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COMPREHENSIVE ENVIRONMENTAL IMPACT STATEMENT AND MANAGEMENT PLAN (CEISMP)

12035 DIXIE RD, CALEDON

MARCH 16, 2021

CONFIDENTIAL





COMPREHENSIVE ENVIRONMENTAL IMPACT STUDY AND MANAGEMENT PLAN (CEISMP)

12035 DIXIE RD,
CALEDON

TRIBAL PARTNERS CANADA INC.

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REPORT
CONFIDENTIAL

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1 INTRODUCTION

WSP Canada Inc. (WSP) was retained in July 2020 by Tribal Partners Canada Inc. (*“the proponent”*) to complete natural heritage investigations to support a Comprehensive Environmental Impact Study and Management Program (herein referred to as *“the CEISMP”*) for the lands municipally known as 12035 Dixie Road (PT LT 18 CON 4 EHS CHINGUACOUSY AS IN RO1055677 S&E CH25744 & PTS 1 TO 14, 16 TO 26, 43R20417 & PTS 9, 10 & 11, EXPROP.PL PR1385233; S/T CH21926; CALEDON), and the adjacent property (which lacks a municipal address) known as: PT LT 19 CON 4 EHS CHINGUACOUSY AS IN RO811026; EXCEPT 29, 30, 33 & 34 43R20417, PT 1 & 2 43R16098 & PT 4 43R16437; CALEDON. Herein, the lands will be referred to as 12035 Dixie Road, Caledon, Ontario (**Figure 1** in **Appendix A**). The parcel of land (herein referred to as *“the subject property”*) is located northeast¹ of the intersection of Dixie Road and Mayfield Road. This CEISMP addresses the proposed development on the subject property, an e-commerce facility.

The subject property is a 59 ha parcel in the community of Mayfield, within the Town of Caledon, Region of Peel. The subject property is located within the West Humber River subwatershed and includes: two watercourses - Kilamanagh Creek in the northeast, and one un-named Tributary (Tributary 2); and one drainage feature (HDF1). The subject property is dominated by active agricultural uses (row crops) on gently rolling tableland, with a farmhouse, barns, and other farm outbuildings also present. There are several additional rural residential properties fronting on Dixie Road. Natural areas, which cover approximately 4.05 ha (7%) of the subject property, consist of: the watercourses / drainage feature; wetland and other vegetation associated with the watercourses; and cultural meadow. These features have environmental designations under local, regional and provincial policy and official plans as discussed herein. The two watercourses (Kilamanagh Creek, Tributary 2) and associated wetland riparian areas are regulated by the Toronto and Region Conservation Authority (TRCA) under Ontario Regulation 166/06 of the Conservation Authorities Act. Natural features are shown on **Figure 1** in **Appendix A**.

Surrounding land uses are rural agricultural (north, west, east), industrial / commercial (west, southwest), and urban residential (south).

¹ For simplicity, directions within this report are based off of Dixie Road running north-south and Mayfield Road running east-west, with the understanding that these directional references are shifted slightly from compass orientations.



The primary objectives of this CEISMP are to:

- 1) evaluate the sensitivity and significance of the natural features and functions on the subject property that could be influenced by the proposed development;
- 2) identify natural heritage opportunities and constraints to development;
- 3) describe the proposed development, including during and post-construction activities;
- 4) assess potential direct and indirect impacts on natural features and functions, incorporating other relevant technical information (e.g., water balance, stormwater management, fluvial geomorphology, etc.);
- 5) identify and discuss relevant natural heritage policies, documenting policy compliance;
- 6) identify mitigation, protection, and restoration / enhancement measures; and
- 7) recommendations for a biological monitoring program.

The natural heritage scope of work and preparation of the CEISMP report has been completed per the Natural Heritage Terms of Reference submitted to the TRCA on December 8, 2020. TRCA indicated acceptance, provided the following are included in the report (per email dated December 17, 2020):

- Include Wetlands as regulated areas by TRCA;
- Provide a Low Impact Development strategy report coordinated with the FSR and NHE; and
- Include discussion regarding ecologically justified siting of infrastructure in support of the SWM strategy.

Each of these comments has been addressed in the current report.

The approved Terms of Reference has been included in **Appendix F**.

As discussed herein, this natural heritage study and other technical studies have been prepared in support of the Development Plan (Baldassarra; March 2021), as shown on **Figure 3** in **Appendix A** and discussed in Section 5. It is important to note that the technical supporting studies will be updated and refined as the Development Plan proceeds to final design.



2 STUDY APPROACH

2.1 BACKGROUND DATA REVIEW

Relevant agencies were contacted and background material was collected and reviewed.

Specifically, the following sources of information were reviewed:

- Topographic mapping (OBM, NTS);
- Aerial photography;
- Natural Heritage Information Centre (NHIC) data (Significant Areas and Species at Risk);
- Species at Risk range maps and habitat descriptions;
- Species at Risk Regional Lists (MNR);
- Fisheries and Oceans Canada (DFO) Aquatic Species at Risk mapping;
- Land Information Ontario (LIO) feature and base mapping;
- TRCA mapping (regulation, wetlands, watercourses);
- Ontario Breeding Bird Atlas;
- Ontario Reptile and Amphibian Atlas;
- Ontario Butterfly Atlas;
- Relevant municipal and provincial policy documents and legislation; and
- Past reports for adjacent properties.

Background and other data sources are listed in the References section of this report.

2.2 AGENCY LIAISON

As part of the natural environment review, the following agency consultation has occurred:

- **MECP Consultation.** The Ministry of the Environment, Conservation and Parks (MECP) was contacted on December 6, 2020 to request information regarding Species at Risk (SAR) known from the subject property or general vicinity. Responses were received December 16, 2020 and December 21, 2020 (Megan Eplett, Management Biologist, MECP) confirming that Kilmanagh Creek within the subject property is considered 'occupied habitat' for the *Endangered* Redside Dace (*Clinostomus elongatus*). The MECP



advised that Tributary 2 should be evaluated to determine if it meets the criteria to be considered 'contributing habitat' for Redside Dace as per O. Reg. 242/08.

- **TRCA Consultation.**

- TRCA representatives (Jason Wagler, Senior Planner; Evan Bearss, Ecologist; Lina Alhabash, Planner; Tychon Carter-Newman, Planner) attended a site walk on October 27, 2020 to verify the wetland limits. During this site walk, TRCA provided preliminary comments on items to be included in the CEISMP. Minutes of the site meeting were documented in a Technical Memo (WSP; November 19, 2020) and circulated to all participants.
- The draft Natural Heritage Terms of Reference was submitted to TRCA on December 8, 2020 with a request to review and provide comment on the proposed natural heritage scope of work. Comments were received via email on December 17, 2020.
- Meeting with representatives from TRCA, Tribal Partners, Armstrong Planning and WSP on January 20, 2021, to discuss the planning process, project timelines and TRCA requirements for the submission.

- **Town of Caledon Consultation.**

- The Town of Caledon was contacted by the proponent on August 21, 2020 to request a pre-consultation meeting with the Development Application Review Team (DART). The request letter included a site description, details on the proposed development, and the concept plan. The meeting was held on September 10, 2020 and the proponent was represented by Armstrong Planning. On September 21, 2020, the Town of Caledon (Justin Cook, Lead Planner) provided preliminary comments and application requirements.
- Town of Caledon representatives (Kyle Poole, Landscape Architect; Jay Menary, Development Engineering Technologist) attended a site walk on October 27, 2020 to verify the woodland limits. Minutes of the site meeting were documented in a Technical Memo (WSP; November 19, 2020) reviewed by all participants.

Agency correspondence is included in **Appendix E**. The approved Terms of Reference is included in **Appendix F**.



3 FIELD SURVEYS & ASSESSMENTS

Field surveys were completed on three dates, as listed below. Field survey methodologies are described in Sections 3.1 and 3.2, and results for vegetation, flora, wildlife and aquatics are provided in Sections 4.4, 4.5 and 4.6.

- Vegetation and Flora (September 17, 2020 and October 26, 2020)
 - Ecological Land Classification (ELC) mapping and community description
 - Botanical inventory
- Wildlife (July 30, 2020; September 17, 2020; October 26, 2020; and December 7, 2020)
 - General wildlife (conducted during all field visits)
 - SAR habitat assessment (conducted during all field visits)
 - Significant Wildlife Habitat (SWH) assessment (conducted during all field visits)
- Aquatic (July 30, 2020; November 26, 2020; and December 7, 2020)
 - Headwater Drainage Feature Assessment
 - Fluvial Geomorphic Assessment and Erosion Hazard Delineation (Geomorphix)

3.1 TERRESTRIAL

3.1.1 VEGETATION & FLORA

Vegetation surveys on the subject property were conducted on September 17, 2020 and October 26, 2020.

3.1.1.1 *Methodology*

The scope of the field surveys and assessments included:

- Delineating and classifying vegetation communities using the Ecological Land Classification System for Southern Ontario, “ELC” (Lee et al., 1998). Vegetation communities are described in Section 4.4.2 and delineated on **Figure 2** in **Appendix A**.
- Wetland and woodland delineation. These natural heritage features were pre-staked by WSP, and verified during a site walk with TRCA and the Town of Caledon on October 27,



2020. Minutes of the site meeting were documented in a Technical Memo (WSP; November 19, 2020) reviewed by all participants (**Appendix E**).

- Evaluating the sensitivity and significance of vegetation communities, in consideration of vegetation community rarity ranks from the Natural Heritage Information Centre's Ontario Plant Community List (NHIC, Undated).
 - Undertaking a botanical inventory and compiling a vascular plant list, included in **Appendix B**. The botanical inventory included a targeted search for significant and/or sensitive flora.
 - Evaluating significance and sensitivity of flora recorded during the field surveys, using:
 - the NHIC website for provincial rarity ranks (i.e., S-Ranks);
 - the Species at Risk in Ontario list (O. Reg. 230/08 under Endangered Species Act, 2007, S.O. 2007, c.6; updated periodically) for provincial status designations;
 - the Canadian Species at Risk list (Schedule 1 of the Species at Risk Act, S.C. 2002, c. 29; updated periodically) for national status designations; and
 - the Distribution and Status of the Vascular Plants of the Greater Toronto Area (Varga et al. 2000).
 - Taking representative site photographs, which are on file at WSP.
-

3.1.2 GENERAL WILDLIFE

Wildlife surveys on the subject property were conducted on July 30, 2020; September 17, 2020; October 26, 2020; and December 7, 2020.

3.1.2.1 Methodology

In addition to the targeted vegetation and aquatic surveys, a general wildlife survey and habitat assessment was undertaken during all field surveys. This involved recording all direct observations and signs of birds, amphibians, mammals, reptiles and insects, including: browse, track / trails, animal scat, bird nesting activity, tree cavities, burrows and vocalizations. Additionally, these surveys included an assessment of potential SAR habitat and SWH habitat.

Species status was evaluated using the following sources:

- Fauna Ranks and Scores for TRCA Jurisdiction, 2020 for regional significance (i.e., L-Ranks) (TRCA, 2020);

- MNRF / NHIC website for provincial rarity ranks (i.e., S-Ranks);
- Species at Risk in Ontario list (MECP website – updated periodically) for provincial status designations;
- Significant Wildlife Habitat Criteria Schedules for Ecoregion 6E, “SWH” (MNRF, 2015) for *Area-Sensitive* species; and
- National Species at Risk list (Schedule 1 of the Species at Risk Act, S.C. 2002, c. 29; updated periodically) for national status designations.

3.2 AQUATIC

3.2.1 HEADWATER DRAINAGE FEATURE ASSESSMENT METHODOLOGY

Headwater systems are considered important sources of food, sediment, water, nutrients, and organic matter for downstream reaches (TRCA/CVC, 2014). As per the Evaluation, Classification and Management of Headwater Drainage Feature Guidelines (TRCA / CVC, 2014) (herein referred to as the *Guidelines*), the definition of a Headwater Drainage Feature (HDF) is any “*non-permanently flowing drainage features that may not have defined bed or banks; they are first-order and zero-order intermittent and ephemeral channels, swales and connected headwater wetlands, but do not include rills or furrows*” (TRCA/CVC, 2014). Within the subject property, Tributary 2 and HDF1 meet this definition, and as such, were the focus of the preliminary HDF assessment detailed herein.

Based on a preliminary review of aerial photography, it was determined that any drainage features present within the development envelope likely had undefined forms with no sensitive or important habitat features. Therefore, a rapid assessment following the Ontario Stream Assessment Protocol (OSAP) Module S4.M10 ‘Assessing Headwater Drainage Features’ was followed. WSP staff completed site surveys on July 30, 2020 and December 7, 2020 to identify and assess potential HDF’s on the subject property. The findings from the July and December site visits were supplemented with information obtained during the September 2020 and October 2020 field surveys. The HDF’s on the subject property were assessed, generally following the direction provided in the *Guidelines*.



During field surveys, WSP staff considered the following when conducting the HDF assessment:

- Watercourses mapped on secondary source information
- Land topography
- Flowing / standing water
- Potential flow path as indicated by moist / wet soils
- Feature definition and/or evidence of erosion.

Following the *Guidelines*, a classification of function was applied to each of the following four categories based on field observations: Hydrology; Riparian; Fish and Fish Habitat; and Terrestrial Habitat. Each category was classified as having Limited, Contributing, Valued, or Important Functions. These classifications then inform the Management Recommendations assigned to each HDF following the *Guidelines*.

3.2.2 FLUVIAL GEOMORPHOLOGICAL ASSESSMENT AND EROSION HAZARD DELINEATION METHODOLOGY

Per the Fluvial Geomorphological Assessment, Erosion Hazard Delineation and Channel Realignment – 12035 Dixie Road, Caledon, ON (Geomorphix; March 16, 2021), the following activities were completed to inform the fluvial geomorphological assessment and erosion hazard delineation for Reach 1 (identified as Tributary 2 herein) and Reach 3 (the portion of Kilamanagh Creek on the subject property):

- Review available background reports and mapping (e.g., watershed / subwatershed reporting, geology and topography) related to channel form and function and controlling factors related to fluvial geomorphology;
- Confirm watercourse reach delineation through a desktop assessment;
- Review recent and historical aerial photographs of the site to understand historical changes in channel form and function;
- Complete rapid geomorphological assessments on a reach basis to document channel conditions and verify the desktop assessment;
- Document any areas of significant erosion, collect instream measurements of bankfull channel dimensions, and characterize bed and bank material composition and structure; and
- Delineate limits of the erosion hazard on a reach basis using field observations.



Specific to the channel realignment design, the following activities were completed:

- Complete a detailed geomorphological assessment along Reach 1 (Tributary 2 of the West Humber River);
- Provide details for the channel design including planform, cross sections, and necessary bioengineering details;
- Hydraulic sizing of the channel materials; and
- Recommendations for design implementation including construction timing, stabilization, and best management practices.

Key findings from the Geomorphix assessment on Kilamanagh Creek and Tributary 2 are summarized herein. For additional details, refer to the Geomorphix report (March 16, 2021).

4 EXISTING CONDITIONS

4.1 PHYSIOGRAPHY, DRAINAGE, HYDROGEOLOGY & SOILS

This section incorporates information from the Preliminary Hydrogeological Assessment (MTE; March 2021).

The landforms within the region are primarily the result of the movement and deposition of sediments as a result of glacial advancement and recession during the most recent periods of glaciation. The subject property is located within the broad physiographic region known as the South Slope (Chapman & Putnam, 1984). This region is a sloping till plain that extends from the Oak Ridges Moraine located approximately 10 km northwest of the subject property to the Peel Plain, located approximately 3 km to the east.

The Quaternary deposits in the region of the subject property are mapped as predominantly clay to silt textured till derived from glaciolacustrine deposits (Ontario Geological Survey, 2003). Along the northern boundary of the subject property, modern alluvial deposits consisting of silt, sand and gravel can also be found associated with Kilamanagh Creek (Ontario Geological Survey, 2003).

Bedrock topography mapping suggests the elevation of the bedrock surface in the vicinity of the subject property ranges from approximately 221 m AMSL in the north to 236 m AMSL in the south (Ontario Department of Mines, 1968). The bedrock consists of Upper Ordovician shales and

siltstones of the Queenston Formation (Fm) (Armstrong & Dodge, 2007). The Queenston Formation is characterized by red shale; however it also contains red siltstone, minor green shale and siltstone, with variable calcareous siltstone to sandstone and limestone interbeds (Johnson, Armstrong, Sanford, Telford & Rutka, 1992). The Queenston Formation gradationally overlies the Georgian Bay Formation and the Carlsbad Formation in eastern Ontario (Armstrong & Dodge, 2007).

The subject property is situated within TRCA's jurisdiction and the Humber River watershed. The Humber River watershed originates in the Oak Ridges Moraine, outlets to Lake Ontario, and encompasses approximately 911 square km (TRCA; 2021). The West Humber River specifically originates in Caledon (South Slope) and flows over 45 km (crossing Peel Plain) in Brampton prior to its confluence with the Main Humber River in Toronto (TRCA; 2021).

4.2 NATURAL HERITAGE FEATURES AND DESIGNATIONS

Refer to **Figure 1** in **Appendix A** for the locations of features described below.

- No provincially designated features are found on or immediately adjacent to the subject property. Such features include, but are not limited to, *Provincially Significant Wetland* (PSW), Areas of Natural or Scientific Interest (ANSI).
- Town of Caledon Official Plan (2018):
 - The riparian area along Kilamanagh Creek is designated as *Environmental Policy Areas* per Schedule A of the Official Plan.
 - Most of the subject property is designated as *Prime Agricultural Area*, per Schedule A of the Official Plan.
- Region of Peel Official Plan (2018):
 - The riparian area along Kilamanagh Creek is designated as a *Core Area* of the *Greenland System* per Schedule A of the Region Official Plan (ROP).
 - Outside of the *Core Areas* of the *Greenland System*, the remainder of the subject property is designated as *Prime Agricultural Area* per Schedule B of the ROP.



- Greenbelt Plan (2017)
 - The riparian areas along Kilamanagh Creek and part of the adjacent agricultural field are designated as part of the *Natural Heritage System*, within the *Protected Countryside* of the *Greenbelt Plan Area*, per Schedule 4 of the Greenbelt Plan.
- Areas Regulated by TRCA under Ontario Regulation 166/06 of the Conservation Authorities Act:
 - Two regulated watercourses and associated floodplains / riparian areas are present:
 - Kilamanagh Creek, flowing west to east through northeastern portion of the subject property; and
 - Tributary 2, conveying surface flows from northwest to southeast on the subject property.
 - Note that each of these watercourses has associated riparian wetlands that are within the regulated areas.
 - Based on available background information, Kilamanagh Creek is considered a coldwater system. Tributary 2 is considered a warmwater system.

4.3 NATURAL HERITAGE FEATURE LIMITS

As noted in the Technical Memo (Nov. 19, 2020), the following limits were staked by WSP prior to or during a site walk with TRCA, Town of Caledon, WSP and Armstrong Planning on October 27, 2020:

- Wetland limits along Kilamanagh Creek, (staked on the west side); along Tributary 2 (staked on west and east side), and isolated small wetland unit in the southeast portion of subject property (staked full limit on subject property).
- Woodland limit on east side of property (staked west side); and
- Top of Slope along the west side of Kilamanagh Creek.

4.4 VEGETATION & FLORA

4.4.1 FLORA

In total, 58 vascular plant species were recorded during the WSP field investigations, with an additional 11 identified to the genus level. A list of all species recorded is provided in **Appendix B**.

B. Summary statistics for these species are provided below.

- Of the 58 species recorded, 23 (40%) are non-native species, many of which are typical of old field and disturbed areas. These species are generally widespread and abundant in the cultural habitats of the subject property.
- Of the 35 native species recorded, 32 (91%) are considered 'secure, common and widespread' in Ontario (ranked S5 or S5?) and 2 (6%) are considered 'apparently secure, uncommon but not rare' in Ontario (S4 or S4?).
- One native species, Amethyst Aster (*Symphotrichum x amethystinum*) has a provincial ranking of SNA (currently unrankable due to lack of information or due to substantially conflicting information about status or trends).
 - This species was recorded in cultural meadow habitat in the southeast corner of the subject property in low abundance
- No species are federal or provincial SAR.
- Two species are considered significant in the Greater Toronto Area (Varga et al., 2000):
 - Peach-leaved Willow (*Salix amygdaloides*, ranked R6). One isolated Peach-leaved Willow was noted growing along Tributary 2.
 - Sandbar Willow (*Salix interior*, ranked R5). A patch of approximately 100 Sandbar Willow were noted growing on a mound of potential fill in the northwest portion of the subject property.
- None of the recorded species is 'of concern regionally' in TRCA jurisdiction (i.e. ranked L1-L3).

4.4.2 ECOLOGICAL LAND CLASSIFICATION (ELC)

Vegetation communities are shown on **Figure 2** in **Appendix A** and described below.

Vegetation units were classified on the subject property. In addition, contiguous forest on the adjacent property to the east was classified from the property limits to the extent possible. No access permission to the adjacent property to the east was granted.

