulated Area under Ontario Regulation 166/06. A permit from TRCA will be required prior to the commencement of any development (including construction, grading, site alteration/preparation, etc.) within our Regulated Area. A permit application can be made to TRCA once the project advances through the planning stages.	
DPP-2	**Planning Justification Report (PJR)** The PJR should demonstrate conformity to all natural hazard policies within the Provincial Policy Statement. Of note is that discussion regarding safe access is omitted. Please see DPP-3 for further technical information required to demonstrate safe access. The PJR should also consider TRCA's Living City Policies and Ontario Regulation 166/06 as a permit from TRCA will be required and the development plan brought forward through this OPA and ZBA will also need to be supportable from a permitting perspective.	
DPP-3	**Safe Access** In accordance with Policy 3.1.2 of the Provincial Policy Statement, Development and site alteration shall not be permitted within areas that would be rendered inaccessible to people and vehicles during times of flooding hazards, erosion hazards and/or dynamic beach hazards, unless it has been demonstrated that the site has safe access appropriate for the nature of the development and the natural hazard. Development (defined by the Conservation Authorities Act) within the Regulated Area must also meet TRCA's Living City Policies and the tests of Ontario Regulation 166/06, as amended or superseded. Throughout Pre-Consultation TRCA has identified safe access as an issue and encouraged the applicant to seek an access outside of the valley system. However, TRCA understands that the applicant is seeking safe access through an existing trail / unopened Right of Way located east of the development. The following information is required to determine if the proposed access can be supported in principle and as safe access. *Erosion hazard* a) Please provide a Meander belt / Fluvial Geomorphic Study identifying the erosion hazard limit associated with the channel migration, in accordance with TRCA's Meander Belt Width Delineation Procedures and provincial technical guidelines. This study was required as part of a complete application and not submitted. b) Please provide a grading plan for the access road. The access must be outside of the meander belt and any unstable slope areas and where possible, the road be setback 6 metres from these areas to provide space for future maintenance or erosion protection works. c) Please demonstrate that all grading works associated with the access meet TRCA Geotechnical Engineering Requirements (See GE-1). d) Please identify any vegetation removals in the vicinity of the erosion hazard, and associated restoration areas. *Flood plain hazard* e) Please update the Regulatory flood plain delineation per Water Resources Engineering Comment 1 (WRE-1). f) Please demonstrate the access will be outside of Regulatory flood plain OR if avoidance of the Regulatory flood plain is not possible, provide a discussion regarding how access meets provincial technical guidelines for flood depths and velocities and a Flood Plain Analysis for any grading within the flood plain (demonstrating no adverse impacts to the flood plain or other properties). g) Please identify any vegetation removals in the vicinity of the flood plain hazard, and associated restoration areas. *General* h) Please identify any vegetation removals in respect of the proposed development, and associated restoration areas.	

	Local Emergency Services i) Please provide confirmation from the City of Markham that the access design satisfies local emergency service provider requirements.	
DPP-4	**Temple (7290 Leslie Street) – Limits of Development** The proposed temple and associated site alteration works are within TRCA's Regulated Area under Ontario Regulation 166/06. A permit from TRCA is required for development within our Regulated Area and such development will need to satisfy our Living City Policies and the tests of our Regulation. Accordingly: a) Please relocate all development works associated with the temple (e.g., structures, retaining walls, amenity areas, grading, site alteration, vegetation clearing) outside of the 10 metre buffer to the Long Term Stable Top of Slope in accordance with TRCA's Living City Policies. b)	
DPP-5	**Parking and accessory buildings (7290 Leslie Street) – Limits of Development and Draft Official Plan Amendment Text** Throughout TRCA's Concept Development Application process and municipal Pre-Consultation, TRCA has expressed concerns regarding intensification and/or re-development at the bottom of the valley at 7290 Leslie Street, which includes the new parking, buildings and additions to historical buildings, and retaining walls. This area is within TRCA's Regulated Area under Ontario Regulation 166/06 and is considered hazardous lands (see definition on Page 158 of LCP and definitions in the Provincial Policy Statement). Policy 8.4.4 of the LCP states that development within regulated area that proposes to modify hazardous lands is not permitted. Policies 7.5.2.2 b) and 7.5.2.4 a) also state that Natural Systems (Valley Corridors) not form part of the area to be designated or zoned for development under a *Planning Act* application, but rather, be designated and zoned in an appropriate environmental protection category. Accordingly: a) TRCA continues to not support the proposed parking, additions and new structures within the valley, and encourage the removal and restoration of structures and hardscaping within this area. TRCA is willing to explore alternative uses for the area within this area that would be subject to minimal risk and have lesser impacts to the valley corridor.	
DPP-6	**Draft Official Plan Amendment (Text & Maps):** a) Please revise Maps 1-6 to place all of the hazardous lands and its buffer within the Greenway System designation and Natural Heritage System. The Provincial Policy Statement (2014) identifies hazardous lands along river systems as including the land covered by water to the furthest landward limit of the flooding hazard or erosion hazard limits (e.g., Long Term Stable Top of Slope). Therefore, the upper limit should be 10 metres from the Long Term Stable Top of Slope (unless other features require greater protection) and the lower limit should be the east property boundary as the valley continues off-site to the river. b) Valleylands mapping on Map 6 should be revised to include the entire valleylands on 7290 Leslie Street (i.e., east property up to LTSTOS) c) Please ensure that the Greenway System also reflects other lands (e.g., Significant Woodlands, restoration areas) as required by the City. d) The trail requirements noted in Section 9.18.XX.3 require further review and input from a professional Geotechnical Engineer (please also see TRCA's Geotechnical Engineering comments). Please update Section 9.18.XX.3 based on design recommendations from the Geotechnical Engineer. Alternatively, to defer this to the Site Plan Application stage, please remove the current Section 9.18.XX.3 wording and replace it with the following: "Notwithstanding Policy 3.1.1.9, trails may be permitted within the Greenway System provided that that the design satisfies geotechnical engineering requirements to the satisfaction of Toronto and Region Conservation Authority and minimizes the impacts on the ecological integrity of the Greenway System to the satisfaction of the City of Markham."	
DPP-7	**Draft Zoning By-law Amendment (Text & Schedule)** Schedule 1 needs to be revised to place all lands within 10 metres of the Long Term Stable Top of Slope within the Greenway 1 (GW1) Zone. Ensure that all other lands required by the City (e.g., Significant Woodlands, Significant Valleylands) are also zoned for protection.	
DPP-8	**Trails** Two trails (a staircase and walking trail) are proposed along the valley and TRCA's Regulated Area under Ontario Regulation 166/06. Section 8.10.3 and 8.10.5 of our Living City Policies provides policies for non-motorized trails which are focused on maintaining existing topography to the extent possible, demonstrating that the risk to public safety will not be increased / erosion hazards will not be aggravated, and minimizing intrusions into natural features, areas and systems contributing to the conservation of land. In this regard, Planning Staff provide the following comments:	