In total, nine (9) units of four (4) Vegetation Community Types were classified:

- Forest
 - FODM7-7, Fresh-Moist Manitoba Maple Lowland Deciduous Forest (small portion of one unit; the majority is on the adjacent property to the east)
 - FOD5, Dry-Fresh Sugar Maple Deciduous Forest (small portion of one unit; the majority is on the adjacent property to the east)
- Marsh
 - MAMM3-1, Mixed Mineral Meadow Marsh (three units – two in riparian zones, one isolated feature)
- Cultural
 - CUM1-1, Dry-Moist Old Field Meadow (four units)

None of these communities is provincially rare (per NHIC, 2018).

4.3.2.1 *Natural Communities*

Fresh-Moist Manitoba Maple Lowland Deciduous Forest (FODM7-7)

A small portion of this riparian forest is along Kilamanagh Creek in the northeast portion of the subject property (~ 0.15 ha). The majority of this forest is present on the adjacent property to the east (~ 0.96 ha). This feature could potentially be considered a 'significant woodland'; see discussion in Section 6.5.2.1.

On the subject property, the tree canopy is dominated by Manitoba Maple (*Acer negundo*), and Black Walnut (*Juglans nigra*). The subcanopy is dominated by Manitoba Maple, Black Walnut, European Buckthorn (*Rhamnus cathartica*) and White Elm (*Ulmus americana*). The understory is dominated by European Buckthorn, Manitoba Maple, and Reed-canary Grass (*Phalaris*



arundinacea var. *arundinacea*). The ground layer is dominated by European Buckthorn and Manitoba Maple seedlings.

In total, 6 species were recorded, 5 (83%) of which are native. None is a SAR, provincially rare, or regionally rare.

Mixed Mineral Meadow Marsh (MAMM3-1)

This vegetation community type is present on the floodplain of Kilamanagh Creek, along Tributary 2 of the West Humber River (very narrow linear band immediately adjacent to the channel), and as a small isolated unit in the southeast portion of the subject property. Estimated area of each marsh on the subject property (including the watercourses), is as follows: along Kilamanagh Creek (~ 0.9 ha); along Tributary 2 (~1.6 ha); and within the isolated unit (~ 0.13 ha).

The marsh is dominated by Broad-leaved Cattail (*Typha latifolia*), Purple Loosestrife (*Lythrum salicaria*), Reed-canary Grass, and Barnyard Grass (*Echinochloa* sp). The ground layer is dominated by Panicked Aster (*Symphyotrichum lanceolatum*), Cursed Crowfoot (*Ranunculus scleratus*), Field Horsetail (*Equisetum arvense*), and European Coltsfoot (*Tussilago farfara*). In the northwest portion of the subject property (behind the Region of Peel pumping station), there is one patch of approximately 100 Sandbar Willow (*Salix interior*) on a mound of apparent fill, and one dense patch of European Reed (*Phragmites australis* ssp. *australis*).

In total, 24 species were recorded, 17 (71%) of which are native. None is a SAR or provincially rare. Two species are regionally rare: Sandbar Willow (patch location listed above); and Peach-leaved Willow (one tree along Tributary 2).

Dry-Fresh Sugar Maple Deciduous Forest (FOD5)

This upland forest is almost entirely on adjacent lands to the east. It is comprised of two units totaling approximately 1.15 ha in size which are dissected by lowland forest (FODM7-7) along Kilamanagh Creek. This could potentially be considered a 'significant woodland'; see discussion in Section 6.5.2.1.

As noted, only a very small portion is located on the subject property; characteristics are based on what is present on the subject property or evident from the edge. Tree canopy species include Sugar Maple (*Acer saccharum*) and Basswood (*Tilia americana*). European Buckthorn and Chokecherry (*Prunus virginiana*) are present in the understory. Wild Strawberry (*Fragaria virginiana*), Virginia Waterleaf (*Hydrophyllum virginianum*) and seedlings of European Buckthorn and Chokecherry were present in the ground layer. Planted Norway Maple (*Acer platanoides*) and planted Northern Red Oak (*Quercus rubra*) are present along the property boundary.



In total, 8 species were observed, 6 (75%) of which are native. None is a SAR, provincially rare, or regionally rare.

4.3.2.2 Cultural Communities

Cultural areas include lands that have been cleared of natural vegetation or otherwise anthropogenically altered at some point in the past. These areas are typically of low botanical quality, with higher abundances of non-native and invasive species than relatively more natural / less disturbed communities.

One cultural vegetation community type is present on the subject property: cultural meadow.

Dry- Moist Old Field Meadow (CUM1-1)

Areas that have been cleared of natural vegetation or that have been left fallow after agriculture typically succeed into cultural meadow. These communities are typically dominated by herbaceous species that are quick to colonize disturbed areas, such as disturbance-tolerant forb species and grasses. If left undisturbed, this community type will usually succeed towards cultural thicket once shrubs / woody species establish themselves.

Four cultural meadow units are present on the subject property: two linear features in the northeast along Kilamanagh Creek (~ 0.90 ha and ~ 0.59 ha each); one area in the northwest along Tributary 2 (0.1 ha); and one area in the southeast (0.13 ha).

Cultural meadow habitats on the subject property have a sparse subcanopy of European Buckthorn, Manitoba Maple, and Common Apple (*Malus pumila*). The understory is dominated by Eastern Tall Goldenrod (*Solidago altissima ssp. altissima*), Orchard Grass (*Dactylis glomerata*), Smooth Brome (*Bromus inermis*), and Canada Thistle (*Cirsium arvense*). The ground layer is dominated by Kentucky Bluegrass (*Poa pratensis ssp. pratensis*), Heath Aster (*Symphyotrichum ericoides*), Tufted Vetch (*Vicia cracca*) and Common Ragweed (*Ambrosia artemisiifolia*).

In total, 40 species were recorded, 17 (42%) of which are native. None is a SAR, provincially rare, or regionally rare.

4.5 WILDLIFE

Wildlife observations were recorded during all ecological field surveys. Direct observations or evidence (e.g., nests, scat, tracks, browse) of 19 wildlife species was recorded: 13 avian species; four mammal species; one herpetofaunal species; and one insect species. A full list of species is provided in **Appendix C**.

4.5.1 AVIFAUNA

Evidence of 13 avian species were recorded: American Goldfinch (*Spinus tristis*), American Robin (*Turdus migratorius*), American Tree Sparrow (*Spizella arborea*), Blue Jay (*Cyanocitta cristata*), Canada Goose (*Branta canadensis*), Eastern Wood-pewee (*Contopus virens*, on adjacent property to the east), Killdeer (*Charadrius vociferus*), Mourning Dove (*Zenaida macroura*), Red-winged Blackbird (*Agelaius phoeniceus*), Song Sparrow (*Melospiza melodia*), Spotted Sandpiper (*Actitis macularius*), Turkey Vulture (*Cathartes aura*), and Wren sp.

Targeted breeding bird surveys were not completed and the avian species recorded were observed outside of the regional bird nesting window, though many are common and/or tolerant species that likely breed in the area.

None of the recorded species is considered *area sensitive* per MNRF (2015).

4.5.2 MAMMALS

Evidence of four mammal species was recorded: Coyote (*Canis latrans*); Eastern Cottontail (*Sylvilagus floridanus*); Northern Raccoon (*Procyon lotor*); and White-tailed Deer (*Odocoileus virginianus*). All are common and expected species within the local landscape.

4.5.3 HERPETOFAUNA

One amphibian species was recorded: American Toad (*Anaxyrus americanus*). One individual was recorded foraging on September 17, 2020 at the edge of the corn field along the north property boundary. Riparian habitat along Kilamanagh Creek and Tributary 2, as well as the small wetland in the southeast portion of the subject property, may provide habitat to support life processes for anuran species, though breeding could not be confirmed given the timing of field surveys conducted by WSP in 2020.

4.5.4 INSECTS

One insect species was recorded: Meadowhawk sp. (*Sympetrum sp.*).

4.5.5 SPECIES OF CONSERVATION CONCERN

For the purposes of this report, *Species of Conservation Concern* (SCC) include: species federally designated by COSEWIC, including *Endangered* and *Threatened* species subject to the provisions of the Species at Risk Act (SARA); species provincially designated by COSSARO, including *Endangered* and *Threatened* species to the provisions of the Endangered Species Act (ESA); globally rare / uncommon (G-rank G1 to G3) species; provincially rare / uncommon (S-rank S1 to S3); and species listed as regionally significant according to the Distribution and Status of the Vascular Plants of the Greater Toronto Area (Varga et al., 2000) and / or the TRCA L-Ranks List (L-rank L1 to L3). Key SCC field survey results are listed below.

- One species designated as SAR in Ontario and/or Canada:
 - Eastern Wood-pewee (*Special Concern* in Canada and Ontario). One individual was recorded calling in the forest on the adjacent property on September 17, 2020 (outside of breeding season).
- No globally or provincially rare species were recorded.
- Two species considered significant in the Greater Toronto Area (Varga et al., 2000) were recorded:
 - Peach-leaved Willow (R6). One isolated tree along Tributary 2.
 - Sandbar Willow (R5). Approximately 100 growing in a patch on a mound of apparent fill in the northwest portion of the subject property.
- No species of 'concern regionally' in TRCA jurisdiction were recorded.

4.5.6 SIGNIFICANT WILDLIFE HABITAT

Significant Wildlife Habitat (SWH) is identified by MNR or other planning authorities. As outlined in the Significant Wildlife Habitat Technical Guide (OMNR, 2000), SWH is broadly categorized as:

- Seasonal concentration areas (i.e., conifer forests for deer wintering);
- Rare vegetation communities or specialized habitats for wildlife;



- Habitats of species of conservation concern, excluding the habitats of endangered and threatened species; and
- Animal movement corridors.

An assessment of potential SWH on the subject property has been undertaken based on the results of field surveys noted herein, secondary source information and evaluation criteria in the Significant Wildlife Habitat Criteria Schedules for Ecoregion 6E (MNRF, 2015). This assessment is summarized in **Table 1** below.

Table 1: Summary of SWH Types Potentially Present on the Subject Property

Criterion	Assessment	Location	Comments / Impacts
Seasonal Concentration of Animals			
Bat Maternity Colonies	Candidate	FODM7-7 woodland along Kilamanagh Creek. FOD5-1 woodland	The forest habitat on the subject property and directly adjacent to it has >10/ha large diameter (>25cm dbh) wildlife trees providing suitable habitat for Big Brown Bat and Silver-haired Bat. This woodland is within the <i>Protected Countryside</i> of the <u>Greenbelt Plan</u> . This Candidate habitat will be retained in full, with a development setback of dripline + 30m. Indirect impacts will be mitigated with implementation of recommended measures discussed herein.
Rare Vegetation Communities or Specialized Habitat for Wildlife			
Waterfowl Nesting Area	Candidate	CUM1- habitat adjacent to the Marsh (MAM2-2) / in the northeast portion of the subject property along Kilamanagh Creek.	The MAM2-2 wetland located in northeast portion of the subject property along Kilamanagh Creek and associated upland habitat (CUM1-1) is within the <i>Protected Countryside</i> of the <u>Greenbelt Plan</u> . This Candidate SWH will be retained in full and protected with a minimum development setback of ~ 10 m from CUM1-1 habitat). Indirect impacts will be mitigated with implementation of recommended measures discussed herein.

Criterion	Assessment	Location	Comments / Impacts
Amphibian Breeding Habitat (Woodland)	Candidate	Potentially suitable habitat is present along Kilamanagh Cr. in and adjacent to the FOD5 and FODM7-7 units, though this has not been confirmed during fieldwork conducted to date. Further, amphibian surveys have not been undertaken	Potential habitat in the woodland / adjacent wetland is within the <i>Protected Countryside</i> of the <u>Greenbelt Plan</u> . The woodland will be retained in full and protected with a 30 m development setback. Indirect impacts will be mitigated with implementation of recommended measures discussed herein.
Amphibian Breeding Habitat (Wetland)	Candidate	Three marsh (MAMM3-1) units: along Kilamanagh Creek, Tributary 2 and the isolated marsh unit in the southeast corner. Note that portions of the MAMM3-1 associated with Kilamanagh Creek within 120 m of the FOD communities are considered under "Amphibian Breeding Habitat (Woodland)"	<p>Potential habitat is present within these MAMM3-1 wetland units, though each is small and may not provide suitable hydrologic conditions to support amphibian breeding.</p> <p>The wetland along Kilamanagh Creek is located outside of the development envelope and will be retained in full with appropriate development setbacks. Indirect impacts will be mitigated with implementation of recommended measures discussed herein.</p> <p>The wetland habitat along and adjacent to Tributary 2 will be removed and replaced in the realigned channel. This habitat is not ecologically sensitive and has been influenced by the active agricultural use of the subject property (expected impairment of water quality, no buffers to agriculture fields, historic straightening). The realigned channel will incorporate natural channel design principles and online wetland features, which will result in <u>an improvement over the existing condition</u> by introducing variability in form and substrate and facilitating the creation of more complex / higher quality wetland vegetation communities.</p> <p>The realigned channel will replace the amount of wetland habitat associated with Tributary 2 on the subject property (~ 1.6 ha currently, 1.9 ha under proposed condition).</p>

Criterion	Assessment	Location	Comments / Impacts
Special Concern and Rare Wildlife Species	Confirmed	The FOD5 and FODM7-7 habitat along Kilamanagh Creek.	<p>The forest habitat (FOD5 and FODM7-7) provides habitat for Eastern Wood-pewee, a Special Concern species. Although the individual recorded by WSP was a likely migrant, it is possible that the FOD5 / FODM7-7 vegetation communities provides suitable breeding habitat for this species.</p> <p>This habitat, which is within the <i>Protected Countryside</i> of the <u>Greenbelt Plan</u>, will be retained in full and protected with a development setback of dripline + 30 m. Indirect impacts will be mitigated with implementation of recommended measures discussed herein.</p>

As discussed in **Table 1**, four types of *Candidate* SWH and one type of *Confirmed* SWH were identified within the subject property based on findings of field work discussed herein. Most of the identified SWH types are located within natural areas on the subject property that will be retained and protected with the proposed development. The *Candidate* Amphibian Breeding Habitat (Wetland) within and adjacent to Tributary 2 will be removed and replaced within the realigned channel, with subsequent increases in the amount of habitat available on the subject property, and expected improvements in habitat quality relative to current conditions. Potential indirect impacts are expected to be limited with the implementation of recommended mitigation measures, including the stormwater management approach, erosion and sediment control and natural feature setbacks and enhancements.

4.6 AQUATIC NATURAL ENVIRONMENT

4.6.1 AQUATIC HABITAT OVERVIEW

Based on a review of background information, at least two tributaries of the West Humber River were identified as potentially being present on the subject property (Kilamanagh Creek and Tributary 2 of the West Humber River). Per the findings of site visits in July and December 2020, the two mapped tributaries were confirmed to be present as shown on **Figure 2** in **Appendix A**. An HDF separate from the mapped watercourses (HDF1) also conveys flows on the subject property and is shown on **Figure 2** in **Appendix A**.



Kilamanagh Creek was confirmed to be a well-defined, permanent watercourse that directly supports fish habitat within the subject property (per MECP correspondence).

Tributary 2 was confirmed to be present as an intermittent / ephemeral feature that indirectly supports fish habitat in downstream reaches and receiving waterbodies through allochthonous and nutrient transport. The feature appears to originate as undefined / poorly defined drainage from a woodland and commercial / industrial lands on the adjacent property to the west. Tributary 2 conveys flows from the northwest to the southeast across the subject property, ultimately outletting to the south via a culvert across Mayfield Road. This feature appears to have been altered in the past (straightened in sections), likely related to the agricultural use of the subject property. It is important to note that this feature has been realigned up and downstream of the subject property as part of other development projects.

Tributary 2 and HDF1 were dry during each site visit and lacked potential refuge habitat that would be required to support seasonally direct fish habitat on the subject property.

4.6.2 HEADWATER DRAINAGE FEATURE SURVEY

WSP conducted a preliminary *Headwater Drainage Feature* (HDF) assessment on the subject property per the *Rapid Assessment Method* outlined in the *Guidelines* (2014). The HDF assessment was completed on July 30, 2020 and December 7, 2020, supplemented by observations in September 2020 and October 2020. Tributary 2 and HDF1 were assessed and are shown on **Figure 2** in **Appendix A**.

4.5.2.1 Results

Each of the assessed features were dry during each WSP field survey (i.e., July, September, October and December 2020), but based on review of aerial imagery, conversations with the farmers, site topography and evidence of past flows, these HDFs appear to provide flow conveyance across the subject property. The classification and management recommendation for each HDF feature segment is provided in **Table 2**.



Table 2. Headwater Drainage Feature Assessment Summary

DRAINAGE FEATURE SEGMENT	STEP 1		STEP 2	STEP 3	STEP 4	MANAGEMENT RECOMMENDATION***
	Hydrology*	Modifiers	Riparian	Fish Habitat	Terrestrial Habitat**	
Tributary 2	FC – 1 / 4 (No surface water during assessments, however, confirmed to provide flow conveyance in late winter / early spring per conversation with farmers) FT – 4 / 7 (No defined feature, swale apparent in some locations) Valued or Contributing Functions	<ul style="list-style-type: none"> - Realigned upstream and downstream of subject property - Straightened sections on the subject property 	Wetland / Cultural Meadow (wetland vegetation along length of feature, confirmed on site by TRCA and Town of Caledon staff) Important Functions	Allochthonous transport only Contributing Functions	May provide stopover habitat for amphibians (e.g., foraging / hydration) Valued Functions	Conservation
HDF1	FC – 1 (No surface water) FT – 4 (No defined feature) Recharge Functions	<ul style="list-style-type: none"> - Active Agriculture 	Cropped Land Limited Functions	Allochthonous transport only Contributing Functions	No terrestrial habitat present Limited Functions	Mitigation

*Two field assessments completed in July and December 2020, with supplemental information recorded during September and October field visits.

**Targeted Amphibian Surveys have not been conducted on the subject property. Given the vegetation communities present along Tributary 2, the presence of Terrestrial Habitat cannot be confirmed or eliminated given information recorded to date. It is unlikely that HDF1 supports Terrestrial Habitat based on lack of habitat and apparent regular ploughing through this feature.

***Based on the assessment conducted in July and December 2020 (and supplemental observations during other fieldwork), HDF1 would fall under the “No Management Required” management recommendation. However, given available evidence (aerial photography, site topography, erosion), it is likely that this feature conveys flow during certain times of the year (e.g., spring freshet and after storm events). Taking a conservative approach, the “Mitigation” management recommendation has been applied to this feature.



Key attributes for the assessed features are as follows:

- Tributary 2: Poorly defined / undefined feature through active cropland; lined with wetland and meadow riparian communities; may provide habitat for terrestrial species; no direct fish use (contributing functions only). No surface flow observed during WSP field surveys, but based on conversation with farmers, does provide flow conveyance during spring freshest / large rain storms. Feature has been realigned upstream and downstream of subject property.
- HDF1: Undefined feature through active cropland; no terrestrial habitat and no direct fish use (contributing functions only). No surface flow observed during WSP field surveys, but may provide flow conveyance during spring freshet and following storm events given local topography and evidence of erosion.

The hydrological classification of each of the HDF segments occurring on the subject property is *No Surface Water (Dry)*, based on the assessment conducted in July and December 2020 and supplemental observations during other field surveys. Per the *Guidelines*, the best time of year to conduct an HDF assessment is in the late winter / early spring after a snow melt event, since features of this nature may not be actively flowing during other times of the year, making them difficult to accurately assess. However, given available background information and conditions observed during the assessment (e.g., conversation with farmers, site topography, evidence of minor erosion) and review of aerial photography, it is likely that each of the assessed features provide flow conveyance at certain times of the year. Given this, a more conservative approach regarding the hydrological classification of the features was taken and the HDF's on the subject property were assessed as providing at least *Minimal Surface Flow*.

4.5.2.2 *Conclusions and Management Recommendations*

The features assessed using the *Guidelines* as described herein were those that were identified to have attributes and/or functions that may be associated with headwater drainage features, as evaluated by a desktop pre-screening.

The features within the development envelope that are assumed to convey flows across the agricultural fields are each poorly-defined / undefined features that provide no fish habitat and were dry at the time of assessment, but may provide for flow conveyance during certain times of the year. It is recommended that an updated HDF assessment be completed in 2021 in accordance with the standard procedures outlined in the *Guidelines* in order to refine and update the findings documented herein.



Tributary 2 was confirmed to provide flow conveyance during certain times of the year and is lined by wetland and cultural meadow vegetation. Given the presence of this riparian habitat, this feature has received a **Conservation** management recommendation. This feature has been proposed to be realigned along the north / east property limit, as described in Section 5.4.

As stated above, the management recommendation for HDF1 is **No Management Required**, based on the field surveys completed by WSP in July and December 2020 (and supplemental observations during other fieldwork). However, given that the targeted HDF surveys were conducted at times of the year when it is difficult to accurately assess the features, the more conservative management recommendation of **Mitigation** has been applied to HDF1.