	a) Please minimize impacts and disturbances to the valley by limiting to one trail through the valley (also see PE-2 comment). Consider a secondary/alternative access to the temple on lands outside of the valley (e.g., north side of Lot 1). b) Please provide further discussion on how the trail is in the area of least impact considering both the erosion hazard and natural features associated with the valley c) Please show any required grading and/or retaining structures. d) Please outline any accessibility requirements or preferences.	
WATER RESOURCES ENGINEERING (WRE)		
WRE-1	**Limits of Development and Access Road** For TRCA review, please include the hydraulic cross sections on the floodplain map sheet to determine the accuracy of the plotted floodline. Please include the floodplain and associated floodplain setback on all relevant plans. For clarity, please include a floodplain mapsheet without the aerial image.	
WRE-2	**Access Road** It was noted an emergency access road is proposed for safe ingress and egress to the proposed development north along the Leslie street right-of-way. Please provide the limit of disturbance required to facilitate the grading of the proposed access road. Please ensure all development (grading and infrastructure) is located outside of the floodplain and floodplain setback. Please see DPP-5 for additional comments regarding the road.	
WRE-3	**SWM** Please note at this time it is required that the Functional Servicing and Stormwater Management Report (SCS, October 2022) demonstrate the feasibility of the design to meet the TRCA's 2012 Stormwater Management Criteria. Based on this, additional information is required in the next submission for review and comment including but not limited to the following: a. Existing and proposed storm drainage plans illustrating the pre- and post-development catchment areas and imperviousness to the proposed outlet. b. Quantity control calculations defining the allowable release rates and demonstrating how the proposed on-site controls (i.e. underground storage chambers) will meet the allowable release rates in the post-development scenario for the 2 through 100 year storm events. c. Quality control calculations demonstrating the combination of proposed on-site LID measures (i.e. MTDs, grassed swales, and permeable pavers) will provide the required 80% TSS removal. d. Erosion control calculations demonstrating how runoff from the first 5 mm of rainfall over the proposed development will be retained on site with the proposed LID measures (i.e. grassed swales, pervious pavement, increased topsoil depth, and water reuse). e. Typical details for all infiltration based LIDs demonstrating the required separation the seasonally high groundwater level will be met. Calculations demonstrating the required drawdown time will be met based on in-situ infiltration testing at the proposed LID locations. f. Proposed LID drainage area and location plan. Please include discussion in the FSSR on the proposed SWM strategy for the proposed emergency access road.	
WRE-4	**SWM** The FSSR discusses the need for a new outfall to German Mills Creek. Per the TRCA's 2012 SWM Criteria, infrastructure associated with outfalls (e.g. headwalls, plunge pools) are required to be located outside of the meander belt and 100 year erosion limit. To ensure the feasibility of the proposed outfall, please demonstrate the proposed outfall will be located outside of the meander belt and 100 year erosion limit.	
PLANNING ECOLOGY (PE)		
PE-1	The master plan, site plan and EIS figures identify the proposed temple and associated retaining wall within the 10m buffer from the dripline of the significant woodland and the limit of the developable area / limit of grading at or in close proximity to the top of bank and significant woodland dripline. Further to discussions at the site visit, the temple should be moved west, as well as associated retaining walls and grading to avoid conflict with these constraints. It is understood that removal of invasive species throughout the buffer from dripline to the significant woodland is proposed. Such efforts are supported. However, grading within this area and the placement of retaining walls and hard landscaping elements are not supported.	
PE-2	Various plans show a staircase from the log house site directly to the temple. Building on previous discussions, TRCA does not support this as the disturbance to the slope required for construction would be significant. If a direct pedestrian connection between the log	