These management recommendations, applicable to HDFs on the subject property, as outlined in the *Guidelines*, are defined as follows:

Mitigation – Contributing Functions

- Replicate or enhance functions through enhanced lot level conveyance measures, such as well-vegetated swales (herbaceous, shrub and tree material) to mimic online wet vegetation pockets, or replicate through constructed wetland features connected to downstream.
- Replicated on-site flows and outlet flows at the top end of the system to maintain feature functions with vegetated swales, bioswales, etc. If catchment drainage has been previously removed due to the diversion of stormwater flows, restore lost functions through enhanced lot level controls (i.e., restore original catchment using clean roof drainage).
- Replicate functions by lot level conveyance measures (e.g., vegetated swales) connected to the natural heritage system, as feasible and/or Low Impact Development (LID) stormwater options (refer to Conservation Authority Water Management Guidelines for details).

Conservation – Valued Functions

- Maintain, relocate, and/or enhance drainage feature and its riparian zone corridor.
- If catchment drainage has been previously removed or will be removed due to diversion of stormwater flows, restore lost functions through enhanced lot level controls (i.e., restore original catchment using clean roof drainage), as feasible.
- Maintain or replicate on-site flows using mitigation measures and/or wetland creation, if necessary.

- Maintain or replace external flows.
- Use natural channel design techniques to maintain or enhance overall productivity of the reach.
- Drainage feature must connect to downstream.

4.6.3 FLUVIAL GEOMORPHOLOGICAL ASSESSMENT AND EROSION HAZARD DELINEATION

This section incorporates information from the Fluvial Geomorphological Assessment, Erosion Hazard Delineation, and Channel Realignment – 12035 Dixie Road, Caledon, ON (Geomorphix; March 16, 2021) and summarizes the findings for the Geomorphix assessment of Tributary 2 of the West Humber River and Kilamanagh Creek. For additional details the reader is directed to the Geomorphix report.

General Reach Observations:

Reach 1 (Tributary 2 of the West Humber River)

Within the subject property, Reach 1 flows generally northwest to southeast through agricultural lands, crossing through the centre of the property, with characteristics of a swale. It is situated within an unconfined valley setting, exhibiting a straightened planform with a low sinuosity ranging from 1.00 – 1.05. The surrounding land use consisted of agricultural land and the channel was in a headwater zone. The riparian buffer zone was approximately 1 to 4 channel widths beyond the watercourse and had fragmented coverage. The dominant type of riparian vegetation was immature (less than 5 years) grasses and herbaceous species. There was extreme encroachment of vegetation into the channel. The reach had intermittent flow with a low gradient and low entrenchment. Bed material was composed of entirely clay and silt. There was no development of geomorphic units (i.e. riffles or pools). Approximately 90% of the reach was occupied by rooted emergent aquatic vegetation, and woody debris was not present in the cutbank or channel.

Average bankfull width and depth were approximately 6.36 m and 0.13 m, respectively. Average wetted width and depth on the day of assessment were approximately 6.43 m and 0.12 m, respectively. Banks were poorly defined and bankfull indicators were absent on the day of assessment. Bank angles ranged from 0° to 60° and consisted entirely of clay / silt. Evidence of erosion was observed through less than 5% of the channel.



Reach 3 (Kilamanagh Creek)

Within the subject property, Kilamanagh Creek flows northwest to southeast through a semi-confined valley setting located at the northern extent of the subject property, exhibiting a meandering planform with irregular meanders. The surrounding land use consisted of agricultural land to the north and south of the floodplain and the channel was in a transfer zone. The riparian buffer zone was approximately 4 to 10 channel widths beyond the watercourse and had continuous coverage. The dominant type of riparian vegetation was immature grasses, with few established and mature (5 to > 30 years) tree species. There was minimal encroachment of vegetation into the channel. The reach had perennial flow with a moderate gradient and moderate entrenchment. Bed material was composed of sand, gravel, and cobble at riffles and sand and gravel within pools. Approximately 10% of the reach was occupied by rooted submergent aquatic vegetation, and there was a low density of woody debris present in the cutbank and channel.

Average bankfull width and depth were approximately 3.22 m and 0.87 m, respectively. Average wetted width and depth on the day of assessment were approximately 1.95 m and 0.29 m, respectively. The banks were poorly defined and bankfull indicators were absent on the day of assessment. Bank angles ranged from 60° to 90° and consisted of clay / silt, sand, gravel, and exposed till. Evidence of erosion was observed through 30 to 60% of the channel, with bank undercuts measuring up to 0.4 m in depth.

Rapid Assessment:

Reach 1 (Tributary 2 of the West Humber River)

As an agricultural swale feature, it was not applicable to assess Reach 1 under the *Rapid Geomorphic Assessment* (RGA) or *Rapid Stream Assessment Technique* (RSAT) protocols.

Reach 3 (Kilamanagh Creek)

Kilamanagh Creek was assigned an RGA score of 0.23, indicating the reach was in transition / stress. The dominant geomorphological indicator was evidence of planimetric form adjustment by the observation of formation of chutes, formation of islands, and poorly formed / reworked / removed bar forms. The secondary geomorphological indicator was evidence of widening, based on observations of exposed tree roots, basal scour on inside of meander bends, and basal scour on both sides of the channel through riffles. These characteristics influence the delineation of erosion risk in terms of overall channel stability. Kilamanagh Creek had a RSAT score of 27, or *good*. There were two limiting factors, including physical instream habitat and riparian habitat conditions. This was due to the limited geomorphological units, limited diversity in habitat types, and a narrow riparian area of mostly non-woody vegetation. It is important to note that the time



of the field investigation (late fall) likely impacted the overall RSAT score in terms of habitat conditions.

Erosion Hazard Assessment:

Reach 1 (Tributary 2 of the West Humber River)

Not undertaken.

Reach 3 (Kilamanagh Creek)

Given that the assessed reach of Kilamanagh Creek was within a confined valley system, or flowed within 15 m of the toe of slope (based on the topographic break in slope) through the subject property, a toe erosion allowance was determined to address the erosion hazard. Based on the type of bed and bank material (i.e., clay / silt, tills) and evidence of active erosion, a 5 m toe erosion was deemed appropriate using MNRF (2002) guidelines.

It is important to note that the erosion hazard for confined valley systems is based on a combined influence of the toe erosion allowance and the stable slope. For confined systems, a stable slope is identified as 3:1 (H:V) or as determined by a study using accepted geotechnical principles (MNRF; 2002). A geotechnical investigation and slope stability analysis was completed by MTE (2021) to identify the stable top of slope. The geotechnical study confirmed that the slope is relatively stable under current conditions. The stable top of slope documented by MTE (2021) includes the 5 m toe erosion allowance, and as such, adequately characterizes the erosion hazard associated with Kilamanagh Creek. The erosion setback delineation has been included on **Figure 3** in **Appendix A**.

5 DEVELOPMENT PROPOSAL

5.1 DEVELOPMENT PLAN OVERVIEW

The proposed development at the subject property is the construction of an e-commerce facility. The Development Plan (Baldassarra Architects; March 2021) is shown on **Figure 3** in **Appendix A**.

Key elements of the plan are as follows:

- Retention of most natural habitat (including all woodland, wetland and riparian areas along Kilamanagh Creek)

- Realignment of Tributary 2 along the north / east property limits. The realigned channel location will respect all recommended natural heritage setbacks associated with the *Protected Countryside* of the Greenbelt Plan and increase the size of the natural heritage system present on the subject property (by locating it contiguous to Kilamanagh Creek).
- Respecting all development setbacks as identified in Section 7.1
- Four buildings and associated loading dock areas and truck and car parking
- One Stormwater Management Pond and four Infiltration Galleries
- Five points of access; four on Dixie Road and one on Mayfield Road.

5.2 STORMWATER MANAGEMENT

This section incorporates information from the following reports: 12035 Dixie Road – Caledon. Stormwater Management Report (WSP; March 2021); Proposed Warehouse Development. Draft Preliminary Hydrogeological Assessment (MTE; March 2021); and the Functional Servicing Report. 12035 Dixie Road (WSP; March 2021). Relevant drawings are included in **Appendix H**; for additional details, the reader is directed to those reports.

The recommended SWM concept for the proposed development has considered relevant information from this CEISMP as well as the Hydrogeological Assessment (MTE; March 2021) and Geotechnical Assessment (MTE; March 2021). The SWM strategy consists of one SWM wet facility and four infiltration galleries (IG). Both major and minor system drainage will be directed to the proposed SWM facilities for quality, erosion and/or quantity control. The key components of the SWM plan are summarized below:

- **Proposed SWM Facilities:**
 - One SWM Facility: A SWM wet pond will treat at-grade surface flows from 50.29 ha (Catchments 3100, 3200, 3300, 3400 and 3500; and outlet to the realigned channel.
 - Four Infiltration Galleries (IG): The majority of the impervious roof area will be directed to four infiltration galleries under the parking lots to recharge groundwater that would otherwise be lost due to the transition from pervious to impervious surface (13.9 % imperviousness pre-development; 85.2% imperviousness post-development). Each infiltration gallery will have a depth of approximately 0.35 m

with a void / stone porosity of 0.10, plus a minimum 0.15 cover to the bottom of pavement. The infiltration galleries will be sized as follows for each building:

- Building A – IG footprint of 3,419.5 m², volume of 478.7 m³
 - Building B – IG footprint of 1,689.2 m², volume of 236.5 m³
 - Building C – IG footprint of 818.2 m², volume of 114.6 m³
 - Building D – IG footprint of 997.7 m², volume of 139.7 m³
- A portion of the roof area drainage from Building A (2.54 ha) in catchment 3100 will be directed to Kilamanagh Creek via flow spreader to maintain surface flows from the site to the creek, that would otherwise be cut off by the realigned channel.
- **Water Balance / Surface Water Inputs.** The Preliminary Hydrogeological Assessment (MTE; March 2021) concludes that neither of the watercourses (i.e., Kilamanagh Creek and Tributary 2), and none of their associated wetlands on the subject property, is groundwater dependent - based on the encountered low permeability sediments and apparent separation from groundwater. Rather, it is anticipated that the hydrologic function of these features is primarily supported by surface runoff. Refer to Sections 7.1.2 and 7.1.3 of the Preliminary Hydrogeological Assessment (MTE; March 2021).
 - To mitigate potential impacts to these hydrologically sensitive features, it is recommended that post-development surface water inputs are maintained to those features. The recommended location for maintenance of surface water inputs are shown on **Figure 3** in **Appendix A**. Future studies and/or updates to technical studies included in the current submission will demonstrate that the maintenance of hydrologic inputs can be achieved.
 - **Water Quality.** Sufficient permanent pool and extended detention volumes are provided in the SWM wet pond in order to meet the requirement for *Enhanced* Level protection as per the provincial Stormwater Management Planning and Design Manual (MOE 2003).
 - **(Extended Detention) Erosion Control.** The most stringent erosion storage criteria has been met in the design of the wet pond. The extended detention volume provides two-thirds of the storage volume required to limit the 2-year peak discharge flow to the corresponding pre-development level.



A during-construction Sediment and Erosion Control Plan is included in Section 6 of the SWM Report (WSP; March 2021). It includes the following:

- Install silt fence at the downslope side of disturbed areas and snow fence (if necessary) along the perimeter of the development envelope, prior to the start of construction.
- Install stone mud mats at all construction entrances.
- Stockpile topsoil at designated locations and at least 30 m away from the top bank of the watercourses. Contain stockpiles with silt fences on the downslope side.
- Remove accumulated silt from all sediment control devices as required during construction and disposed of in locations approved by the Town of Caledon and TRCA.
- Stabilize and vegetate all exposed soils as soon as possible using seed and mulch application on 100 mm of topsoil, as directed by the engineer.
- Fit all catch basins with sediment control devices as directed by the engineer and in accordance with Town of Caledon's standard requirements.
- Install half bulk heads in storm manholes immediately upstream from outfall structures and remove after all building construction and landscaping activity has been completed.
- Implement additional erosion / sediment controls on site, if required and as determined by the engineer.
- No construction activity / machinery shall intrude beyond the silt/snow fence or property limit. All construction vehicles shall enter and leave the site via designated entrances.
- Cover all regraded areas that are not occupied by dwellings, roads, sidewalks, driveways, park, and other services by 100 mm topsoil and sod/seed immediately after completion of final grading operations, as directed by the engineer.
- Install all temporary erosion and sediment controls prior to the commencement of site grading, inspect on a regular basis and after every rainfall event, and clean and maintain as required to prevent the migration of sediment from the site.

- All sediment and erosion control facilities are to remain in place until finalization of construction activity.
- Remove all temporary erosion and sediment controls after construction and once the site has been stabilized to the Town of Caledon's satisfaction. Restore all areas disturbed by erosion / sediment control devices with 100 mm topsoil and sod / seed after construction.
- All material and workmanship shall conform to the current OPSD and standards endorsed by the Town of Caledon, the TRCA and other regulatory agencies.
- **Water Quantity Control.** Sufficient storage is provided in the SWM wet pond to detain runoff and control discharge rates down to the allowable rates set out in the Humber River Hydrology Update for the 2 to 100-year storm. In addition to the 2 to 100-year discharge requirements, additional active storage with the emergency spillway is provided in the wet pond to safely convey the Regional storm even to the realigned channel.

The SWM strategy described in the 12035 Dixie Road – Caledon. Stormwater Management Report (WSP; March 2021) has been developed following guidance provided in MECP's Stormwater Management Planning and Design (SWMPD) Manual (2003), TRCA's Stormwater Management Criteria (2012) and the Region of Peel Public Works Stormwater Design Criteria and Procedural Manual (2019).

5.3 HYDROGEOLOGY

This section incorporates information from the Preliminary Hydrogeological Assessment (MTE; March 2021) and the 12035 Dixie Road – Caledon. Stormwater Management Report (WSP; March 2021).

5.3.1 GROUNDWATER RECHARGE

Though the subject property is not considered to be an area of significant groundwater recharge, by implementing appropriate LID mitigation measures to maintain approximately 90% of the pre-development infiltration and implementing a Soil Management Plan (SMP) to mitigate the reduction in infiltration due to soil and subsoil compaction, **no significant change in groundwater recharge is anticipated following development.**

5.3.2 TEMPORARY CONSTRUCTION DEWATERING

It is anticipated that only nuisance dewatering of groundwater seepage from sand / silt seams within the glacial till will be required during construction. Dewatering would be completed using sumps and pumps is **not anticipated to have a significant impact on nearby groundwater receptors**. Further, Section 7.1.2 of the Hydrogeological Assessment notes that “Given that the identified watercourses and wetland community are not considered to be dependent on groundwater, **no impacts to these natural heritage features are anticipated** as a result of temporary construction dewatering of the excavations, if required.”

5.3.3 LOW IMPACT DEVELOPMENT MEASURES

Low impact development (LID) measures are proposed across the subject property to mitigate an expected infiltration deficit by directing clean roof runoff to subsurface infiltration galleries. The proposed LID measures include infiltration at the base of underground chamber systems and placement of minimum 300 mm deep absorbent topsoil at all at-grade pervious areas. The implementation of the LID measures is based on the following assumptions:

- All pervious absorbent topsoil area (73,339 m²) within the site development area will have an initial abstraction of 25 mm;
- All impervious at-grade area (247,435 m²) shall accept 1 mm rainfall prior to runoff generation due to shallow depressions;
- Capturing 5.5 mm runoff from most impervious roof area (149,146 m²) shall be directed to the underground chambers for infiltration; and
- 2.54 ha of impervious roof area on Building A will be directed to Kilamanagh Creek for flow balancing and recharge.

5.4 TRIBUTARY 2 REALIGNMENT AND NATURAL CORRIDOR DESIGN

The proposed realignment of Tributary 2 is an opportunity to replace the existing agricultural swale with a dynamically stable channel containing a natural riffle and pool system, with cross sectional dimensions closer to that of a naturalized watercourse conveying similar flows. The natural corridor design will offer significant improvements to aquatic and terrestrial habitat through an open channel with riffle-pool sequences and wetland features.



From a habitat perspective, the important contributions of the watercourse include the provision of aquatic habitat, organic inputs to the system, provision of a more complex corridor system with elements that have a wide range of hydroperiods, and aquatic and terrestrial elements. The inclusion of a riffle-pool system with offline wetland features provides a wide range of hydroperiods.

The proposed design provides a single thread channel with riffle-pool sequences that aim to reinstate and enhance channel form and function, provide habitat variability, improve sediment transport, and provide greater substrate and morphological variability.

The primary objectives of the design are to:

- Reinstall a more natural physical form, including planform and instream characteristics;
- Restore the function of the channel and promote interaction with the floodplain;
- Improve water quality by extending detention of water through offline and online wetland features;
- Restore aquatic habitat through the provision of a morphologically diverse channel with spatially varied flows; and
- Improve riparian habitat by installing woody plantings and floodplain features.

In the development of a natural channel design, the length of the watercourse proposed to be realigned is typically replicated or exceeded, to provide an overall gain in habitat. The existing length of Reach 1 proposed for realignment is approximately 1000 m. The realigned corridor will provide a total linear distance of approximately 1385 m. To produce a system more similar to what would occur in nature, a sinuosity of 1.13 was applied to the realigned channel, resulting in an increased channel length to 1570 m. The proposed channel will therefore result in a substantive increase in the area of restored and enhanced habitat. The conceptual natural corridor design is included in **Appendix G**. For additional details the reader is directed to the Geomorphix report.

6 POLICY ASSESSMENT

Relevant planning legislation and policy pertinent to this study are discussed in the following sections. An overview of key policies and implications is provided along with an assessment of the policy as it relates to natural heritage features within the study area.

6.1 FISHERIES ACT (1985)

6.1.1 OVERVIEW OF KEY POLICIES

The Canadian Fisheries Act provides provisions for the protection of fish and fish habitat. Updates to the Fisheries Act were included in Bill C-68, which came into effect on August 28, 2019. Fish and fish habitat protection provisions of the Fisheries Act are also detailed on the Fish and fish habitat policy protection statement, August 2019² on the Fisheries and Oceans Canada (DFO) website. Specifically, these provisions state:

Section 34.4 (1): “No person shall carry on any work, undertaking or activity, other than fishing that results in the death of fish.”; and

Section 35 (1): “No person shall carry on any work, undertaking or activity that results in harmful alteration, disruption or destruction of fish habitat.”

As such, proponents that plan to undertake activities in or near water have the potential to negatively affect fisheries, and as such, are responsible for avoiding, mitigating and possibly offsetting potential negative effects. Avoidance is achieved by undertaking measures which avoid the potential for the project to cause the death of fish or otherwise alter, disrupt or destroy fish habitat. These measures include project design considerations, location of activity, and timing of works. Mitigation is implemented by following best practices such as those described in the ‘Measures to protect fish and fish habitat’ on DFO’s Projects Near Water Website³.

Any negative residual impacts to fish and fish habitat that remain following the implementation of avoidance and mitigation measures, is considered to have the potential to negatively affect the fishery. This potential for negative residual effects has to be reviewed by DFO under the Fisheries

² <https://www.dfo-mpo.gc.ca/pnw-ppe/policy-politique-eng.html>

³ <https://www.dfo-mpo.gc.ca/pnw-ppe/index-eng.html>



Act. If DFO determines that negative residual effects are likely as a result of the project, then a *Fisheries Act Authorization* (FAA) will be required.

6.1.2 STUDY ASSESSMENT

6.1.2.1 *Applicability*

Kilamanagh Creek and Tributary 2 on the subject property are subject to the Fisheries Act.

6.1.2.2 *Potential Impacts*

Based on the development plan and SWM strategy discussed herein, potential impacts to fish and fish habitat associated with the proposed development are limited to downstream indirect or secondary impacts of the construction and alteration of nutrient and allochthonous inputs due to the change in land use and realignment of Tributary 2.

6.1.2.3 *Conclusion and Recommendations*

With the implementation of recommendations identified herein, including recommended maintenance of surface water and groundwater inputs to retained watercourses (to be confirmed in future submissions / updates to current studies), the potential impacts on aquatic habitat across the subject property will be mitigated such that the project complies with the Fisheries Act.

Recommendation: Implement all recommended during-construction measures / best management practices, recommended SWM measures and recommendations associated with the **Conservation** HDF management recommendations to mitigate potential impact to aquatic habitat and improve habitat conditions within the realigned channel relative to existing conditions.

6.2 MIGRATORY BIRDS CONVENTION ACT (1994)

6.2.1 OVERVIEW OF KEY POLICIES

The Migratory Birds Convention Act, MBCA (1994) and Migratory Birds Regulations, MBR (2014) protect most species of migratory birds anywhere they are found in Canada, including surrounding ocean waters, regardless of ownership. General prohibitions under the MBCA and MBR protect migratory birds, their nests and eggs and prohibit the deposit of harmful substances in waters / areas frequented by them.



The MBR includes an additional prohibition against incidental take, defined by Environment and Climate Change Canada (ECCC) as:

“The inadvertent harming, killing, disturbance or destruction of migratory birds, nests and eggs.”