	house site and the Temple is required, please propose a route along the northern edge of Lot 1 at 7200 Leslie St. Please remove the staircase from all plans.	
PE-3	Previous discussions on the proposed parking in Lot 2 near the log house explored options in more active, development heavy portions of the site. It does not appear that an analysis of alternatives to placement of parking near the log house has taken place. One option discussed was the placement of a row of spaces along the northern limit of Lot 1 where traffic, lighting and other anthropogenic influences are greater. Additional rows of parking at the east end of Lot 1 should also be explored. Please provide an analysis of parking options that would avoid the conversion of lawn near the log house to parking.	
PE-4	Please confirm the monitoring requirements and commitments for the various restoration efforts proposed. Monitoring is mentioned by Schollen specific to invasives removals. This is supported. Monitoring will also be required for planting and seeding success, erosion issues along the proposed trail and the gabion removal areas. No monitoring is explicitly included in Schollen's estimates. TRCA would be happy to assist in determining appropriate monitoring components, frequency and duration.	
GEOTECHNICAL ENGINEERING (GE)		
GE-1	**Emergency Access** The next submission needs to demonstrate all the below with regard to the proposed emergency access (safe access): a) Please provide all grading information on a site/grading plan, cross-sections and longitudinal profile. b) Please avoid the use of retaining walls and any cut/excavation into the toe of slope. c) Please provide confirmation from a geotechnical engineer that the emergency access grading and earthworks have been reviewed and works meet global stability with a minimum factor of safety and will not adversely impact slope stability. Please refer to TRCA **Geotechnical Engineering Design and Submission Requirements** for more information.	
GE-2	**Geotechnical Report by Terraprobe: Determination of the LTSTOS** The determination of the Long-term Stable Top of Slope (LTSTOS) within the geotechnical report by Terraprobe is acceptable (i.e., the staked top of slope represents the LTSTOS).	
GE-3	**Trails** Overall, TRCA staff are very concerned that the proposed staircase and trail will result in disturbance to native soils and will exacerbate the slope hazard. Development Planning and Permits and Planning Ecology staff have expressed concerns regarding impacts of multiple trails and recommend the removal of the proposed staircase from the log cabin to the temple (see DPP-3 and PE-2). Geotechnical Engineering staff note that only conceptual information has been provided regarding the proposed trail; however, the disturbance footprint for a trail is typically wider than the ultimate trail footprint due to construction and grading requirements. The proposed trail will likely need grading/earthworks, stabilization, and may require retaining structures (example: see Cross-section D-D3 within the geotechnical report as well as the location of switchbacks on the site plan). Further, the introduction of any retaining walls can be problematic in the long-term. Retaining walls can become deteriorated and lose of their stabilization effects and their failure and/or remediation works can disturb hazardous lands. Provide an updated Geotechnical Report and grading plan addressing the following comments to determine the feasibility, location and design of a trail within the valley: a) Please provide additional grading details for the trail, including the extent of slope alterations (both temporary and permanent alterations) as well as the areas with retaining structures and stabilization measures to facilitate the proposed grading on the site plan, longitudinal profile and cross-sections showing the existing grade vs proposed grade. Please outline how the trail construction will have a minimal footprint and disturbance. Should it be necessary for a portion of the trail to include a staircase (i.e., to minimize grading), helical piles should be used to reduce the area of disturbance. b) The proposed trail grading and earthworks need to be assessed by the geotechnical engineer to confirm that the measures are appropriate to achieve the global stability with a minimum factor of safety for the altered slope by the proposed works for the future trail shown on the masterplan. c) Should any portion of the trail contain a staircase, please provide further geotechnical/slope stability analysis considering the potential impact of the loads applied to the slope by the staircase and confirming that it will not destabilize the slope. d) Please ensure that the trail details presented is consistent with other TRCA comments (DPP-8 and PE-2).	
GE-4	**Masterplan: restored tennis courts and existing toe retaining wall**	

	The masterplan identifies some existing tennis courts to be removed and restored at 7015 Leslie Street. Please clarify if the proposed works will result in any alterations to the exiting toe retaining wall.	
HYDROGEOLOGY		
HG-1	**Groundwater Levels** The ground water levels provided may be close to the seasonal high, but may not have fully equilibrated. Please provide additional ground water level monitoring to confirm the seasonal high. This information is required at this time to support the proposed stormwater management strategy.	
HG-2	**Dewatering** It is unclear if the information provided was for construction or long term dewatering. Please confirm the Zone of Influence and dewatering discharge location associated with long-term dewatering. As foundation waterproofing may be necessary to avoid adverse impacts or long term maintenance issues, TRCA strongly recommends that long-term dewatering information be provided and considered at this time. Dewatering information should also be updated as the design progresses.	
HG-3	**Basal Heave** As deeper foundations into saturated sands could be an issue and impact the proposed development plan, TRCA strongly recommends to investigate and address potential for basal heave at this time. Future drawings should include more information with respect to building names/underground parking locations, etc.	

Corporate Services

File No.: PLAN 22 262723
Regional File Nos.: LOPA.22.M.0065
ZBA.22.M.0144

February 15, 2023

Mr. Stephen Lue
Senior Development Manager
Planning and Urban Design Department
City of Markham
101 Town Centre Boulevard
Markham, ON L3R 9W3

Attention: Rick Cefaratti, Senior Planner II

Re: Regional Comments
Official Plan Amendment and Zoning By-law Amendment Applications
PLAN 22 262723
National Spiritual Assembly of the Bahá'í's of Canada
7200, 7290 and 7105 Leslie Street
City of Markham

This is in response to your circulation and request for comments for the above-captioned official plan amendment (OPA) and related zoning by-law amendment (ZBA) applications. The subject lands are located north of Steeles Avenue, south of John Street, and are municipally known as 7200, 7290 and 7015 Leslie Street. The subject lands combine for a total of approximately 16.56 hectares (40.98 acres).