ECCC implements policies and guidelines to protect migratory birds, their eggs and their nests. There is guidance on the ECCC website to minimize the risk of incidental take effects on migratory birds, achieve compliance with the law and maintain sustainable populations of migratory birds⁴.

Compliance with the MBCA and MBR is best achieved through a due diligence approach, which identifies potential risk, based on a site-specific analysis in consideration of the Avoidance Guidelines and Best Management Practices information on the ECCC website.

6.2.2 STUDY ASSESSMENT

6.2.2.1 *Applicability*

Potential MBCA compliance implications may occur during the construction phase of development projects when the land is cleared and grubbed of vegetation, potentially removing the nests of migratory birds.

6.2.2.2 *Results and Conclusions*

Although breeding bird surveys were not completed, it is expected that migratory bird species subject to the MBCA will use habitat on the subject property. It is important to note that almost all natural vegetation on the subject property is located outside of the development envelope and will not be directly impacted by the proposed development. Notwithstanding this, compliance with the MBCA will be achieved using the following due diligence approach:

Proponent awareness of the MBCA, potential for nesting in the area and potential for impacts to migratory birds, nests and eggs.

- i. The subject property provides suitable habitat for nesting of woodland-associated and generalist species.
- ii. The footprint of the proposed works is limited to disturbed areas.

Implementation of the following avoidance and mitigation measures, where possible:

- i. Avoiding / minimizing the extent of works (particularly vegetation / potential nesting habitat

⁴ <https://www.canada.ca/en/environment-climate-change/services/avoiding-harm-migratory-birds/guidelines.html>

removal) within the “regional nesting period” for this area⁵.

- ii. Avoiding works in key sensitive locations.
 - Note that the footprint of proposed works is restricted to anthropogenically disturbed, tolerant vegetation.
- iii. Recommending Best Management Practices (BMPs) during construction to minimize potential indirect impacts to vegetation / potential nesting habitat outside of the direct footprint.

6.3 SPECIES AT RISK ACT (2002)

6.3.1 OVERVIEW OF KEY POLICIES

The federal Species at Risk Act (SARA) incorporates several prohibitions to protect individuals of listed threatened, endangered or extirpated Species at Risk (per Schedule 1 of the Species at Risk Act), including:

- *No person shall kill, harm, harass, capture or take an individual of a Threatened, Endangered or Extirpated species.*
- *No person shall possess, collect, buy, sell or trade an individual of a Threatened, Endangered or Extirpated species, or any part or derivative of such an individual.*
- *No person shall damage or destroy the residence of one or more individuals of a Threatened or Endangered species, or of an Extirpated species if a recovery strategy has recommended the reintroduction of the species into the wild in Canada.*
- *No person shall destroy any part of the critical habitat of any listed Endangered species or of any listed Threatened species – or of any listed Extirpated species if a recovery strategy has recommended the reintroduction of the species into the wild in Canada.*

Per Section 34, Section 58 and Section 61, these prohibitions apply to:

1. Aquatic species – on any lands;
2. Species of migratory birds protected by the Migratory Birds Convention Act – on any lands;
3. Any listed wildlife species – when on federal lands; and
4. Any listed wildlife species – when on non-federal lands, if recommended by the Minister of the Environment to the Governor in Council.

⁵<https://www.canada.ca/en/environment-climate-change/services/avoiding-harm-migratory-birds/general-nesting-periods/nesting-periods.html>

6.3.2 STUDY ASSESSMENT

6.3.2.1 *Applicability*

The project is on non-federal (private) lands and there is no order by Governor in Council; hence SARA only applies to aquatic and migratory bird species / habitat. There is habitat for aquatic species and migratory birds subject to SARA within the subject property. Habitat suitability and presence / use was evaluated through agency correspondence and habitat assessments.

6.3.2.2 *Results and Conclusions*

Individuals and Residences

Evidence of one SARA-listed migratory bird species was recorded on the adjacent property to the east: Eastern Wood-pewee (Special Concern, Schedule 1).

There is habitat for Redside Dace (Endangered, Schedule 1) in Kilamanagh Creek, confirmed by MECP, and contributing habitat within Tributary 2. No Redside Dace individuals were observed on the subject property during field surveys; however, no fisheries investigations or fish sampling were conducted.

Critical Habitat

No critical habitat for SARA-listed aquatic or migratory bird species is present within the proposed area of works and none is known on adjacent lands where there is potential for indirect impact.

While occupied Redside Dace habitat is identified on the subject property, no legally protected critical habitat has been identified in a federal Recovery Strategy for the species. Therefore, prohibitions to harm the species will only apply to individuals of the species within the watercourse.

6.3.2.3 *Recommendations*

Implement all recommended during-construction measures / best management practices to mitigate potential impacts to SAR individuals. Implement recommended SWM measures and BMP's to mitigate potential impact to downstream aquatic habitat.

6.4 ENDANGERED SPECIES ACT (2007)

6.4.1 OVERVIEW OF KEY POLICIES

Species designated as Threatened or Endangered by the Committee on the Status of Species at Risk in Ontario (COSSARO), otherwise known as Species at Risk in Ontario (SARO), and their habitats (e.g., areas essential for breeding, rearing, feeding, hibernation and migration) are automatically afforded legal protection under the Endangered Species Act (ESA) (Government of Ontario, 2007). ESA Subsection 9(1) states that:

“No person shall,

- (a) *kill, harm, harass, capture or take a living member of a species that is listed on the Species at Risk in Ontario List as an extirpated, endangered or threatened species;*
- (b) *possess, transport, collect, buy, sell, lease, trade or offer to buy, sell, lease or trade,*
 - (i) *a living or dead member of a species that is listed on the Species at Risk in Ontario List as an extirpated, endangered or threatened species,*
 - (ii) *any part of a living or dead member of a species referred to in subclause (i),*
 - (iii) *anything derived from a living or dead member of a species referred to in subclause (i); or*
- (c) *sell, lease, trade or offer to sell, lease or trade anything that the person represents to be a thing described in subclause (b) (i), (ii) or (iii).*

Clause 10(1) (a) of the ESA states that:

“No person shall damage or destroy the habitat of a species that is listed on the Species at Risk in Ontario list as an endangered or threatened species”

The ESA also calls for the development of species-specific Recovery Strategies and Habitat Regulations. Unlike the *general habitat* of a species, *regulated habitat* may include areas that are currently unoccupied by the species. These areas are commonly referred to as “recovery habitat.”

To balance social and economic considerations with protection and recovery goals, the ESA also enables the MECP to issue permits or enter into agreements with proponents to authorize activities that would otherwise be prohibited by subsections 9(1) or 10(1) of the Act provided the legal requirements of the Act are met.

6.4.2 STUDY ASSESSMENT

6.4.2.1 *Applicability*

Confirmed and potentially suitable habitat is present for species afforded protection under the ESA (2007).

6.4.2.2 *Habitat Assessment / Screening*

A SAR habitat suitability evaluation ('screening') was undertaken for SAR known to occur within the region, based on review of various sources including: species indicated by MECP through correspondence; NHIC data available online; MNRF Species at Risk regional species list; Ontario Reptile and Amphibian Atlas website; and DFO aquatic species at risk mapping.

The screening is summarized in **Appendix D**. In this, we assessed 'reasonable likelihood of presence on the subject property' based on the 'key habitats used by species' (based on MNRF provided definitions or SARO website habitat descriptions). Considering findings of surveys and habitat suitability, we then assessed 'likelihood and magnitude of impacts to species or habitats'.

6.4.2.3 *Results and Conclusions*

We concluded that for many of the listed species, reasonable likelihood of presence on the subject property was 'none' or 'minimal' given a lack of suitable or preferred habitat and/or rarity of the species. This was supported by field survey results. For these species, the likelihood of impacts was also 'none' or 'minimal'.

For some species, there is potentially suitable habitat present (though use has not been confirmed) based on one or more of the following factors:

- i. the presence of potentially suitable habitat on or in the vicinity of the subject property;
- ii. the relative commonness of species;
- iii. known records from the local area; and/or
- iv. The habitat requirements are not specific (i.e., they are 'generalists' that use a wide variety of natural and semi-natural habitat types).

For those species, no impacts or minimal impacts are anticipated with proposed habitat retention and protection (i.e., woodland, wetland, meadow) and mitigation / enhancement measures, based on the following:

- i. Retention of most sensitive natural features (i.e., all native / non-cultural vegetation communities), with development setbacks and future naturalized or enhanced buffers;

- ii. the small size and/or low quality of habitat to be removed;
- iii. limiting of potential impacts to non-critical habitat (e.g., non-specific foraging habitat for breeding birds, but not breeding habitat itself) and/or compensation through habitat creation (i.e., design of the realigned channel corridor);
- iv. presence of suitable habitat in the local landscape;
- v. low likelihood of occurrence; and
- vi. mitigation / protection measures such as retention of suitable habitat within the property, encounter protocols, exclusion fencing or timing windows to avoid sensitive periods.

For confirmed SAR or those with relatively greater potential, key conclusions are as follows:

- No *Endangered* SAR species were recorded during field surveys.
- Potential roosting habitat for *Endangered* SAR bats is present in the riparian forest (FODM7-7) and in the upland forest (FOD5) partially within the subject property, but primarily on adjacent lands.
 - The proposed development (**Figure 3 in Appendix A**) will retain suitable roosting habitat in the forest and protect the habitat with setbacks. It is recommended that isolated tree removals occur outside of the active bat period (i.e., between October 1 and March 31).
- MECP identified Kilamanagh Creek on the subject property as providing occupied habitat for Redside Dace. Tributary 2 is be considered contributing habitat for Redside Dace.
 - The occupied Redside Dace habitat in Kilamanagh Creek will not be directly impacted by the proposed development, and will be protected with appropriate buffers, enhancements and maintenance of surface water inputs.
 - Contributing Redside Dace habitat in Tributary 2 on the subject property is proposed to be realigned along the north / east property limits. The realignment will increase the length of the channel on the subject property by at least 200 m, resulting in an increase in the amount of aquatic and terrestrial habitat present. The realigned channel will incorporate natural channel design principles and online wetland features, which will introduce variability in form and substrate and facilitate the creation of more complex / higher quality wetland vegetation communities. Riparian function will also be improved relative to the current condition, as will hydraulic connectivity between the realigned upstream and downstream reaches on adjacent properties.
 - Notwithstanding the expected improvements in aquatic habitat on the subject property (including subsequent contributions to downstream habitat), consultation

with MECP should occur in order to confirm compliance with the ESA as it relates to the proposed changes to contributing Redside Dace habitat on the subject property.

- No *Threatened* SAR, or evidence of *Threatened* SAR was recorded during field surveys.
- Although not subject to the provisions of the ESA, one species of *Special Concern* in Ontario was recorded during field surveys: Eastern Wood-pewee.
 - One adult individual was recorded calling from forest habitat on the adjacent property to the east on September 17, 2020. Impacts to suitable Eastern Wood-pewee habitat will be mitigated through the retention of all forest habitat, development setbacks, and buffer enhancements.

6.5 PROVINCIAL POLICY STATEMENT (PPS), 2020

6.5.1 OVERVIEW OF KEY POLICIES

The Provincial Policy Statement (PPS) is issued under the authority of Section 3 of the Planning Act and provides Provincial direction related to three key land use planning principles including building strong communities, wise use and management of resources, and protecting public health and safety. The current PPS came into effect on May 1, 2020. Key natural heritage policies are discussed below.

Per Section 2.1.4 of the PPS, development and site alteration shall not be permitted in:

1. significant wetlands in Ecoregions 5E, 6E and 7E; and
2. significant coastal wetlands.

Per Section 2.1.5 of the PPS, development and site alteration shall not be permitted in:

3. significant wetlands in the Canadian Shield north of Ecoregions 5E, 6E and 7E;
4. significant woodlands in Ecoregions 6E and 7E (excluding islands in Lake Huron and the St. Mary's River);
5. significant valleylands in Ecoregions 6E and 7E (excluding islands in Lake Huron and the St. Mary's River);
6. significant wildlife habitat;
7. significant areas of natural and scientific interest; and
8. coastal wetlands in Ecoregions 5E, 6E and 7E that are not subject to policy 2.1.4(b)



unless it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions.

Per Section 2.1.6 of the PPS, “Development and site alteration shall not be permitted in fish habitat except in accordance with provincial and federal requirements.”

Per Section 2.1.7 of the PPS, “Development and site alteration shall not be permitted in habitat of endangered species and threatened species, except in accordance with provincial and federal requirements.”

Per Section 2.1.8 of the PPS, “Development and site alteration shall not be permitted on adjacent lands to the natural heritage features and areas identified in policies 2.1.4, 2.1.5, and 2.1.6 unless the ecological function of the adjacent lands has been evaluated and it has been demonstrated that there will be no negative impacts on the natural features or on their ecological functions.”

6.5.2 STUDY ASSESSMENT

6.5.2.1 Assessments

Based on the field assessments, background information and in consideration of relevant guidance documents, a brief assessment of each feature listed under section 2.1 of the PPS is provided below:

1. Significant wetlands in Ecoregions 5E, 6E and 7E
 - No significant wetlands are present on or adjacent to the subject property.
2. Significant coastal wetlands.
 - Not applicable
3. Significant wetlands in the Canadian Shield north of Ecoregions 5E, 6E and 7E1.
 - Not applicable
4. Significant woodlands in Ecoregions 6E and 7E.
 - The riparian and upland woodland on and adjacent to the subject property could be considered significant based on criteria listed in the Peel-Caledon Significant Woodlands and Significant Wildlife Habitat Study (NSE, 2009); Natural Heritage Reference Manual for Natural Heritage Polices of the Provincial Policy Statement, 2005, Second Edition “NHRM” (Ministry of Natural Resources, 2010); and Greenbelt Plan, 2005 Technical

Definitions and Criteria for Key Natural Heritage Features in the Natural Heritage System of the Protected Countryside Area (OMNRF, 2012). The 'proximity to a watercourse (< 30 m)', 'habitat of SAR species (Redside Dace, Eastern Wood-pewee)', 'linkage function (Natural Heritage System)' and potentially other criteria are met.

- The woodland habitat will be retained in full, with a minimum 30 m development setback and other mitigation / protection measures.

5. Significant valleylands in Ecoregions 6E and 7E.

- No significant valleylands have been identified on the subject property, though Kilamanagh Creek may potentially meet significant valleyland criteria as recommended in the NHRM and Greenbelt Plan, 2005 Technical Definitions and Criteria for Key Natural Heritage Features in the Natural Heritage System of the Protected Countryside Area (OMNRF, 2012) (not confirmed).
- The Kilamanagh Creek valley feature on site will be retained, with a development setback of at least 10 m from staked top of slope adjacent to Kilamanagh Creek.

6. Significant wildlife habitat.

- No *Significant Wildlife Habitat* had been identified on the subject property prior to natural heritage investigations in support of the CEISMP. Based on the assessment summarized in Section 4.5.6, four types of *Candidate* (unconfirmed) and one type of *Confirmed* SWH were identified within the subject property.
- With the exception of the habitat within the Tributary 2 channel (i.e., candidate / unconfirmed Amphibian Breeding Habitat - Wetland), each of these SWH types is located within natural areas on the subject property that will be retained and protected with the proposed development plan. The candidate SWH in Tributary 2 will be replaced in the realigned channel, with an overall net ecological enhancement (size, habitat quality). Potential indirect impacts to the retained SWH areas will be addressed through implementation of mitigation and enhancement measures recommended herein and/or to be confirmed / refined at final design.

7. Significant areas of natural and scientific interest.

- None is present on or adjacent to the property

8. Coastal wetlands in Ecoregions 5E, 6E and 7E1 that are not subject to policy 2.1.4(b).

- Not applicable



9. Fish Habitat.

- Kilamanagh Creek directly supports fish habitat on the subject property.
- Tributary 2 does not support direct fish use on the subject property; it provides contributing habitat to downstream populations only.
- Fish habitat in Kilamanagh Creek will be retained with setbacks and other mitigation measures. Tributary 2 is proposed to be realigned with improvements in habitat quality and overall increase in habitat availability on the subject property. See discussion in Section 5.4.

10. Habitat of Endangered and Threatened species

- Habitat is present on the subject property for one *Endangered* species (Redside Dace). A small amount of potentially suitable habitat for *Endangered* SAR bat species is also present.
- No confirmed habitat is present on the subject property for *Threatened* species.
- Confirmed habitat for Redside Dace (Kilamanagh Creek) and potential habitat for SAR bats (the riparian woodland) will be retained, with setbacks and other mitigation measures.

11. Adjacent Lands

- Potentially suitable habitat for *Endangered* SAR bat species is present in the upland woodland on, but primarily adjacent to the subject property. This habitat will be retained, with development setbacks and other mitigation measures.
- Lands adjacent to significant features have been considered in the current study, with potential impacts to their ecological features and functions addressed in Section 7 of the current report. With recommended mitigation and enhancement measures identified herein, we conclude that implementation of the proposed works can be undertaken with no negative impacts to natural heritage features or their ecological functions.

6.5.2.2 *Conclusions*

With recommended mitigation and protection measures, including recommendations for future work, the proposed development is consistent with the natural heritage policies of the PPS.

6.6 GREENBELT ACT (2005) AND GREENBELT PLAN (2017)

6.6.1 OVERVIEW OF KEY POLICIES

The Greenbelt was introduced in 2005 to help shape the future of this region. The Greenbelt is the cornerstone of Ontario's Greater Golden Horseshoe Growth Plan (Growth Plan) which is an overarching strategy that provides clarity and certainty about urban structure, where and how future growth should be accommodated and what must be protected for current and future generations.

The Greenbelt Plan includes lands within and builds upon the protections provided by the Niagara Escarpment Plan (NEP), and the Oak Ridges Moraine Conservation Plan (ORMCP). The Greenbelt Plan, together with the NEP and ORMCP, identifies where urbanization should not occur in order to provide permanent protection to the agricultural land base and the ecological and hydrological features, areas, and functions occurring on this landscape. The Greenbelt Plan, together with the Growth Plan, the NEP and the ORMCP, builds on the PPS to establish a land use planning framework for the Greater Golden Horseshoe that supports a thriving economy, a clean and healthy environment, and social equity.

The Protected Countryside is comprised of Agricultural System, Natural System and Settlement Areas.

6.6.2 STUDY ASSESSMENT

Portions of the subject property are within the *Natural Heritage System* of the Protected Countryside, as shown on **Figure 1** in **Appendix A**. It includes Kilamanagh Creek and its associated riparian corridor, as well as adjacent agricultural field. This portion of the subject property (with the exception of the agricultural field) has attributes that are considered *Key Natural Heritage Features* within the Natural Heritage System. Per policy 3.2.5 of the Greenbelt Plan, Key Natural Heritage Features include:

- Habitat of endangered and threatened species;
- Fish habitat;
- Wetlands;
- Life science areas of natural and scientific interest (ANSIs);

- Significant Valleylands;
- Significant Woodlands;
- Significant wildlife habitat (including habitat of special concern species);
- Sand barrens, savannahs and tallgrass prairies; and
- Alvars.

Kilamanagh Creek valley supports both wetland, fish habitat and habitat of endangered and threatened species within the subject property. Per policy 3.2.5.5 of the Greenbelt Plan, a minimum 30 m *Vegetation Protection Zone* is required from wetlands. In addition, the upland and riparian forest within and adjacent to the subject property is within the the *Natural Heritage System* of the *Protected Countryside* and may meet criteria for designation as *significant woodland*. Per policy 3.2.5.5 of the Greenbelt Plan, a minimum 30 m *Vegetation Protection Zone* is required from significant woodland. As such, a 30 m development setback has been established from these features (per the surveyed and agency approved feature limits) and incorporated into the development plan as shown on **Figure 3** in **Appendix A**. No impacts to natural features within the Greenbelt Plan area are anticipated with the implementation of recommended mitigation and protection measures, including the recommended development setbacks, maintenance of surface water and groundwater inputs (to be confirmed through future study) and construction mitigation measures / best management practices. Portions of the proposed development within the Greenbelt Plan, but outside of the Natural Heritage System and associated *Vegetation Protection Zone* are addressed in the Planning Justification Report (Armstrong Planning; March 2021).

6.7 REGION OF PEEL OFFICIAL PLAN (OFFICE CONSOLIDATION DECEMBER 2018)

6.7.1 OVERVIEW OF KEY POLICIES

The Region of Peel initiated its Growth Plan Conformity Exercise in 2007 known as the Peel Region Official Plan Review (PROPR). The purpose of the PROPR was to bring the ROP into conformity with the Provincial Policy Statement, the Growth Plan and the Greenbelt Plan.

The Region of Peel Official Plan identifies a *Greenlands System* that is intended to support and express the Region's vision for the protection of the natural environment. The *Greenlands System* consists of *Core Areas*, *Natural Areas and Corridors*, and *Potential Natural Areas and Corridors*.



Development and site alteration is generally prohibited within *Core Areas* of the *Greenlands System*.

Core Areas of the *Greenlands System* are depicted on Schedule A of the Region of Peel Official Plan.

6.7.2 STUDY ASSESSMENT

A portion of the subject property along Kilamanagh Creek is designated a *Core Area* of the *Greenlands System*. The approximate limits of the *Core Area* of the *Greenlands System* have been included on **Figure 1** in **Appendix A**. Precise limits of those features have been refined through the current study.

No development is proposed within the *Core Area* of the *Greenlands System*. In addition, it is anticipated there will be no direct or indirect impacts to natural features within the *Core Area* of the *Greenlands System* with the implementation of recommended mitigation and protection measures, including recommended development setbacks, maintenance of surface water and groundwater inputs (to be confirmed through future study) and construction mitigation / best management practices.

6.8 TOWN OF CALEDON OFFICIAL PLAN (APRIL 2018 OFFICE CONSOLIDATION)

6.8.1 OVERVIEW OF KEY POLICIES

The Town of Caledon Official Plan (April 2018 Consolidation) provides goals, objectives and policies to direct land use change and activity in the Town of Caledon. Of relevance to this CEISMP are the directions regarding consideration of the natural environment in the land development process (Section 3 and 5 of the Official Plan). Also relevant is the Peel-Caledon Significant Woodlands and Significant Wildlife Habitat Study (NSE, 2009) prepared for the Region of Peel and the Town of Caledon, which provides a detailed and comprehensive analysis of criteria and thresholds recommended for identifying *significant woodlands* and *significant wildlife habitat* in the Region of Peel and the Town of Caledon.

Schedule A of the Town of Caledon's Official Plan (2018) identifies the limits of the *Environmental Policy Areas* (EPA) within and adjacent to the subject property. The approximate limits of the *Environmental Policy Areas* are shown on **Figure 1** in **Appendix A**. Per Section 5.7 of the Town

of Caledon's Official Plan (2018): *Environmental Policy Areas* include *Natural Core Areas* and *Natural Corridors* which “represent the fundamental building blocks of ecosystems in the Town.”

6.8.2 STUDY ASSESSMENT

The current CEISMP has been prepared to address all relevant policies within the Official Plan.

The proposed development and CEISMP complies with relevant policies of the Official Plan as follows:

- It achieves the Ecosystem Planning and Management objectives stated in Section 3.2 by:
 - Implementing a systems approach that will help ensure that the diversity and connectivity of natural features in the Town, and the long-term ecological function and biodiversity within the *Environmental Policy Areas* is maintained and improved where possible.
 - Protecting endangered and threatened species.
 - Providing compatible development and activities that do not negatively impact the natural heritage features and areas, and their ecological or hydrologic functions (pending further studies regarding water balance to retained natural features).
 - Protecting and enhancing tree canopy to support biodiversity, via buffer enhancement.
 - Providing a clear mechanism for assessing the potential immediate and long-term impacts of development, site alteration and other activities on the *Environmental Policy Areas* (see Section 7.3 – Monitoring).
 - Seeking to identify opportunities to mitigate against stresses and impacts through ongoing monitoring and ecological management (see Section 7.3).

In addition,

- With the development plan, development and site alteration will not occur within the *Environmental Policy Areas*.
- The recommended buffer widths for the natural heritage features have been incorporated into the development plan (**Figure 3 in Appendix A**). Development and / or site alteration is not anticipated within the buffer, subject to final design.
- No impacts are anticipated with the implementation of recommended mitigation and

protection measures, included recommended development setbacks, maintenance of hydrogeologic inputs (to be confirmed through future study) and construction mitigation measures / best management practices.

6.9 TORONTO AND REGION CONSERVATION AUTHORITY REGULATION (O. REG. 166/06)

6.9.1 OVERVIEW OF KEY POLICIES

The Toronto and Region Conservation Authority (TRCA) regulates development and/or interference with wetlands in accordance with Ontario Regulation 166/06 made under the Conservation Authorities Act. The regulation applies to areas that are within or adjacent to shorelines of lakes, river or stream valleys, wetlands, hazard lands, and other areas where development could interfere with the hydrologic function of a wetland.

6.9.2 STUDY ASSESSMENT

TRCA's regulation limit is shown on **Figure 1** in **Appendix A**. TRCA's Living City Policies for Planning and Development in the Watersheds of the Toronto and Region Conservation Authority (TRCA, 2014) were reviewed to confirm compliance with Ontario Regulation 166/06. This will be achieved through the following:

- Wetlands associated with Kilamanagh Creek (within the *Protected Countryside* of the Greenbelt Plan) will be retained in full, with development setbacks of at least 30 m.
- Opportunities to maintain hydrogeological inputs to the retained natural areas are available and future studies / updates to current technical studies will demonstrate that these can be achieved. As noted, based on existing information, it appears that the receiving areas are primarily surface water dependent.
- Re-alignment of Tributary 2, consistent with realignments upstream and downstream of the subject property.
- Additional mitigation and protection measures are recommended (see Section 7), including: buffer zone management, permanent fencing at natural area / development interfaces.

With respect to the proposed realignment of Tributary 2, the existing wetland vegetation associated with the tributary will be removed. The wetland community (MAMM3-1) is of relatively

poor quality (composed of common and invasive species, no significant species) and it does not provide any specialized or limiting habitat for wildlife or aquatic species.

The proposed realignment of the tributary on the property will maintain the function of the feature by conveying flows from the upstream property (west of Dixie Road), while providing an improvement over the existing condition by introducing variability in form and substrate, creating more complex vegetation communities and niches for target species.

The natural channel design and planting plans have been prepared by Geomorphix (2021) and Budrevics (2021). The removal of the wetland vegetation along the tributary (~ 1.6 ha) will be replicated and addressed through the natural channel design. The design of the realigned channel incorporates online wetland features and live woody filtration features, designed to hold back water during large storm events, in order to replicate the wetland meadow habitat. The design will result in a total wetland area of 1.9 ha, replacing the wetland vegetation being removed at a ratio of ~1:1.2 (increase of 0.3ha). This approach is consistent with the guidance provided in Section 2.1 of TRCA's Guideline for Determining Ecosystem Compensation (June 2018) for the replacement of marsh and meadow vegetation (i.e., communities with a low basal area, compensation ratio of 1:1). A permit under O. Reg 166/06 will be required for this work.

7 IMPACTS & MITIGATION

7.1 MITIGATION AND ENHANCEMENT MEASURES

7.1.1 DEVELOPMENT SETBACKS AND BUFFERS

Development setbacks are proposed in relation to the wetland and woodland limits, as verified by TRCA and Town of Caledon staff during a site meeting on October 27, 2020. Limits have been surveyed and incorporated into site plans, including **Figure 3** in **Appendix A**.

Setbacks: The following development setbacks are recommended:

- i. Wetland limit within Greenbelt (marsh riparian wetland along Kilamanagh Creek) + 30 m
- ii. Woodland limit (within Greenbelt) + 30 m
- iii. Kilamanagh Creek toe of slope / meander belt + 30 m
- iv. Stable top of slope (along Kilamanagh Creek valley) + 10 m

Buffer Management: In addition to the recommended setbacks, the following buffer management measures are proposed:

- i. Ecological enhancement of the intervening buffer areas in current agricultural fields (within the development setback zones);
- ii. Maintenance of hydrogeological inputs to receiving areas (e.g. wetlands and watercourses); and
- iii. Restricted access via permanent fencing or other suitable barrier (e.g., dense / thorny plantings).

7.1.2 ENVIRONMENTAL ENHANCEMENT AREAS

Establishment of naturalized buffer areas in current agricultural fields will provide an overall ecological enhancement to natural heritage features on the subject property.

Subject to confirmation and/or refinement at detailed design, these enhancements are anticipated to include a combination of natural succession, supplemented with native species plantings, with the following objectives: establishing native species in disturbed areas (i.e., current agricultural fields) before non-native species can become established; providing additional supplementary habitat for wildlife; and enhancing retained habitat for wildlife species (via improved buffering and increased woodland edge density to reduce impacts from development).

See discussion in Section 5.4 for details regarding the proposed channel realignment and expected enhancements relative to the current condition.

Additional opportunities for habitat enhancement are noted under ‘ecological linkages’.

7.1.3 WATER BALANCE / SURFACE WATER INPUTS

As discussed in Section 5.2, the preliminary water balance analysis presented in the Preliminary Hydrogeological Assessment (MTE; March 2021) notes that neither tributary nor their associated wetlands on the subject property is groundwater dependent. To mitigate potential impacts, it is recommended that surface water inputs are maintained to Kilamanagh Creek and the realigned channel post-development. See **Figure 3** in **Appendix A** for approximate locations.

Future studies and/or updates to current technical studies will demonstrate that the maintenance of hydrologic inputs to receiving natural areas can be achieved.

7.1.4 ECOLOGICAL LINKAGES

Enhancements are proposed to existing ecological linkage areas, which currently provide some connectivity and opportunities for wildlife movement, as follows:

- **Kilamanagh Creek Corridor.** A small portion of this valley corridor extends through the northeastern portion of the subject property. It provides internal and external connectivity to areas off-site, to the west and southeast. This feature and the ecological function of this linkage will be maintained and enhanced via buffer plantings and the location of the realigned channel.
- **Tributary 2 of the West Humber River.** This feature provides limited connectivity under current conditions due to barriers (major roads), narrow width and limited natural cover. The proposed realignment within the subject property will increase the habitat quality and quantity (via improved hydrology, natural channel design techniques and increase in feature length on the subject property). The width of the corridor on the subject property will be increased (from an average of 5 m, to a minimum of 35 m) as will the overall size of the tributary corridor (from approximately 1.8 ha to approximately 5.8 ha). Furthermore, the location of the proposed realignment (adjacent to Kilamanagh Creek corridor) will functionally increase the width of both corridors in the northeast portion of the subject property. In consideration of the above, the proposed realignment of Tributary is expected to result in an improvement over the existing condition.

7.1.5 STORMWATER MANAGEMENT

As discussed in Section 5.2.

7.1.6 BEST MANAGEMENT PRACTICES DURING CONSTRUCTION

The following measures are recommended to mitigate potential impacts during construction:

- Installation of temporary Vegetation Protection Fencing prior to any site grading to delineate the work zone and prevent direct damage to adjacent retained vegetation (i.e., mechanical damage, root damage, soil compaction). This fencing is to remain until construction is complete.
- Erosion and Sediment Control (ESC). See Section 5.2.

- Other construction best management practices (BMPs) to minimize ecological impacts, including:
 - Refueling and equipment washing at least 30 m from retained natural areas
 - Follow the Clean Equipment Protocol for Industry (Holloran 2013) when excavating moist or wet areas to prevent the spread of invasive species (e.g., *Phragmites australis* ssp. *australis*)
 - Prepare a spills management plan and keep on site
 - No stockpiling or storage of construction materials or soils within or immediately adjacent to retained natural areas (including buffers) or the realigned channel corridor
- The following measures are recommended for the protection of wildlife in general:
 - Install ESC fencing prior to construction, and maintain throughout construction to prevent wildlife from entering the construction areas.
 - Permanent fence installation is recommended at the development – natural area interface as shown on **Figure 3** in **Appendix A** (i.e., realigned Tributary 2 channel corridor).
 - If an animal is encountered during construction does not move from the construction zone and construction activities are such that continuing construction in the area would result in harm to the animal, all activities that could potentially harm the animal will cease immediately and the Contract Administrator will be notified.
 - Prior to starting works each day, examine the construction areas (including staging areas and beneath any equipment parked overnight) to ensure no SAR (or other wildlife) have entered the construction zone.
 - If a SAR or possible SAR is found in the construction area, all activities that could potentially harm the animal will cease immediately and the Contract Administrator / Site Manager will be notified. The Contract Administrator / Site Manager will then contact the MECP for direction.
- The following measures are recommended to be implemented for the channel realignment work:
 - Implement all ESC measures as described in Section 5.2 and other BMP's as

described above.

- In-water work associated with the realignment of Tributary 2, (specifically the connection and transfer of flows from the existing channel to the realigned channel, should occur within the appropriate in-water work window of July 1st to September 15th of any given year (i.e., no in-water works from September 16th to June 30th) per the Guidance for Development in Redside Dace Protected Habitat (MNR; March 2016).
- Decommissioning of the existing channel should be undertaken after the newly constructed channel has been confirmed to be stable and receiving flows as well as during a period when the channel is dry or when flow is minimal. Contingency plans should be implemented to address potential flows resulting from unanticipated storm events. Furthermore, the length of time required for in-water work should be kept to a minimum.
- All disturbed and newly graded areas should be stabilized as quickly as possible to reduce the potential for erosion and sedimentation.
- The newly constructed channel should be inspected prior to receiving flows to ensure that it has been constructed as specified in the design drawings and that it is stable.

7.2 IMPACTS

This section reviews potential impacts or condition changes to natural environmental features on or bordering the subject property, based on direct activities (e.g. construction activities such as clearing and grading) or indirect activities (e.g. occupancy activities such as dumping of rubbish). As previously noted, the proposed development envelope is restricted to culturally modified communities and active agricultural crop fields. As such, direct impacts to natural environment features are negligible.

The primary concerns relate to the realignment of Tributary 2 and potential indirect impacts to retained natural environmental features on the subject property and adjacent lands, including areas within the *Protected Countryside* of the Greenbelt Plan. Potential indirect impacts include, for example, construction-related impacts to retained natural features, changes to hydrology, as well as post-development occupancy activities. It is recommended that the identified mitigation measures are refined, as required, during subsequent design stages.



Three primary natural environment factors are discussed: 1) aquatic resources; 2) vegetation; and 3) wildlife. In **Table 3**, each factor is reviewed in terms of potential effects, proposed mitigation and residual effects. It is recommended that the identified mitigation measures be incorporated with appropriate wording on construction drawings and grading plans that will be prepared prior to any site grading. The site plan, environmental features, and environmental management notes are provided on **Figure 3** in **Appendix A**.



Table 3: Potential Impacts and Proposed Mitigation Measures

Feature Significance and Sensitivity	Natural Environment Impacts	Mitigation Measures
<p><u>AQUATICS</u></p> <p>Headwater drainage features</p> <ul style="list-style-type: none">Two features conveying flows through active agricultural crop lands (Tributary 2 discussed further below). <p>Kilamanagh Creek is located on the subject property and adjacent lands to the north and east. Key attributes:</p> <ul style="list-style-type: none">Permanent watercourse that directly supports fish use on the subject property. Identified by MECP as occupied Redside Dace habitat.Naturally meandering channel through meadow and marsh habitat through the subject property.Habitat on the subject property provides for a variety of life-cycle functions, including spawning, rearing and foraging for resident fish species. <p>Tributary 2 of the West Humber River is located on the subject property and adjacent lands to the west and south. Key attributes:</p> <ul style="list-style-type: none">Intermittent / ephemeral drainage, providing contributing habitat to downstream fish populations.Undefined / poorly defined drainage feature that has been realigned upstream and downstream of the subject property as part of other development projects.No sensitive and/or limiting habitat associated with this feature.	<ul style="list-style-type: none">Direct Impacts. Kilamanagh Creek channel and riparian areas will be retained in full.Tributary 2 will be realigned within the subject property. The realigned channel will incorporate natural channel design techniques and will connect with previously realigned reaches up and downstream of the subject property. The function HDF1 that contributes to Kilamanagh Creek will be replicated via the stormwater management approach for the development, subject to further study.Water quality. Potential for increased sedimentation / erosion and changes in nutrient / allochthonous inputs. However, there will be improvement in some areas, such as the removal of some chemical and/or fertilizer inputs from current agricultural practices. Erosion and Sediment Control measures will be implemented as per the SWM report, and will be subject to TRCA approval at the detailed design stage.Erosion. Potential for erosion in receiving watercourses.Hydrology. Potential changes to the hydrological regime resulting from increases in impervious surface and elevated flows or as the result of SWM discharge.Hydrogeology. Potential impacts on the groundwater regime (decreased recharge/infiltration) and subsequent impacts to baseflow. As noted in MTE (March 2021) however, neither watercourse or their associated wetlands is groundwater dependent.Occupancy / Operation related effects. Potential for some impact to aquatic resources (e.g., refuse / vegetation dumping) and water quality effects related to commercial uses (i.e., chlorides, fuels and oils).	<ul style="list-style-type: none">Surface Water (long-term) impacts. Mitigated by:<ul style="list-style-type: none"><u>Development setbacks</u> of at least 30 m from Kilamanagh Creek – providing a wide naturalized zone for sediment / contaminant filtration. Development setback of at least 10 m from the realigned channel.<u>SWM strategy.</u> No untreated stormwater runoff from the proposed development will be directed to any of the natural areas. At-grade surface runoff will be directed to a SWM wet pond, for 'Enhanced Level' quality control. The SWM strategy will provide for erosion control based on guidance within MECP's <u>Stormwater Management Planning and Design Manual</u> (2003), TRCA's Stormwater Management Criteria (2012) and the criteria established in the <u>Region of Peel Public Works Stormwater Design Criteria and Procedural Manual</u> (2019).<u>During-construction mitigation measures</u> to protect surface water quality will be implemented - including an Erosion and Sediment Control (ESC) Plan, Spills Management Plan, vegetation protection fencing and typical best-management practices.Water Balance.<ul style="list-style-type: none">It is recommended that surface water inputs be maintained to Kilamanagh Creek and the realigned channel as discussed in Sections 5.2 and 7.1.3 and shown on Figure 3 in Appendix A. Opportunities to achieve the water balance as recommended herein are available and will be confirmed through future studies and/or updates to current technical studies.Erosion. Addressed via the proposed SWM strategyOccupancy / Operation-related Impacts to be mitigated by:<ul style="list-style-type: none"><u>Buffer Management.</u> This buffer zone will include native species plantings to address: slope stability / erosion; additional sediment / nutrient filtration; and woodland edge integrity. The intent is to establish native vegetation in future buffers within current crop field areas.Installation of <u>permanent fencing</u> at development / natural area interfaces. See Figure 3 in Appendix A.Stewardship: installation of 'natural areas signage' at the development / natural area interface and provide of a Stewardship Brochure to owners and building managersMonitoring. No specific aquatic monitoring is proposed. Related issues (i.e., erosion, filtration etc. to be addressed by vegetation, wildlife, groundwater, fluvial geomorphology monitoring).