Purpose and Effect of the Proposed Amendments
The National Spiritual Assembly of the Bahá'í's of Canada ("NSA Bahá'í") is proposing to construct a new Bahá'í National Centre ("BNC") to replace their existing building at 7200 Leslie Street for a Canadian National Temple.

The new BNC is proposed to have expanded administrative and institutional functions that include NSA Bahá'í national administrative offices, meeting rooms, a multi-purpose educational and conference facility, and lodging rooms. The National Temple is proposed just north of the BNC at 7290 Leslie Street. 7015 Leslie Street is not proposed for redevelopment and will be retained and used for various events. A Conceptual Master Plan was prepared to inform the proposed OPA and ZBA applications. The Conceptual Master Plan details the following:

1. Bahá'í National Centre
2. Bahá'í National Temple & Visitor's Centre
3. Parking and Access

4. Trails and Landscaping
5. Restoration

The purpose of this OPA is to amend the City of Markham Official Plan 2014 to modify the extent of the lands designated "Greenway" to better reflect the key natural heritage features on the subject lands as delineated through the Environmental Impact Study. The proposed OPA will redesignate the modified "Greenway" areas to "Residential Low Rise" consistent with the existing designation on the adjacent lands.

The OPA also includes a site-specific policy under Section 9.18 to support the development of the Conceptual Master Plan by clarifying the permitted uses related to the BNC as the Place of Worship administrative headquarters, the application of minimum vegetation zones, and enabling trails within the Greenway based on design principles to minimize the impacts on the ecological integrity of the Greenway System.

Zoning By-law Amendment
The subject lands are currently zoned 'Special Residential 3 (SR-3)' under the City of Markham Zoning By-law 1767, as amended. The ZBA application proposes to create new zone categories with associated regulations and rezone the subject lands to 'Community Facility – Place of Worship (CF-PW)' and 'Greenway 1 (GWY 1)'. Regional staff does not have any comments on the site-specific ZBA application.

Markham Official Plan
The subject lands are located within the "Greenway" and "Residential Low Rise" designations on 'Map 3 – Land Use' of the Markham Official Plan, 2014.

The "Greenway" designation, which applies to a portion of 7290 Leslie Street, is intended to protect natural heritage and hydrologic features, such as valleylands, stream corridors, sensitive groundwater features, woodlands, wetlands, and agricultural lands. Policies 3.1.1.3 and 3.1.1.4 in the Markham Official Plan, 2014 permit refinements and modifications to the "Greenway System", provided that compensation and restoration will result in a net positive benefit to the Natural Heritage Network.

York Regional Official Plan 2022
The York Region Official Plan ("YROP-2022") was approved by the Minister of Municipal Affairs and Housing with modifications on November 4, 2022 and is therefore now in force. The subject lands (7200 and 7290 Leslie Street) are shown as 'Urban Area' on 'Map 1 - Regional Structure' and designates them as "Community Area" on 'Map 1A'. A portion of 7015 Leslie Street is identified as being within the 'Regional Greenlands System'. Further, for 7290 Leslie Street 'Map 4 – Key Hydrologic Features' identifies the presence of Seepage Areas and 'Map 5 – Woodlands' identifies the presence of Woodlands within the subject lands.

'Chapter 3 – A Sustainable Natural Environment' of the YROP-2022 provides policies regarding the protection and enhancement of the natural environment. Policy 3.1.3 directs local official plans to include policies and mapping to establish and protect the Regional Greenland System.

Further Policy 3.1.4 states that in the Urban Areas, the Regional Greenlands System shall be more specifically identified in local official plans.

Policy 3.2.2 states that: *"within Urban Areas and Town and Villages as identified on Map 1, refinements to the boundaries of the Regional Greenlands System may occur through approved planning applications supported by appropriate technical studies including subwatershed studies, master environmental servicing plans and environmental impact studies in accordance with the applicable Provincial plans and policies of the Plan"*, without the need for an amendment to the Plan.

Development and site alteration is prohibited within the Regional Greenlands System and applications for development within 120 metres are required to submit an Environmental Impact Study (EIS) (Policies 3.2.3 and 3.2.4), to which the EIS prepared by GEI meets this requirement. However, notwithstanding policy 3.2.3, within the Regional Greenlands System, specified uses may be permitted subject to meeting the requirements of applicable Provincial plans. These uses include stormwater management and passive recreational uses such as trails.

Regional staff encourages the proposed development to have an integrated and innovative approach to water management, be water efficient, and minimize stormwater volumes and contaminant loads and maximize infiltration through an integrated treatment approach (ROP Policy 6.5.7). The YROP-2022 also encourages energy efficiency by supporting the use of renewable and alternative energy systems (Policy 6.7.10).