Feature Significance and Sensitivity	Natural Environment Impacts	Mitigation Measures
<p>VEGETATION</p> <ul style="list-style-type: none"> • Vegetation overview. The development envelope is predominantly in agricultural use (row crops). Kilamanagh Creek / associated natural areas is present in the northeast portion, and an intermittent drainage feature (Tributary 2) extends from NW to SE across the subject property, with a small amount of associated vegetation. A small portion of woodland habitat is present along the northeast corner of the subject property, though most of the woodland is on adjacent lands to the east. • Wetlands. Meadow marsh is present along Kilamanagh Creek, and along Tributary 2. • Vegetation Communities. The following vegetation community types are present: Dry - Moist Old Field Meadow (CUM1-1); Mixed Mineral Meadow Marsh (MAMM3-1); Manitoba Maple Lowland Deciduous Forest (FODM7-7); and Dry – Fresh Sugar Maple Deciduous Forest Ecosite (FOD5). <ul style="list-style-type: none"> ○ None is provincially rare • Designated Areas. Kilamanagh Creek and its associated natural habitat are identified as <i>Protected Countryside – Natural Heritage System of the Greenbelt Area</i> on Schedule 4 of the <u>Greenbelt Plan</u> (2007). Kilamanagh Creek is also identified as an <i>Environmental Policy Area</i> on Schedule A of the <u>Town of Caledon Official Plan (April 2018 Office Consolidation)</u> and as a <i>Core Area of the Greenlands System</i> on Schedule A of the <u>Peel Region Official Plan (December 2018)</u>. There are no provincially designated features (e.g., PSW, ANSI) within or immediately adjacent to the property. The forest habitat (FODM7-7 and FOD5) on and adjacent to the subject property may meet criteria for Significant Woodland status. • Flora. 58 vascular plant species were recorded. <ul style="list-style-type: none"> ○ No species are federal or provincial SAR. ○ None is globally or provincially rare. ○ Two species are considered significant in the Greater Toronto Area: Peach-leaved Willow (R6), and Sandbar Willow (R5). One isolated Peach-leaved Willow is present along Tributary 2. A patch of ~ 100 Sandbar Willow is present on an apparent mound of fill in the northwest portion of the subject property. ○ No species are ‘of concern regionally’ in TRCA jurisdiction (i.e. L1-L3). ○ Of the species with a CC value, most (97%) are ‘tolerant’ or ‘moderately conservative’ (CC 0-6). Only one species has a higher CC value: Black Maple (<i>Acer nigrum</i> CC 7). One Black Maple, a mature tree, was recorded in the Kilamanagh Creek valley. ○ 45% are non-native species. • Disturbance. All vegetation is anthropogenically disturbed / influenced to varying degrees. 	<ul style="list-style-type: none"> • Direct Impacts. Most natural vegetation will be retained. The following culturally derived, less sensitive vegetation units will be removed (~0.21 ha): cultural meadow (CUM1-1) vegetation in the northwest and southeast portions of the subject property (adjacent to Tributary 2); ~1.6 ha of non-sensitive, disturbed meadow marsh (MAMM3-1) vegetation along Tributary 2. These are generally of low botanical quality, and substantively comprised of tolerant and/or non-native species. No unique and/or sensitive communities will be removed. The realigned channel corridor will be approximately 5.8 ha in size (with a minimum width of 35 m) and will incorporate 1.9 ha of online wetland habitat along the length of the realigned reach. • Indirect Impacts. There is potential for impact to vegetation as the result of construction, changes in adjacent land use, changes to hydrology and occupancy-related activities. <ul style="list-style-type: none"> ○ Woodland Edge Effects. Vegetation dieback at woodland edges can result in the exposure of the less disturbed forest zone to additional sunlight and invasive plant species which can lead to trunk damage (sunscauld), increased drying, and localized changes in ground flora (e.g., increase in exotic species) - particularly at the south and east-facing edges. Edge trees in the woodlands on and adjacent to the property have been pre-stressed via agricultural activities; no substantive increase in sunscauld or drying is anticipated in those areas. ○ Construction-related Impacts (short-term). These include damage to vegetation outside the work zone; sedimentation; spills of contaminants/fuels; root pruning; damage to limbs; and soil compaction. ○ Hydrogeology. Retained vegetation might be impacted by changes to hydrogeology on the subject property. For example, adjacent wetlands that receive surface and groundwater inputs from the subject property can be stressed if those inputs are significantly changed (e.g., change to surface water volume / flow direction; reduced infiltration or changes to groundwater flow direction). As noted however, none of the wetlands is groundwater dependent. ○ Occupancy / Operation-related Impacts. These may include: woodland and wetland edge effects (e.g., invasive species proliferation); trail creation; vandalism; refuse/vegetation dumping; effects of salt spray from road maintenance. 	<ul style="list-style-type: none"> • Direct Impacts to be mitigated by: minimizing disturbance footprint to the extent possible; buffer enhancement / habitat creation (with much larger resulting natural areas). • Indirect Impacts to be mitigated by: <ul style="list-style-type: none"> ○ Measures to mitigate woodland edge effects and valley vegetation impacts: establishing minimum setbacks of woodland / wetland +30 m. ○ Realignment of Tributary 2 along the north / east property boundary, adjacent to the recommended development setbacks for the retained habitat along Kilamanagh Creek. The realigned channel will incorporate natural channel design techniques and will increase the quality and quantity of habitat on the subject property. Note that the stand of Phragmites will be removed with the proposed works. ○ <u>Buffer zone management</u>, via native species plantings to address: vegetation community and botanical diversity; slope stability / erosion; and woodland edge protection. The intent is to establish native vegetation in future buffers and enhance existing naturalized areas with improved native species diversity / abundance. ○ Installing temporary <u>Vegetation Protection Fencing</u> prior to any site grading to delineate the work zone and prevent direct damage to adjacent retained vegetation (i.e., mechanical damage, root damage, soil compaction). This fencing will remain until construction is complete. ○ <u>ESC Plan</u>. To prevent sedimentation of retained vegetation, ESC fencing will be installed at grading limits prior to site grading. Additional measures to be confirmed at final design. ○ <u>Hydrogeology</u> mitigation measures. As described above. ○ <u>Occupancy/Operation-related Impacts</u>. As described above. • Monitoring. General overview / vegetation plot monitoring is proposed in the retained natural areas adjacent to the proposed development. To be finalized at detailed design.

Feature Significance and Sensitivity	Natural Environment Impacts	Mitigation Measures
<p>WILDLIFE</p> <ul style="list-style-type: none"> The subject property provides very little wildlife habitat within the proposed development envelope. Highest quality / most diverse wildlife habitat is associated with Kilamanagh Creek and associated vegetated corridor (areas within the <i>Protected Countryside</i> of the Greenbelt Plan). Avifauna. 13 bird species recorded - a mix of woodland and common generalists / urban-adapted species. All were recorded outside of the regional bird nesting window, though some of these species likely breed in the area. Herpetofauna. The subject property provides some habitat for foraging and potentially for amphibian breeding. One herpetofauna species was recorded on the subject property: American Toad (single foraging individual). Insects and Mammals. Several common / expected species were recorded during field surveys. No notable / specialized habitat is confirmed, though there is potential for SAR bat habitat in woodland on and adjacent to the subject property. Species of Conservation Concern. <ul style="list-style-type: none"> One SAR was recorded: Eastern Wood-pewee (Special Concern) - single individual recorded calling from the woodland on the adjacent property to the east on September 17, 2020. No nationally or provincially rare wildlife species were recorded. Wildlife Movement. Wildlife movement opportunities are present within the Protected Countryside of the Greenbelt Plan. There are barriers to movement due to roads, development, and lack of contiguous natural habitat. 	<p>Potential impacts on wildlife habitat are similar to those discussed for vegetation (i.e., direct / indirect impacts to habitat – removals of culturally derived habitat and occupancy-related effects etc.).</p> <ul style="list-style-type: none"> Direct impacts. Removal of ~ 0.21 ha of cultural meadow habitat and ~ 1.6 ha of meadow marsh along Tributary 2. The meadow marsh habitat will be replaced in the realigned channel corridor. The realigned channel corridor will be approximately 5.8 ha in size (with a minimum width of 35 m) and will incorporate 1.9 ha of online wetland habitat along the length of the realigned reach. <ul style="list-style-type: none"> Movement opportunities. Negligible – loss of agricultural field and poor quality habitats that provide potential movement opportunities for more tolerant species⁶, but limited existing cover and connectivity. Movement areas in the valleylands will be retained and enhanced, an overall net improvement on the property. Indirect impacts. There is potential for indirect impacts to wildlife habitat as a result of construction, changes to hydrogeology and occupancy related activities. <ul style="list-style-type: none"> Construction-related impacts. These are generally limited to temporary disturbances to edge habitats during construction. Potential for sedimentation and contamination are addressed by ESC and SWM measures. Hydrogeology. Potential impacts to retained natural vegetation as the result of hydrogeological changes may also impact wildlife habitat, particularly for sensitive species (e.g., potential amphibian breeding in wetlands). Indirect Impacts. There is potential for indirect impacts to wildlife habitat as a result of construction, changes to hydrogeology and occupancy related activities. Occupancy / Operation – related impacts. These may include: disturbance; dumping; noise pollution; woodland edge effects; and other degradation of wildlife habitat (as discussed under preceding sections). 	<p>Retention and protection of vegetation in retained natural areas (as discussed above) will also protect wildlife habitat. Additionally, the channel realignment will further increase the amount of wildlife habitat on the subject property (in conjunction with the buffer enhancement). Mitigation measures include: setbacks and buffer management; maintenance of hydrogeological inputs; ESC plan; SWM strategy; stewardship measures; and temporary exclusion fencing during construction and permanent fencing as part of the final site plan. Additional specific mitigation measures for wildlife include the following:</p> <p>Avifauna</p> <ul style="list-style-type: none"> Retain, protect and enhance the natural vegetation associated with Kilamanagh Creek on the subject property – beneficial to all avifauna Retain, protect and enhance all woodland on and adjacent to the subject property – for ‘forest associated’ species and SCC Retain and enhance habitat for successional species (e.g., via buffer naturalization / enhancement) Increased natural heritage system size / diversity (via channel realignment and buffer naturalization / enhancement) – beneficial to all avifauna species <p>Herpetofauna</p> <ul style="list-style-type: none"> Retain, protect and enhance the Kilamanagh Creek valleyland and associated wetlands on the subject property – beneficial for amphibian wetland breeding habitat Retain, protect and enhance the woodland on the subject property and adjacent property – for amphibian woodland breeding habitat and snake hibernation habitat Maintain groundwater and surface water inputs to receiving wetlands and watercourses Increased natural heritage system size / diversity (via channel realignment [including incorporation of online wetland pockets] and buffer naturalization / enhancement) – beneficial to all herpetofauna. <p>Insects and Mammals</p> <ul style="list-style-type: none"> General measures for habitat protection / enhancement will benefit recorded or potential insect and mammal species Retain, protect and enhance the woodland on the subject property and the adjacent property – for potential bat maternity roosting habitat Retain, protect and enhance the natural vegetation outside of the proposed development envelope on the subject property – (e.g., incorporate Milkweed and other nectaring plants into buffer planting plans) for Monarch habitat and other insect species Increased natural heritage system size / diversity (via channel realignment and buffer naturalization / enhancement) – beneficial to all insect and mammal species <ul style="list-style-type: none"> Habitat for wildlife Species of Conservation Concern. Habitat for potential SCC will be retained in the Kilamanagh Creek valleyland, with enhancements via buffer naturalization / improvements. Wildlife Movement opportunities. Retain and enhance linkages along Kilamanagh Creek and the proposed realignment of Tributary 2. Monitoring. Breeding birds and spring amphibian breeding monitoring is proposed in woodland and valleyland habitats adjacent to the proposed development. To be finalized at detailed design.

⁶ Tolerant wildlife species are adaptable species that are commonly found within disturbed/anthropocentric habitats, including for example White-tailed Deer, Raccoon, Eastern Cottontail, Striped Skunk, American Robin and Red-winged Blackbird. This is a qualitative description based on the nature of habitats in question, broader landscape context / matrix and understanding of species present or potentially present in the area, and based on corporate experience and other comparable sites.

7.3 MONITORING

7.3.1 OVERVIEW AND OBJECTIVES

In addition to typical during-construction monitoring (e.g., ESC / vegetation protection fencing inspections), a Biological Monitoring Program is recommended to identify issues of concern and propose strategies to address problems in a timely manner. Monitoring will focus on the retained natural areas on the subject property: the Kilamanagh Creek valleyland and the proposed realignment of Tributary 2.

The Biological Monitoring Program described herein is preliminary; it is expected that the program will be finalized as a condition of approval, including monitoring locations, methodology and other details.

7.3.2 PROGRAM DETAILS

Monitoring is proposed in three stages: Pre-Construction (1 year); During-Construction; and Post-Construction. It is recommended that monitoring extends from one-year pre-construction to two years following complete build out and occupancy / operation. Monitoring is the responsibility of the proponent.

Proposed biological monitoring includes the following components:

- **Vegetation**
 - General Overview. This will include comments on: vegetation condition / vigour; presence of damaged, diseased, or hazard trees requiring attention; proliferation of invasive species; areas of trampled or cut vegetation, rubbish / garden waste disposal; sediment deposition; evidence of any erosion problems; and informal trail development. Remedial work should be undertaken as required based on monitoring results and recommendations.
 - Vegetation Plot Monitoring. Permanent monitoring plots will be established in upland and wetland vegetation communities to assess changes in vegetation community resulting from development-related impacts. The approach includes fixed point photo-monitoring, a quantitative and qualitative floristic assessment within plots and general comments on vegetation within the vicinity of the plot.

- Buffer Areas. Monitoring to assess integrity and functioning of buffers via general condition and health of buffer vegetation and retained edge vegetation
- **Breeding Bird Survey**
 - Annual breeding bird survey will be undertaken at consistent monitoring stations, per Ontario Breeding Bird Atlas [OBBA] protocols (Bird Studies Canada 2003). Monitoring will record species presence, abundance and level of breeding evidence
- **Spring Amphibian Breeding Survey**
 - A spring survey of breeding anurans will be undertaken at consistent monitoring stations, per the Marsh Monitoring Program (MMP) protocol (Bird Studies Canada, 2008)
- Supplemental observations of fencing and construction-related activities (during biological monitoring visits)

Reporting

Results of biological monitoring will be summarized in annuals reports submitted to the Town and TRCA. Biological monitoring will consider results of other monitoring, as available (e.g., groundwater, fluvial geomorphology) and include conclusions and recommendations for remedial measures, where required.

8 CONCLUSIONS & RECOMMENDATIONS

8.1 CONCLUSIONS

Based on the review discussed herein, we conclude that proposed development can be undertaken while protecting key environmental features, with the implementation of the recommended development setbacks and other mitigation measures, subject to refinement and updates at future design stages. This conclusion reflects the following considerations:

- **Natural Area Protection and Enhancement.** The recommended development setbacks ensure there will be no intrusion into the *Key Natural Heritage Features* of the *Protected*



Countryside of the Greenbelt Plan on the subject property. These areas will be retained in full and their ecological functions will be protected with development setbacks, permanent fencing and buffer enhancement.

- **Tributary 2 Realignment.** The proposed channel realignment will increase the size and quality of the natural heritage system on the subject property and will result in an improvement over the existing condition by introducing variability in form and substrate, will facilitate the creation of more complex / higher-quality wetland vegetation communities, improve hydraulic connectivity and will enhance riparian function. The realigned channel will be located in a minimum 35 m wide corridor that is approximately 5.8 ha in size (representing an increase in size of approximately 4 ha relative to existing conditions). See Figure 3.
- The conceptual development design measures, as well as environmental management and setback / buffer implementation, conform to the environmental management and mitigation principles identified in the relevant policies outlined in the Town of Caledon Official Plan (April 2018 Consolidation).
- Future studies can demonstrate that a water balance to retained natural heritage features across the subject property can be achieved.

To ensure that environmental protection and mitigation is properly managed during site development the following recommendations/actions are identified:

- A final ESC Plan will be prepared and submitted to the TRCA and the Town of Caledon for review and approval prior to any grading and site alteration.
- Vegetation and silt protection measures will be implemented as required (e.g. diversion berms, temporary sediment control basins, temporary paige wire fencing and silt fencing) and maintained prior to and throughout construction.
- Permanent fence installation is recommended at the development, as discussed in Section 7.1.6.

8.2 RECOMMENDATIONS FOR FUTURE WORK

The following additional work is recommended to confirm or refine conclusions and recommendations herein:

- Confirmation that a water balance to Kilamanagh Creek and the realigned Tributary 2 and their associated wetlands can be achieved post-development.
- HDF assessment in 2021, completed in accordance with the *Guidelines* in order to refine and update findings documented herein.
- Finalize the ESC plan and SWM strategy, including details regarding outlet location and design, as well as LID measures.
- Consultation with MECP to determine any approval requirements under the ESA and any additional and/or refinements to mitigation measures outlined herein related to the realignment of Tributary 2.
- Finalize the biological monitoring program, confirming locations and numbers of plots / stations.

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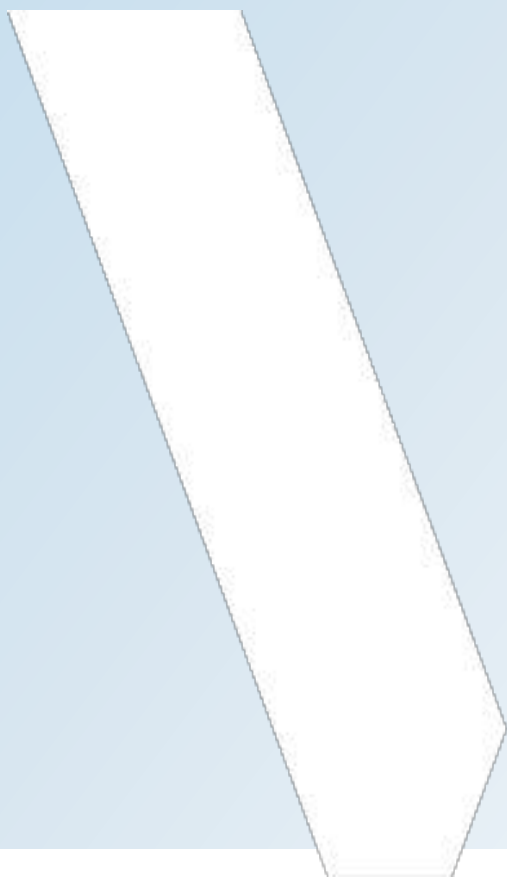
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APPENDIX

A FIGURES





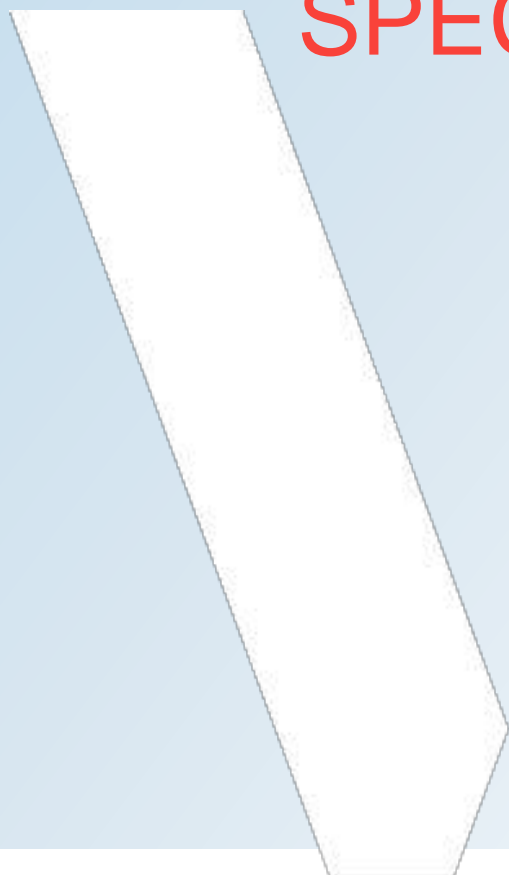




APPENDIX

B

VASCULAR PLANT SPECIES LIST



SCIENTIFIC NAME	COMMON NAME	CC ¹	CW ¹	G_RANK ³	S_RANK ⁴	COSEWIC ⁵	SARA ⁶	SARO ⁷	NATIVE STATUS ⁹	PEEL REGION (Varga et al. 2000) ⁸	TRCA (2018) ⁸	MAMM3-1	CUM1-1	FOD5	FODM7-7
<i>Abutilon theophrasti</i>	Velvetleaf		3	GNR	SNA				I	X	L+		X		
<i>Acer negundo</i>	Manitoba Maple	0	0	G5	S5				N	X	L+?		X		X
<i>Acer nigrum</i>	Black Maple	7	3	G5	S4?				N	X	L4	X			
<i>Acer platanoides</i>	Norway Maple		5	GNR	SNA				I	X	L+			X	
<i>Acer saccharum</i>	Sugar Maple	4	3	G5	S5				N	X	L4			X	
<i>Amaranthus sp.</i>	Amaranth sp.												X		
<i>Ambrosia artemisiifolia</i>	Common Ragweed	0	3	G5	S5				N	X	L5		X		
<i>Arctium lappa</i>	Great Burdock		3	GNR	SNA				I	X	L+		X		
<i>Asclepias syriaca</i>	Common Milkweed	0	5	G5	S5				N	X	L5		X		
<i>Boehmeria cylindrica</i>	Small-spike False Nettle	4	-5	G5	S5				N	X	L4	X			
<i>Bromus inermis</i>	Smooth Brome		5	G5	SNA				I	X	L+		X		
<i>Carex cristatella</i>	Crested Sedge	3	-3	G5	S5				N	X	L5		X		
<i>Chenopodium album</i>	Common Lamb's-quarters		3	G5	SNA				I	X	L+		X		
<i>Cirsium arvense</i>	Canada Thistle		3	G5	SNA				I	X	L+		X		
<i>Cornus sericea</i>	Red-osier Dogwood	2	-3	G5	S5				N	X	L5	X			
<i>Crataegus sp.</i>	Hawthorn sp.														X
<i>Dactylis glomerata</i>	Orchard Grass		3	GNR	SNA				I	X	L+		X		
<i>Daucus carota</i>	Wild Carrot		5	GNR	SNA				I	X	L+		X		
<i>Dipsacus fullonum</i>	Common Teasel		3	GNR	SNA				I	X	L+		X		
<i>Echinochloa sp.</i>	Barneyard Grass											X			
<i>Eleocharis sp.</i>	Spikerush sp.								N			X			
<i>Epilobium sp.</i>	Willowherb sp.											X			
<i>Equisetum arvense</i>	Field Horsetail	0	0	G5	S5				N	X	L5	X			
<i>Euthamia graminifolia</i>	Grass-leaved Goldenrod	2	0	G5	S5				N	X	L5		X		
<i>maculatum</i>	Spotted Joe Pye Weed	3	-5	G5T5	S5				N	X	L5	X			
<i>virginiana</i>	Wild Strawberry	2	3	G5T5	S5				N	X	L5			X	
<i>Geum sp.</i>	Avens sp.												X		
<i>Hydrophyllum virginianum</i>	Virginia Waterleaf	6	0	G5	S5				N	X	L5			X	
<i>Inula helenium</i>	Elecampane		3	GNR	SNA				I	X	L+	X			
<i>Juglans nigra</i>	Black Walnut	5	3	G5	S4?				N	X	L5				X
<i>Juncus dudleyi</i>	Dudley's Rush	1	-3	G5	S5				N	X	L5		X		
<i>Leersia oryzoides</i>	Rice Cutgrass	3	-5	G5	S5				N	X	L5	X			
<i>Lythrum salicaria</i>	Purple Loosestrife		-5	G5	SNA				I	X	L+	X	X		
<i>Malus pumila</i>	Common Apple		5	G5	SNA				I	X	L+		X		
<i>Medicago sativa ssp. sativa</i>	Alfalfa		5	GNRTNR	SNA				I	X	L+		X		
<i>Oenothera sp.</i>	Evening Primrose sp.												X		
<i>Panicum sp.</i>	Panicgrass sp.												X		
<i>Parthenocissus sp.</i>	Creeper sp.												X		
<i>Persicaria sp.</i>	Smartweed sp.		-3	G3G5	SNA				I	X	L+	X			
<i>Persicaria maculosa</i>	Spotted Lady's-thumb		-3	G3G5	SNA				I	X	L+	X	X		
<i>arundinacea</i>	Reed Canarygrass	0	-3	G5TNR	S5				N	X	L+?	X	X		
<i>Phleum pratense</i>	Common Timothy		3	GNR	SNA				I	X	L+		X		
<i>australis</i>	European Reed		-3	G5T5	SNA				I		L+	X			
<i>Poa pratensis</i>	Kentucky Bluegrass		3	G5	S5				I				X		
<i>Potentilla recta</i>	Sulphur Cinquefoil		5	GNR	SNA				I	X	L+		X		
<i>Prunus virginiana</i>	Chokecherry	2	3	G5	S5				N	X	L5			X	
<i>Quercus rubra</i>	Northern Red Oak	6	3	G5	S5				N	X	L4			X	
<i>Ranunculus sceleratus</i>	Cursed Buttercup	2	-5	G5	S5				N			X			
<i>Rhamnus cathartica</i>	European Buckthorn		0	GNR	SNA				I	X	L+		X	X	X
<i>Rubus idaeus ssp. strigosus</i>	North American Red Raspberry	2	3	G5T5	S5				N	X	L5		X		
<i>Salix amygdaloides</i>	Peach-leaved Willow	6	-3	G5	S5				N	R6	L4	X			
<i>Salix interior</i>	Sandbar Willow	1	-3	G5	S5				N	R5	L5	X			
<i>tabernaemontani</i>	Soft-stemmed Bulrush	5	-5	G5	S5				N	X	L4	X			
<i>Setaria sp.</i>	Foxtail sp.								I				X		

SCIENTIFIC NAME	COMMON NAME	CC ¹	CW ¹	G_RANK ³	S_RANK ⁴	COSEWIC ⁵	SARA ⁶	SARO ⁷	NATIVE STATUS ⁹	PEEL REGION (Varga et al. 2000) ⁸	TRCA (2018) ⁸	MAMM3-1	CUM1-1	FOD5	FODM7-7
<i>Solanum dulcamara</i>	Bittersweet Nightshade		0	GNR	SNA				I	X	L+		X		
<i>altissima</i>	Eastern Tall Goldenrod	1	3	G--T5	S5				N	X	L5		X		
<i>Sonchus asper</i>	Prickly Sow-thistle		3	GNR	SNA				I	X	L+		X		
<i>ericoides</i>	White Heath Aster	4	3	G5T5	S5				N		L5		X		
<i>ssp. lanceolatum</i>	Eastern Panicked Aster	3	-3	G5T5	S5				N	X	L5	X	X		
<i>Symphotrichum novae-angliae</i>	New England Aster	2	-3	G5	S5				N	X	L5		X		
<i>amethystinum</i>	Amethyst Aster		0	GNA	SNA				N	X	L5		X		
<i>Tilia americana</i>	Basswood	4	3	G5	S5				N	X	L5			X	
<i>Tussilago farfara</i>	Coltsfoot		3	GNR	SNA				I	X	L+	X			
<i>Typha latifolia</i>	Broad-leaved Cattail	1	-5	G5	S5				N	X	L4	X			
<i>Ulmus americana</i>	White Elm	3	-3	G4	S5				N	X	L5		X		X
<i>Urtica dioica ssp. gracilis</i>	Slender Stinging Nettle	2	0	G5T5	S5				N	X	L5	X			
<i>Verbena hastata</i>	Blue Vervain	4	-3	G5	S5				N	X	L5	X			
<i>Vicia cracca</i>	Tufted Vetch		5	GNR	SNA				I	X	L+		X		
<i>Vitis riparia</i>	Riverbank Grape	0	0	G5	S5				N	X	L5		X		

PLANT LIST LEGEND**Scientific Name, Common Name, and Family***Based on Vascan and NHIC (February 28, 2020)*Vascan: <http://data.canadensys.net/vascan/search>NHIC: https://www.sdc.gov.on.ca/sites/MNRF-PublicDocs/EN/ProvincialServices/ONTARIO_SPECIES_LISTS.zip**¹ Coefficient of Conservatism, Coefficient of Wetness, Weediness, and Physiology/Habit***Oldham, M. J., W. D. Bakowsky and D. A. Sutherland. 1995. Floristic Quality Assessment System for Southern Ontario. Natural Heritage Information Centre, Ministry of Natural Resources. Peterborough, Ontario.*

CC and CW values reflect updates by NHIC, current as of February 28, 2020).

CC: Coefficient of Conservatism. Rank of 0 to 10 based on plants degree of fidelity to a range of synecological parameters: (0-3) Taxa found in a variety of plant communities; (4-6) Taxa typically associated with a specific plant community but tolerate moderate disturbance; (7-8) Taxa associated with a plant community in an advanced successional stage that has undergone minor disturbance; (9-10) Taxa with a high fidelity to a narrow range of synecological parameters.

CW: Coefficient of Wetness. Value between 5 and -5. A value of -5 is assigned to Obligate Wetland (OBL) and 5 to Obligate Upland (UPL), with intermediate values assigned to the remaining categories.

Weediness: Assigned to all non-native species and range from -1 (low impact of the species on natural areas) to -3 (high impact of the species on natural areas).

Habit: Physiology/Habit. The growth form of the species (e.g. forb, shrub, tree).

³ G-Rank (Global)*Global Status from Nature Serve (via NHIC, February 28, 2020)*Nature Serve: <http://explorer.natureserve.org/>NHIC: http://www.sse.gov.on.ca/sites/MNR-PublicDocs/EN/ProvincialServices/Ontario_Vascular_Plants.xlsx

Global ranks are assigned by a consensus of the network of Conservation Data Centres (CDCs), scientific experts, and the Nature Conservancy to designate a rarity rank based on the range-wide status of a species, subspecies, or variety.

Global (G) Conservation Status Ranks

G1: Critically Imperiled - At very high risk of extinction or elimination due to very restricted range, very few populations or occurrences, very steep declines, very severe threats, or other factors.

G2: Imperiled - at high risk of extinction or elimination due to restricted range, few populations or occurrences, steep declines, severe threats, or other factors.

G3: Vulnerable - At moderate risk of extinction or elimination due to a fairly restricted range, relatively few populations or occurrences, recent and widespread declines, threats, or other factors.

G4: Apparently Secure - At fairly low risk of extinction or elimination due to an extensive range and/or many populations or occurrences, but with possible cause for some concern as a result of local recent declines, threats, or other factors.

G5: Secure - At very low risk of extinction or elimination due to a very extensive range, abundant populations or occurrences, and little to no concern from declines or threats.

G#G#: Range Rank – A numeric range rank (e.g., G2G3, G1G3) is used to indicate the range of uncertainty about the exact status of a taxon or ecosystem type. Ranges cannot skip more than two ranks (e.g., GU should be used rather than G1G4).

GX: Presumed Extinct - Not located despite intensive searches and virtually no likelihood of rediscovery.

GH: Possibly Extinct - Known from only historical occurrences but still some hope of rediscovery. Examples of evidence include (1) that a species has not been documented in approximately 20-40 years despite some searching and/or some evidence of significant habitat loss or degradation; (2) that a species has been searched for unsuccessfully, but not thoroughly enough to presume that it is extinct or eliminated throughout its range.

GU: Unrankable – Currently unrankable due to lack of information or due to substantially conflicting information about status or trends.

GNR: Unranked – Global rank not yet assessed

- GNA: Not Applicable – A conservation status rank is not applicable because the species is not a suitable target for conservation activities. A global conservation status rank may be not applicable for several reasons, related to its relevance as a conservation target. For species, typically the species is a hybrid without conservation value, or of domestic origin. For ecosystems, the type is typically non-native (e.g. many ruderal vegetation types), agricultural (e.g. pasture, orchard) or developed (e.g. lawn, garden, golf course).
- ?: Inexact Numeric Rank – Denotes inexact numeric rank; this should not be used with any of the Variant Global Conservation Status Ranks or GX or GH.
- T#: Intraspecific Taxon (trinomial) - The status of intraspecific taxa (subspecies or varieties) are indicated by a "T-rank" following the species' global rank. Rules for assigning T-ranks follow the same principles outlined above. For example, the global rank of a critically imperiled subspecies of an otherwise widespread and common species would be G5T1. A T subrank cannot imply the subspecies or variety is more abundant than the species, for example, a G1T2 subrank should not occur. A vertebrate animal population (e.g., listed under the U.S. Endangered Species Act or assigned candidate status) may be tracked as an intraspecific taxon and given a T rank; in such cases a Q is used after the T-rank to denote the taxon's informal taxonomic status.
- Q: Questionable taxonomy that may reduce conservation priority – Distinctiveness of this entity as a taxon or ecosystem type at the current level is questionable; resolution of this uncertainty may result in change from a species to a subspecies or hybrid, or inclusion of this taxon or type in another taxon or type, with the resulting taxon having a lower priority (numerically higher) conservation status rank. The "Q" modifier is only used at a global level and not at a national or subnational level.
- C: Captive or Cultivated Only – Taxon or ecosystem at present is presumed or possibly extinct or eliminated in the wild across their entire native range but is extant in cultivation, in captivity, as a naturalized population (or populations) outside their native range, or as a reintroduced population or ecosystem restoration, not yet established. The "C" modifier is only used at a global level and not at a national or subnational level. Possible ranks are GXC or GHC. This is equivalent to "Extinct" in the Wild (EW) in IUCN's Red List terminology (IUCN 2001).

⁴ S-Ranks (Provincial)

Provincial Status from the NHIC (February 28, 2020)

NHIC: http://www.sse.gov.on.ca/sites/MNR-PublicDocs/EN/ProvincialServices/Ontario_Vascular_Plants.xlsx

Provincial (or Subnational) ranks are used by the Natural Heritage Information Centre (NHIC) to set protection priorities for rare species and natural communities. These ranks are not legal designations. Provincial ranks are assigned in a manner similar to that described for global ranks, but consider only those factors within the political boundaries of Ontario.

Provincial/Sub-national (S) Conservation Status Ranks

- S1: Critically Imperiled – At very high risk of extirpation in the jurisdiction due to very restricted range, very few populations or occurrences, very steep declines, severe threats, or other factors.
- S2: Imperiled – At high risk of extirpation in the jurisdiction due to restricted range, few populations or occurrences, steep declines, severe threats, or other factors.
- S3: Vulnerable – At moderate risk of extirpation in the jurisdiction due to a fairly restricted range, relatively few populations or occurrences, recent and widespread declines, threats, or other factors.
- S4: Apparently Secure – At a fairly low risk of extirpation in the jurisdiction due to an extensive range and/or many populations or occurrences, but with possible cause for some concern as a result of local recent declines, threats, or Secure – At very low or no risk of extirpation in the jurisdiction due to a very extensive range, abundant populations or occurrences, with little to no concern from declines or threats.
- 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 or community. Ranges cannot skip more than one rank (e.g., SU is used rather than S1S4).
- SX: Presumed Extirpated – Species or ecosystem is believed to be extirpated from the jurisdiction (province). Not located despite intensive searches of historical sites and other appropriate habitat, and virtually no likelihood that it will be rediscovered. [equivalent to "Regionally Extinct" in IUCN Red List terminology]
- SH: Possibly Extirpated (Historical) – Known from only historical records but still some hope of rediscovery. There is evidence that the species or ecosystem may no longer be present in the jurisdiction, but not enough to state this with certainty. Examples of such evidence include (1) that a species has not been documented in approximately 20-40 years despite some searching and/or some evidence of significant habitat loss or degradation; (2) that a species or ecosystem has been searched for unsuccessfully, but not thoroughly enough to presume that it is no longer present in the jurisdiction.
- SNR: Unranked – Nation of state/province conservation status not yet assessed.

- SU: Unrankable – Currently unrankable due to lack of information or due to substantially conflicting information about status or trends.
- SNA: Not Applicable – A conservation status rank is not applicable because the species is not a suitable target for conservation activities (e.g., long distance aerial and aquatic migrants, hybrids without conservation value, and non-native species).
- ?: Inexact or Uncertain - Denotes inexact or uncertain numeric rank.
- T#: Intraspecific Taxon (trinomial) - The status of intraspecific taxa (subspecies or varieties) are indicated by a "T-rank" following the species' global rank. Rules for assigning T-ranks follow the same principles outlined above. For example, the subnational rank of a critically imperiled subspecies of an otherwise widespread and common species would be S5T1. A T subrank cannot imply the subspecies or variety is more abundant than the species, for example, a S1T2 subrank should not occur. A vertebrate animal population may be tracked as an intraspecific taxon and given a T rank; in such cases a Q is used after the T-rank to denote the taxon's informal taxonomic status.

⁵ COSEWIC (Committee on the Status of Endangered Wildlife in Canada)

The federal review process is implemented by COSEWIC (Status as of February 28, 2020)

The Committee on the Status of Endangered Wildlife in Canada (COSEWIC) is an independent advisory panel to the Minister of Environment and Climate Change Canada that meets twice a year to assess the status of wildlife species at risk of extinction.

<https://www.canada.ca/en/environment-climate-change/services/committee-status-endangered-wildlife.html>

COSEWIC Conservation Status Ranks

- EXT: Extinct – A species that no longer exists.
- EXP: Extirpated – A species no longer existing in the wild in Canada, but occurring elsewhere.
- END: Endangered – A species facing imminent extirpation or extinction.
- THR: Threatened – A species likely to become endangered if limiting factors are not reversed.
- SC: Special Concern (formerly vulnerable) – A species that may become a threatened or an endangered species because of a combination of biological characteristics and identified threats.
- NAR: Not At Risk – A species that has been evaluated and found to be not at risk of extinction given the current circumstances.
- DD: Data Deficient – Available information is insufficient (a) to resolve a species' eligibility for assessment or (b) to permit an assessment of the species' risk of extinction.

⁶ SARA (Species at Risk Act) Status and Schedule

Federal status from the Government of Canada's Species at Risk Public Registry (Status as of February 28, 2020)

<http://www.registrelep-sararegistry.gc.ca/>

The Act establishes Schedule 1, as the official list of species at risk in Canada. It classifies those species as being either Extirpated, Endangered, Threatened, or a Special Concern. Once listed, the measures to protect and recover a listed species are implemented. However, please note that while Schedule 1 lists species that are extirpated, endangered, threatened and of special concern, the prohibitions do not apply to species of special concern.

SARA Conservation Status Ranks

- EXT: Extinct – A species that no longer exists.
- EXP: Extirpated – A species that no longer exists in the wild in Canada, but exists elsewhere in the wild.
- END: Endangered – A species that is facing imminent extirpation or extinction.
- THR: Threatened – A species likely to become endangered if limiting factors are not reversed.
- SC: Special Concern – A species that may become a threatened or an endangered species because of a combination of biological characteristics and identified threats.

⁷ SARO (Species at Risk in Ontario)

Provincial status from MNRF (Status as of February 28, 2020)

<https://www.ontario.ca/environment-and-energy/species-risk-ontario-list>

The provincial review process is implemented by the MNR's Committee on the Status of Species at Risk in Ontario (COSSARO). COSSARO is an independent advisory panel to the Ontario Ministry of Natural Resources and Forestry that assesses the status of species at risk of extinction.

MNRF Conservation Status Ranks

- EXP: Extirpated – Extirpated – Lives somewhere in the world, and at one time lived in the wild in Ontario, but no longer lives in the wild in Ontario.
- END: Endangered – Lives in the wild in Ontario but is facing imminent extinction or extirpation.
- THR: Threatened – Lives in the wild in Ontario, is not endangered, but is likely to become endangered if steps are not taken to address factors threatening it.
- SC: Special Concern – Lives in the wild in Ontario, is not endangered or threatened, but may become threatened or endangered due to a combination of biological characteristics and identified threats.

⁸ Regional Status

Halton, Peel, Toronto, York, Durham, GTA, 6E7, 7E4

Varga, S., et. al. 2000. The Distribution and Status of the Vascular Plants of the Greater Toronto Area. Ontario Ministry of Natural Resources, Aurora, ON. 103 pp.

"Plant rarity is based on the number of locations for a native plant species" and also takes into account native species restricted to specialized rare habitats. For the Greater Toronto Area column, "A species is considered rare in the Greater Toronto Area if it is rare or uncommon in a least four of... Halton, Peel, Toronto, York, and Durham".

Codes are defined as follows:

- X: Present
- U: Uncommon native species
- R: Rare native species
- R#: Number of stations for a rare native species
- E: Extirpated native species
- + or I: Introduced species
- X+: Introduced in municipality
- SR: Sight record
- LR: Literature record

Toronto and Region Conservation Authority (TRCA)

Toronto and Region Conservation Authority (TRCA). 2018. Annual Local Occurrence Score and Local Rank Update: Terrestrial Species and Vegetation Communities.

L rank (Local Rank) – A rank assigned by TRCA to a species, vegetation community, or habitat patch which describes its rank and level of conservation concern in the TRCA Region. Species of concern, according to the TRCA methodology are any species with a local rank of L1 to L3, and some particularly sensitive species with a rank of L4. They are generally species which are disappearing in the landscape, primarily as a result of land use changes.

Flora the ranks are defined as follows:

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

⁹ Native Status

Based on Vascan and NHIC (February 28, 2020)

Vascan: <http://data.canadensys.net/vascan/search>

NHIC: https://www.sdc.gov.on.ca/sites/MNRF-PublicDocs/EN/ProvincialServices/ONTARIO_SPECIES_LISTS.zip

Codes are defined as follows:

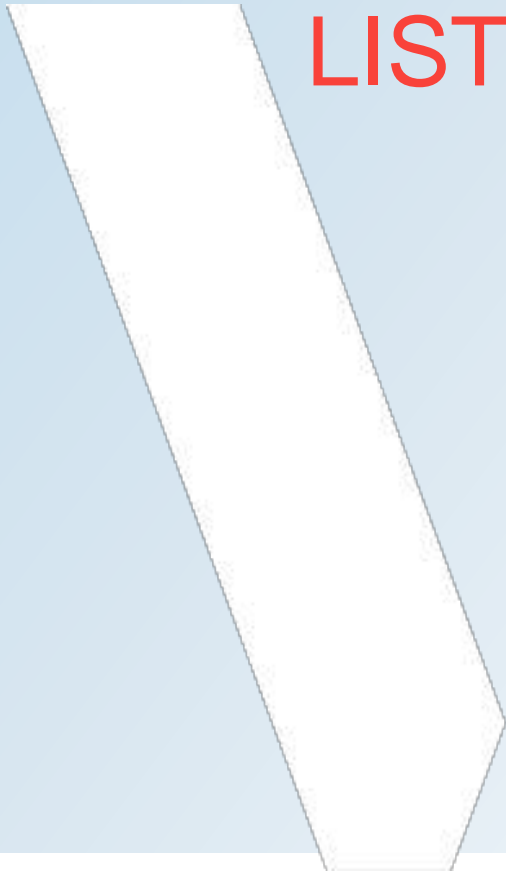
N: Native

I: Introduced

APPENDIX

C

WILDLIFE SPECIES
LIST



Common Name	Scientific Name	Grank ¹	Srank ²	SARO (ESA) Status ³	COSEWIC Status ⁴	SARA Status ⁵	SARA Schedule ⁵	TRCA rank (2008) ⁶	Area Sensitive Birds - Ecoregion 6E	Protected Under MBCA	MAMM3-1	CUM1-1	FOD5	FODM7-7	Notes
American Goldfinch	<i>Spinus tristis</i>	G5	S5B					L5		✓	2				
American Robin	<i>Turdus migratorius</i>	G5	S5B					L5		✓	1				
American Tree Sparrow	<i>Spizella arborea</i>	G5	S4B							✓	1				
Blue Jay	<i>Cyanocitta cristata</i>	G5	S5					L5			30	30			migrating flocks
Canada Goose	<i>Branta canadensis</i>	G5	S5					L5		✓	100	100			migrating flocks
Coyote	<i>Canis latrans</i>	G5	S5					L5			1				tracks
Eastern Cottontail	<i>Sylvilagus floridanus</i>	G5	S5					L4			1				tracks
Eastern Wood-pewee	<i>Contopus virens</i>	G5	S4B	SC	SC	SC	1	L4		✓			1		singing male, adjacent property to the east
Mourning Dove	<i>Zenaida macroura</i>	G5	S5					L5		✓		2			
Raccoon	<i>Procyon lotor</i>	G5	S5					L5			1				tracks
Red-winged Blackbird	<i>Agelaius phoeniceus</i>	G5	S4					L5			5				
Song Sparrow	<i>Melospiza melodia</i>	G5	S5B					L5		✓	5				
Turkey Vulture	<i>Cathartes aura</i>	G5	S5B					L4			2				flyover
White-tailed Deer	<i>Odocoileus virginianus</i>	G5	S5					L4			1				tracks
Sparrow sp.											5				
Wren sp.											1				
Meadowhawk sp.	<i>Sympetrum sp.</i>										1				

WILDLIFE LIST LEGEND

¹G-Rank (global)

Global ranks are assigned by a consensus of the network of Conservation Data Centres (CDCs), scientific experts, and the Nature Conservancy to designate a rarity rank based on the range-wide status of a species, subspecies, or variety.