Toronto and Region Conservation Authority (TRCA)

It is our understanding that the Toronto and Region Conservation Authority (TRCA) has provided comments in a letter dated February 13, 2023. The TRCA confirms that the property located at 7015 Leslie Street is entirely within the Regulated Area of the Don River Watershed as it is located within hazardous lands (a valley) and Regulatory floodplain associated with German Mills Creek which traverses the property and contains unevaluated wetlands. Most of 7290 Leslie Street is within the Regulated Area as it is located within hazardous lands (a valley), and a small portion of 7200 Leslie Street is within the Regulated Area as it is adjacent to hazardous lands. As such, a permit will be required from TRCA prior to certain works taking place within the Regulated Area. Further, TRCA's comments identify there are matters related to safe access, limits of development, amendments to text and schedules, and stormwater management that need to be addressed prior to TRCA's support of the OPA and ZBA. York Region supports the comments made by TRCA on these applications to date.

Since the TRCA reviews the natural heritage and natural hazard components of applications on behalf of both the City of Markham and York Region through a Memorandum of Understanding, we rely on their expertise to evaluate the merits of this proposal.

Departmental Comments

Below is a summary of comments received from Regional Departments and Branches.

Transportation
Transportation Planning, Sustainable Mobility, York Region Transit (YRT), and Development Engineering have no objections to the OPA related to land use. Detailed technical comments and conditions will be provided at the subsequent stages of the proposed development, as appropriate.

Water and Wastewater Servicing
Infrastructure Asset Management (IAM) has reviewed the application in conjunction with the Functional Servicing and Stormwater Management Report (FSSMR), dated October 2022, prepared by SCS Consulting Group Ltd.

IAM has the following comments:

1. Water Servicing
The FSSMR states that the water servicing will be provided by connecting to the existing 300 mm watermain located in the Leslie Street ROW. A hydrant flow test was conducted on August 3, 2022, and the results indicate there is sufficient flow and pressure available for the site. In addition, a water model was completed by Municipal Engineering Solutions (MES) and the model supports that there is sufficient flow and pressure to service the proposed development. IAM has no further comments.

2. Wastewater Servicing
The FSSMR states that the wastewater services will be provided by connecting to the existing 200 mm sanitary sewer located in the Waterloo Ct ROW at the intersection of Waterloo Ct and Leslie St. Wastewater flows ultimately outlet to the Region's Leslie Collector Sanitary Sewer. A downstream sanitary sewer capacity analysis has been conducted and the results indicate there is sufficient capacity in the downstream sewers. IAM has no further comments.

3. Potential Construction Impact on Regional Infrastructure

a) The Owner is advised that there are multiple regional sanitary trunk sewers in close proximity to the development. This includes the following:

- 1200 mm diameter Leslie PS South Header Sanitary Forcemain on Leslie Street
- 1200 mm diameter Leslie PS North Header Sanitary Forcemain on Leslie Street

The integrity of the above Regional infrastructure shall be protected and maintained at all times during construction and grading of the proposed development. Please be advised that any construction works in close proximity of the sanitary sewers require the Region's review and approval prior to construction. Prior to final approval of the development application, detailed engineering drawings of the works proposed in the vicinity of the Regional infrastructure identified above shall be submitted to the Region for review and comments.

b) All construction drawings showing works in close proximity to the Region's infrastructure shall include the following note for the Contractor (as applicable).

"The integrity of the Region's 1200 mm twin forcemains on Leslie Street are to be protected at all times."

c) The Region's Construction Administrator (ENVassetapprovals@york.ca) shall be invited to attend the pre-construction meeting and to do site inspection of the construction works in relation to Regional infrastructure. At least two weeks advance notice is required.

Water Resources

Water Resources Branch of the Public Works Department does not have any objections/concerns, subject to the following comments with the OPA application as it relates to Source Protection policy. Should the proposal change and/or the application be amended, Water Resources will require recirculation for comment and/or approval.

Highly Vulnerable Aquifer (HVA)

Should the proposed major development include bulk fuel (≥ 2500L) or bulk chemicals (≥ 500L) within the HVA, a Contaminant Management Plan (CMP) will be required prior to future Site Plan approval, for Water Resources review and approval.

If a CMP is not required, a letter prepared by a qualified professional will be required in its place stating that the above noted activities will not be occurring.

Summary

York Region staff has no objection to the proposed the official plan amendment and zoning by-law amendment in terms of land use, subject to the Region's and TRCA's comments being addressed as part of a subsequent submission.

Should you have any questions or require further information regarding our comments, please contact Jason Ezer, Senior Planner, at 1-877-464-9675, ext. 71533, or by email at jason.ezer@york.ca.

Sincerely,

Karen Whitney, MCIP, RPP
Director, Community Planning and Development Services

JE/

Copy to: Malone Given Parsons Ltd. (Agent) Attn: Allyssa Hrynyk - by e-mail only
Toronto and Region Conservation Authority – Attn: Michelle Bates – by e-mail only

YORK-#14613768-v3

Appendix E

Erosion Hazard Limit

Appendix E

Schedule B Municipal Class Environmental Assessment – Project File: German Mills Settlers Park Sanitary Infrastructure Protection Project

Environmental Assessment Figure Inclusions:

- EA Figure 1 (TRCA 2019)
- EA Figure 9 (TRCA 2019)
- EA Figure 18 (TRCA 2019)
- Greck Figure 4 (Appendix A, TRCA 2019)
- Greck Figure 5 (Appendix A, TRCA 2019)

Report Available Online:
https://trcaca.s3.ca-central-1.amazonaws.com/app/uploads/2019/08/08153818/German-Mills-Project-File-with-Appendices.pdf

Figure 1. Location of Site I-152, P-060 and P-068 in relation to the broader study area within German Mills Settlers Park. *Source: TRCA, 2018.*

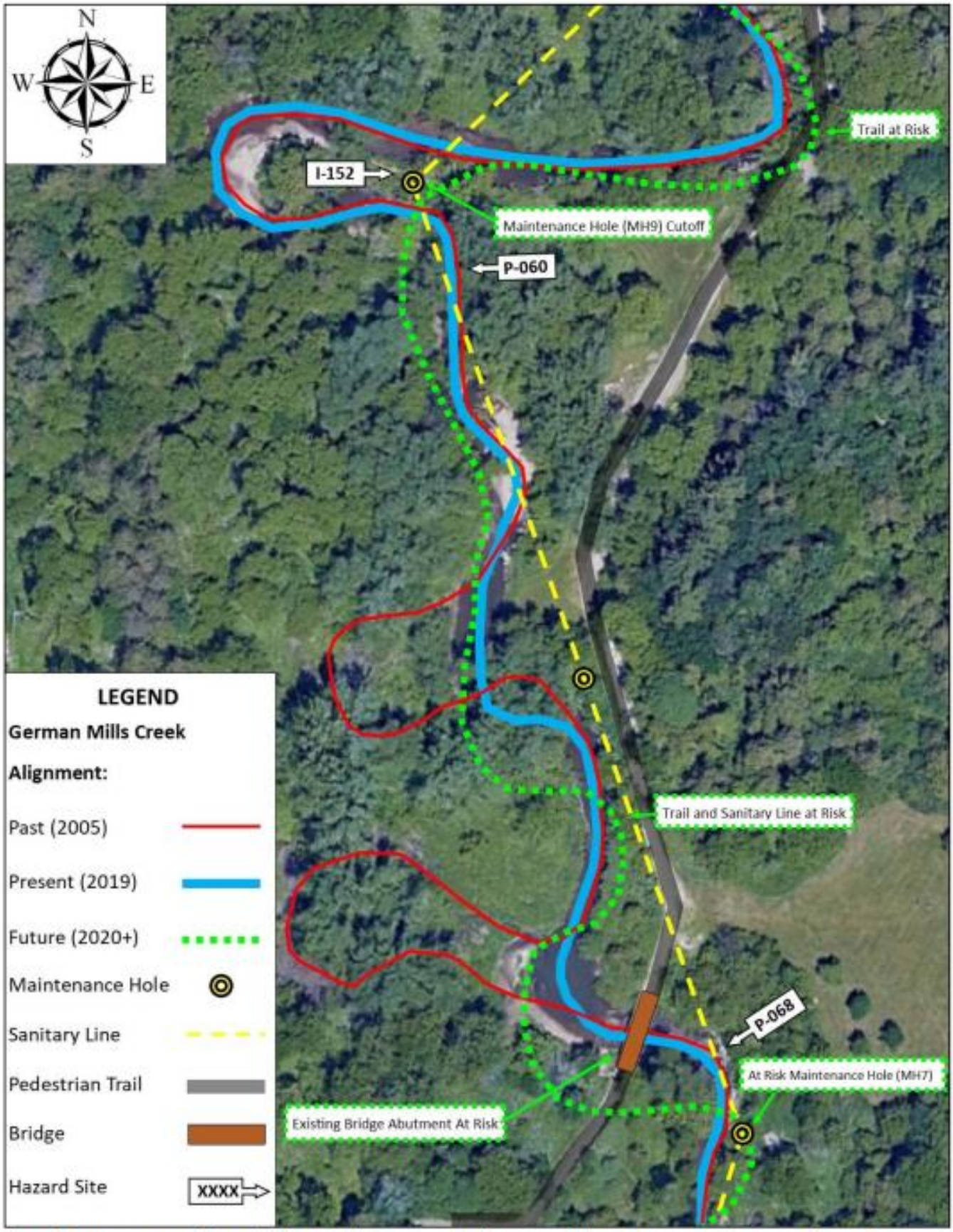


Figure 9. Past, present and future (with and without intervention) locations of the watercourse within the study area. *Source: TRCA, 2019.*

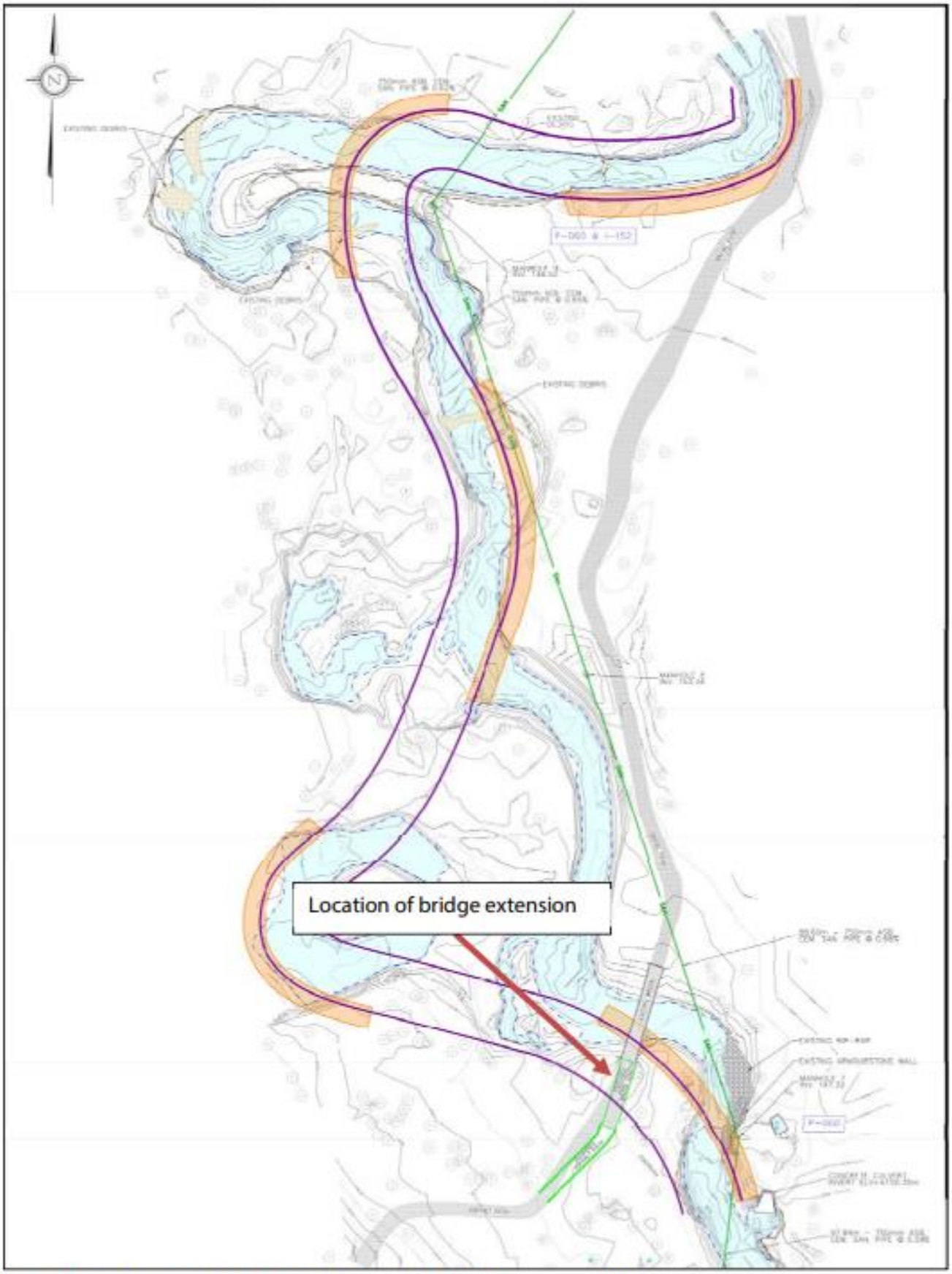


Figure 18. Option 3: Channel Realignment with Bridge Extension. *Source: Greck, 2018.*

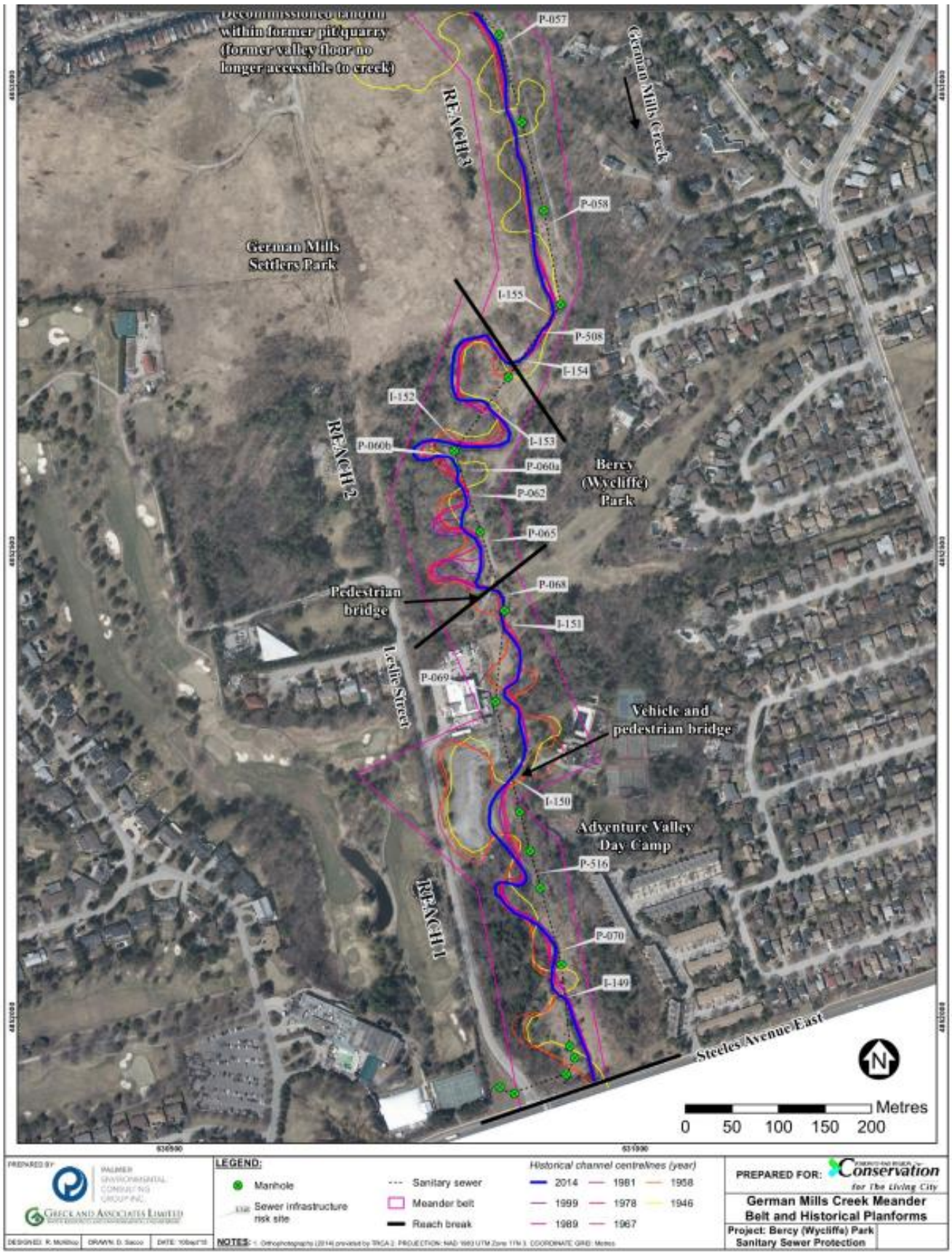


Figure 4: Meander Belt

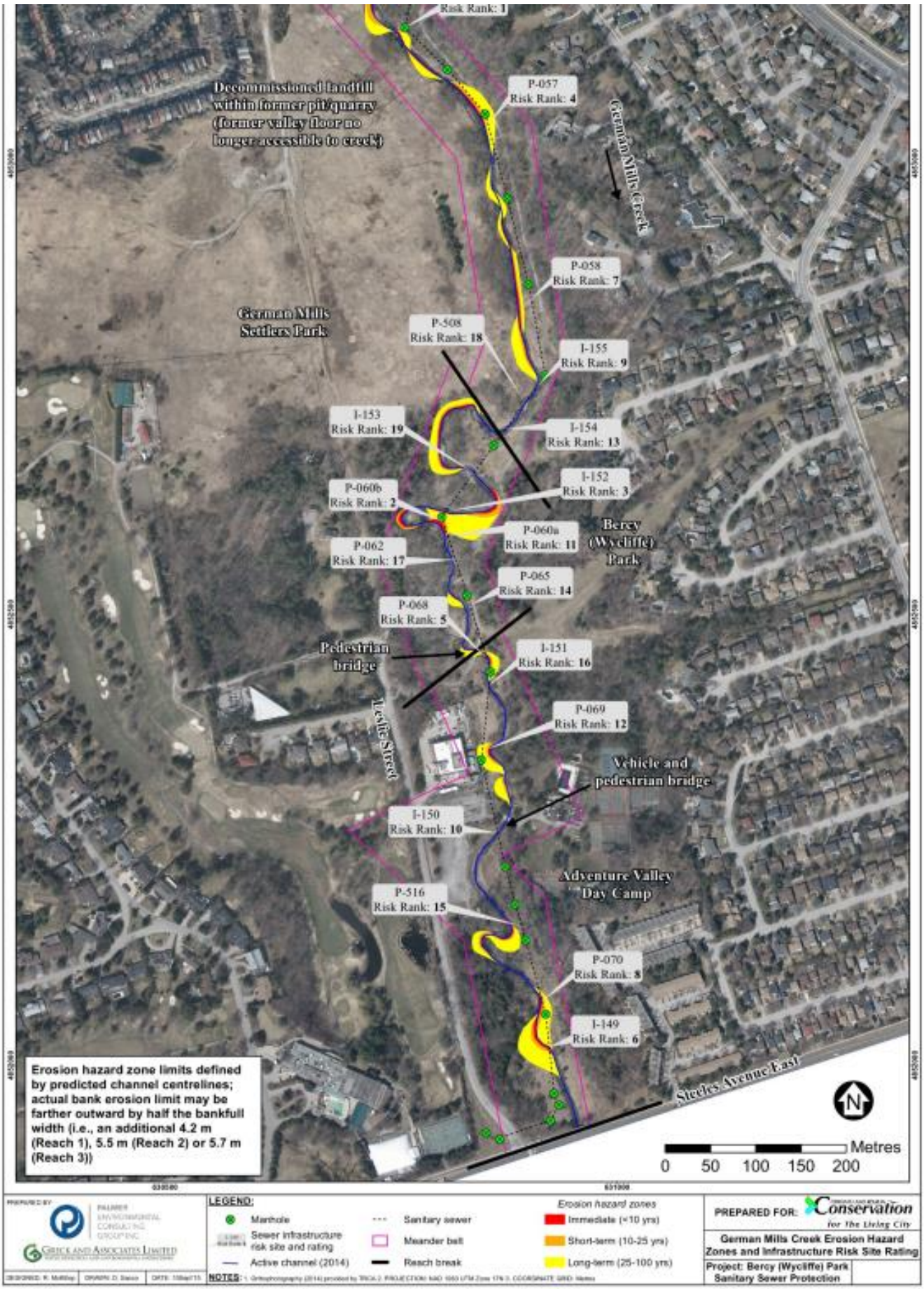


Figure 5: Erosion Zones