- G1 Extremely rare - usually 5 or fewer occurrences in the overall range or very few remaining individuals; or because of some factor(s) making it especially vulnerable to Extinction.
- G2 Very rare - usually between 5 and 20 occurrences in the overall range or with many individuals in fewer occurrences; or because of some factor(s) making it vulnerable to Extinction.
- G3 Rare to uncommon - usually between 20 and 100 occurrences; may have fewer occurrences, but with a large number of individuals in some populations; may be susceptible to large-scale disturbances.
- G4 Common - usually more than 100 occurrences; usually not susceptible to immediate threats.
- G5 Very common - demonstrably secure under present conditions.

²S-Rank (provincial)

Provincial (or Subnational) ranks are used by the Natural Heritage Information Centre (NHIC) to set protection priorities for rare species and natural communities. These ranks are not legal designations. Provincial ranks are assigned in a manner similar to that described for global ranks, but consider only those factors within the political boundaries of Ontario.

- S1 Critically Imperiled - Critically imperiled in the nation or state/province because of extreme rarity (often 5 or fewer occurrences) or because of some factor(s) such as very steep declines making it especially vulnerable to extirpation from the state/province.
- S2 Imperiled - Imperiled in the nation or state/province because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation from the nation or state/province.
- S3 Vulnerable - Vulnerable in the nation or state/province due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation.
- S4 Apparently Secure - Uncommon but not rare; some cause for long-term concern due to declines or other factors.
- S5 Secure - Common, widespread, and abundant in the nation or state/province.
- 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 or community. Ranges cannot skip more than one rank (e.g., SU is used rather than S1S4).
- SAN Non-breeding accidental.
- SE Exotic - not believed to be a native component of Ontario's fauna.
- SZN Non-breeding migrants/vagrants.
- SZB Breeding migrants/vagrants.

³SARO (Species at Risk in Ontario) Status

Provincial status from MECP (Status as of Jan 2021)

<https://www.ontario.ca/page/species-risk-ontario>

The provincial review process is implemented by the Committee on the Status of Species at Risk in Ontario (COSSARO). COSSARO is an independent advisory panel to the Ontario Ministry of Environment, Conservation and Parks (MECP) that assesses the status of species at risk of extinction.

MECP Conservation Status Ranks

- EXT Extinct - A species that no longer exists anywhere in the world.

- EXP Extirpated - A species that lives somewhere in the world, lived at one time in the wild in Ontario, but no longer lives in the wild in Ontario.
- END Endangered - A species that is facing imminent Extinction or extirpation.
- THR Threatened - A species that is likely to become Endangered if steps are not taken to address factors threatening to lead to its Extinction or extirpation.
- SC Special Concern – A species that may become Threatened or Endangered because of a combination of biological characteristics and identified threats.

⁴COSEWIC (Committee on the Status of Endangered Wildlife in Canada)

The federal review process is implemented by COSEWIC (Status as of Jan 2021)

The Committee on the Status of Endangered Wildlife in Canada (COSEWIC) is an independent advisory panel to the Minister of Environment and Climate Change Canada that meets twice a year to assess the status of wildlife species at risk of extinction.

<https://www.canada.ca/en/environment-climate-change/services/committee-status-endangered-wildlife.html>

COSEWIC Conservation Status Ranks

- EXT Extinct - A species that no longer exists.
- EXP Extirpated - A species no longer existing in the wild in Canada, but occurring elsewhere.
- END Endangered - A species facing imminent extirpation or Extinction.
- THR Threatened - A species likely to become Endangered if limiting factors are not reversed.
- SC Special Concern (formerly vulnerable) - A species that may become a Threatened or an Endangered species because of a combination of biological characteristics and identified threats.
- NAR Not At Risk - A species that has been evaluated and found to be not at risk of Extinction given the current circumstances.
- DD Data Deficient (formerly Indeterminate) - Available information is insufficient to resolve a species' eligibility for assessment or to permit an assessment of the species' risk of Extinction.

⁵SARA (Species at Risk Act) Status and Schedule

Federal status from the Government of Canada's Species at Risk Public Registry (Status as of Jan 2021)

<https://www.canada.ca/en/environment-climate-change/services/species-risk-public-registry.html>

The Act establishes Schedule 1, as the official list of wildlife species at risk. It classifies those species as being either Extirpated, Endangered, Threatened, or a Special Concern. Once listed, the measures to protect and recover a listed wildlife species are implemented.

- EXT Extinct - A wildlife species that no longer exists.
- EXP Extirpated - A wildlife species that no longer exists in the wild in Canada, but exists elsewhere in the wild.
- END Endangered - A wildlife species that is facing imminent extirpation or Extinction.
- THR Threatened - A wildlife species that is likely to become Endangered if nothing is done to reverse the factors leading to its extirpation or Extinction.
- SC Special Concern - A wildlife species that may become a Threatened or an Endangered species because of a combination of biological characteristics and identified threats.

Schedule 1: is the official list of species that are classified as Extirpated, Endangered, Threatened and Special Concern.

Schedule 2: species listed in Schedule 2 are species that had been designated as Endangered or Threatened, and have yet to be re-assessed by COSEWIC using revised criteria. Once these species have been re-assessed, they may be considered for inclusion in Schedule 1.

Schedule 3: species listed in Schedule 3 are species that had been designated as Special Concern, and have yet to be re-assessed by COSEWIC using revised criteria. Once these species have been re-assessed, they may be considered for inclusion in Schedule 1.

The Act establishes Schedule 1 as the official list of wildlife species at risk. However, please note that while Schedule 1 lists species that are Extirpated, Endangered, Threatened and Special Concern, the prohibitions do not apply to species of Special Concern.

Species that were designated at risk by COSEWIC prior to October 1999 (Schedule 2 & 3) must be reassessed using revised criteria before they can be considered for addition to Schedule 1 of SARA. After they have been assessed, the Governor in Council may on the recommendation of the Minister, decide on whether or not they should be added to the List of Wildlife Species at Risk.

⁶ Regional Status

Toronto and Region Conservation Authority ranks

L-rank (Local Rank)-A rank assigned by TRCA to a species, vegetation community, or habitat patch which describes its status in the TRCA Region. Species of conservation concern, according to the TRCA methodology are any species with a local rank of L1 to L3, and those L4 species found within the Urban (built-up area). Generally species which are disappearing in the regional landscape, primarily as a result of land use changes. L1 – regional concern; L2 – regional concern; L3 – regional concern; L4 – urban concern
(from TRCA, August 2008)

⁷ MNR Area Sensitive Species

Area Sensitivity is defined as species requiring large areas of suitable habitat in order to sustain population numbers

From: Ministry of Natural Resources. 2000. Significant Wildlife Habitat Technical Guide. Fish and Wildlife Branch, Wildlife Section. Science Development and Transfer Branch, Southcentral Science Section. 151pp. + appendices.

AND/OR

From: Ministry of Natural Resources and Forestry. 2015. Significant Wildlife Habitat Criteria Schedules For Ecoregion 6E. January, 2015. Regional Operations Division, Southern Region Resources Section. 39pp.

Ontario Breeding Bird Atlas - Breeding Evidence Codes

OBSERVED

X Species observed in its breeding season (no breeding evidence).

POSSIBLE

H Species observed in its breeding season in suitable nesting habitat.

S Singing male(s) present, or breeding calls heard, in suitable nesting habitat in breeding season.

PROBABLE

P Pair observed in suitable nesting habitat in nesting season.

T Permanent territory presumed through registration of territorial behaviour (song, etc.) on at least two days, a week or more apart, at the same place.

D Courtship or display, including interaction between a male and a female or two males, including courtship feeding or copulation.

V Visiting probable nest site

A Agitated behaviour or anxiety calls of an adult.

- B Brood Patch on adult female or cloacal protuberance on adult male.
- N Nest-building or excavation of nest hole.

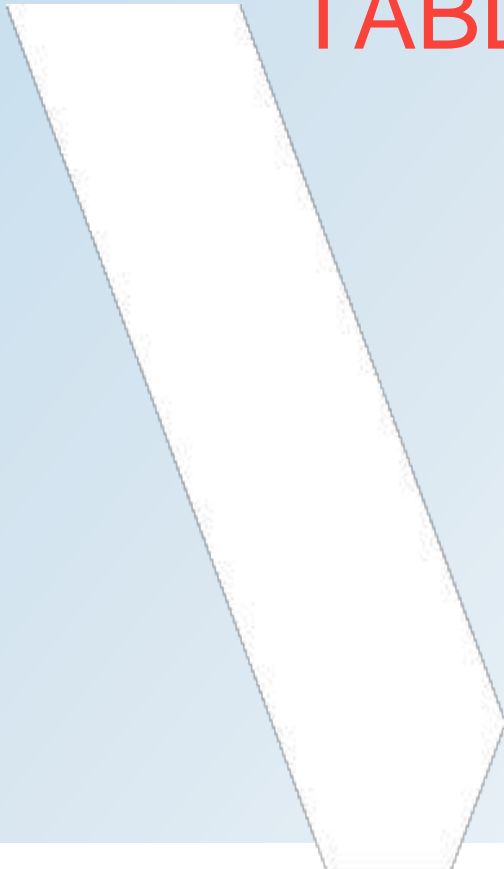
CONFIRMED

- DD Distraction display or injury feigning.
- NU Used nest or egg shells found (occupied or laid within the period of the survey).
- FY Recently fledged young (nidicolous species) or downy young (nidifugous species), including incapable of sustained flight.
- AE Adult leaving or entering nest sites in circumstances indicating occupied nest.
- FS Adult carrying fecal sac.
- CF Adult carrying food for young.
- NE Nest containing eggs.
- NY Nest with young seen or heard.

APPENDIX

D

SAR SCREENING TABLE



Species	ESA Status ¹ and Regional Occurrence	ESA Protection ²	Source of Record (Date)	Key Habitats Used by Species in Ontario	Reasonable Likelihood of Presence in Study Area	Surveys Undertaken	Results of Field Surveys	Likelihood and Magnitude of Impacts to Species or Habitat
Birds								
Bank Swallow (<i>Riparia riparia</i>)	THR	Species and General Habitat Protection	NHIC database (2020)	It nests in a wide variety of naturally and anthropogenically created vertical banks, which often erode and change over time including aggregate pits and the shores of large lakes and rivers (MNRF Guelph - Waterloo List, 2014)	Minimal. No suitable habitat present, may occur as a foraging visitant.	General Wildlife Surveys / SAR habitat assessment	No observations. Surveys were conducted outside of the breeding season.	Minimal. No nesting habitat impacted. Suitable foraging habitat to be retained. Additional foraging habitat is abundant in the local landscape.
Barn Swallow (<i>Hirundo rustica</i>)	THR	Species and General Habitat Protection	TRCA Species List (2008)	prefers farmland; lake/river shorelines; wooded clearings; urban populated areas; rocky cliffs; and wetlands. They nest inside or outside buildings; under bridges and in road culverts; on rock faces and in caves etc. (MNRF Guelph - Waterloo List, 2014)	High. Likely to occur as a foraging visitant, and suitable buildings for nesting are present on the subject property	General Wildlife Surveys / SAR habitat assessment	No observations of individuals or nests. Surveys were conducted outside of the breeding season.	None. No confirmed nesting habitat was observed on the subject property. Only one building with potential will be removed as part of this development application. Building to be removed outside of the regional nesting period.
Bobolink (<i>Dolichonyx oryzivorus</i>)	THR	Species and General Habitat Protection	NHIC database (2020)	Generally prefers open grasslands and hay fields. In migration and in winter uses freshwater marshes and grasslands (MNRF Guelph - Waterloo List, 2014)	Minimal. No grassland habitat is present. Most of the site is cropland. Potentially suitable open habitat areas (e.g., CUM) are relatively small and marginal.	General Wildlife Surveys / SAR habitat assessment	No observations. Surveys were conducted outside of the breeding season.	None. No impact to individuals with vegetation removals outside of the nesting season. Potentially suitable CUM habitat to be retained.
Canada Warbler (<i>Cardellina canadensis</i>)	SC	N/A	TRCA Species List (2008)	Generally prefers wet coniferous, deciduous and mixed forest types, with a dense shrub layer. Nests on the ground, on logs or hummocks, and uses dense shrub layer to conceal the nest (MNRF Guelph - Waterloo List, 2014)	Minimal. Marginally suitable habitat is present in the forest on the subject property. No known records on subject property.	General Wildlife Surveys / SAR habitat assessment	No observations. Surveys were conducted outside of the breeding season.	None. No impact to potentially suitable forest habitat on the subject property; to be retained with a minimum 30 m setback
Cerulean Warbler (<i>Setophaga cerulea</i>)	THR	Species and General Habitat Protection	TRCA Species List (2008)	Generally found in mature deciduous forests with an open understory; also nests in older, second-growth deciduous forests (MNRF Guelph - Waterloo List, 2014)	Minimal. Marginally suitable habitat is present in the forest on the subject property. No known records on subject property.	General Wildlife Surveys / SAR habitat assessment	No observations. Surveys were conducted outside of the breeding season.	None. No impact to potentially suitable forest habitat on the subject property; to be retained with a 30m setback
Chimney Swift (<i>Chaetura pelagica</i>)	THR	Species and General Habitat Protection	TRCA Species List (2008)	Historically found in deciduous and coniferous, usually wet forest types, all with a well-developed, dense shrub layer; now most are found in urban areas in large uncapped chimneys (MNRF Guelph - Waterloo List, 2014)	Minimal. No suitable habitat present within the development envelope; may occur as a foraging visitant. No known records on subject property.	General Wildlife Surveys / SAR habitat assessment	No observations. Surveys were conducted outside of the breeding season.	Minimal. No nesting habitat impacted. Suitable foraging habitat to be retained. Additional foraging habitat is abundant in the local landscape
Common Nighthawk (<i>Chordeiles minor</i>)	SC	N/A	TRCA Species List (2008)	Generally prefer open, vegetation-free habitats, including dunes, beaches, recently harvested forests, burnt-over areas, logged areas, rocky outcrops, rocky barrens, grasslands, pastures, peat bogs, marshes, lakeshores, and river banks. This species also inhabits mixed and coniferous forests. Can also be found in urban areas (nest on flat roof-tops) (MNRF Guelph - Waterloo List, 2014)	None. No suitable habitat present	General Wildlife Surveys / SAR habitat assessment	No observations. Surveys were conducted outside of the breeding season.	None. No suitable habitat and no known records on subject property.
Eastern Meadowlark (<i>Sturnella magna</i>)	THR	Species and General Habitat Protection	NHIC database (2020)	Generally prefers grassy pastures, meadows and hay fields. Nests are always on the ground and usually hidden in or under grass clumps (MNRF Guelph - Waterloo List, 2014)	Minimal. No grassland habitat is present. Most of the site is cropland. Potentially suitable open habitat areas (e.g., CUM) are relatively small and marginal.	General Wildlife Surveys / SAR habitat assessment	No observations. Surveys were conducted outside of the breeding season.	None. No impact to individuals with vegetation removals outside of the nesting season. Potentially suitable CUM habitat to be retained.
Eastern Wood-pewee (<i>Contopus virens</i>)	SC	N/A	NHIC database (2020)	Associated with deciduous and mixed forests. Within mature and intermediate age stands it prefers areas with little understory vegetation as well as forest clearings and edges (MNRF Guelph - Waterloo List, 2014)	High. Suitable habitat is present within the forest habitat within the subject property. A single individual was recorded singing within the forest habitat, outside of the breeding season.	General Wildlife Surveys / SAR habitat assessment	No observations on the subject property. Surveys were conducted outside of the breeding season. One individual was recorded singing outside of the breeding bird season within the wooded area (FOD5) on the adjacent property to the east.	None. No impact to potentially suitable forest habitat on or adjacent to the subject property; to be retained with a minimum 30 m setback
Golden-winged Warbler (<i>Vermivora chrysoptera</i>)	SC	N/A	TRCA Species List (2008)	Generally prefer areas of early successional vegetation, found primarily on field edges, hydro or utility right-of-ways, or recently logged areas (MNRF Guelph - Waterloo List, 2014)	Minimal. No suitable breeding habitat present (i.e. large areas of successional vegetation) on subject property, and no known records. Some potential to occur as a migrant or foraging visitant.	General Wildlife Surveys / SAR habitat assessment	No observations. Surveys were conducted outside of the breeding season.	None. No suitable habitat and no known records on subject property.

Species	ESA Status ¹ and Regional Occurrence	ESA Protection ²	Source of Record (Date)	Key Habitats Used by Species in Ontario	Reasonable Likelihood of Presence in Study Area	Surveys Undertaken	Results of Field Surveys	Likelihood and Magnitude of Impacts to Species or Habitat
Grasshopper Sparrow (Ammodramus savannarum)	SC	N/A	TRCA Species List (2008)	Medium to large grasslands with grasses of intermediate height in both native and tame grasslands including agricultural fields and cattle pastures (COSEWIC 2013b)	None. No suitable habitat present	General Wildlife Surveys / SAR habitat assessment	No observations. Surveys were conducted outside of the breeding season.	None. No suitable habitat and no known records on subject property.
Red-headed Woodpecker (Melanerpes erythrocephalus)	SC	N/A	TRCA Species List (2008)	Generally prefer open oak and beech forests, grasslands, forest edges, orchards, pastures, riparian forests, roadsides, urban parks, golf courses, cemeteries, as well as along beaver ponds and brooks (MNRF Guelph - Waterloo List, 2014)	Minimal. Marginal foraging and nesting habitat is present along the forest edge on the subject property.	General Wildlife Surveys / SAR habitat assessment	No observations. Surveys were conducted outside of the breeding season.	None. No impact to potentially suitable forest habitat on the subject property; to be retained with a minimum 30 m setback.
Wood Thrush (Hylocichla mustelina)	SC	N/A	TRCA Species List (2008)	Nests mainly in second-growth and mature deciduous and mixed forests, with saplings and well-developed understory layers. Prefers large forest mosaics, but may also nest in small forest fragments (MNRF Guelph - Waterloo List, 2014)	Moderate. Suitable habitat is present in the mature forest on the subject property; however Wood Thush prefers larger forest areas	General Wildlife Surveys / SAR habitat assessment / SAR habitat assessment	No observations. Surveys were conducted outside of the breeding season.	None. No impact to potentially suitable forest habitat on the subject property; to be retained with a minimum 30 m setback.
Yellow-breasted Chat (Icteria virens virens)	END	Species and General Habitat Protection	TRCA Species List (2008)	Generally prefer dense thickets around wood edges, riparian areas, and in overgrown clearings (MNRF Guelph - Waterloo List, 2014)	None. No suitable habitat present; current breeding range in Ontario is highly limited.	General Wildlife Surveys / SAR habitat assessment	No observations. Surveys were conducted outside of the breeding season.	None. No suitable habitat and no known records on the subject property.
Fish								
Redside Dace (Clinostomus elongatus)	END	Species Protection and Habitat Regulation	MECP Communication (2020), DFO Aquatic SAR Mapping (2021)	Generally found in pools and slow-moving areas of small headwater streams with a moderate to high gradient (MNRF Guelph - Hamilton List, 2013).	Confirmed. Kilamanagh Creek is considered Occupied Habitat for Redside Dace.	Headwater Drainage Feature Assessment	No observations. No fisheries surveys conducted.	Minimal. Kilamanagh Creekto be retained with development setbacks. No indirect impacts with recommended mitigation measures and BMP. Tributary 2 of the West Humber River qualified as contributing Redside Dace habitat and will be realigned across the subject property. The realigned channel will represent a significant improvement in habitat quality and connectivty. Nonetheless, consultation with MECP will occur at detailed design to determine compliance requirements and additional considerations for mitigation.
Insects								
Monarch (Danaus plexippus)	SC	N/A	Previous WSP surveys in GTA	Exist primarily wherever milkweed and wildflowers exist; abandoned farmland, along roadsides, and other open spaces (MNRF Guelph - Waterloo List, 2014)	High. Host plant (milkweed) present in cultural meadow vegetation units, and nectaring plants present in natural areas.	General Wildlife Surveys / SAR habitat assessment	No observations.	Minimal. Most suitable habitat will be retained (only a small amount of CUM removal). No impact to high quality habitat (e.g., Milkweed - scarce on the property or nectaring areas). Both milkweed and nectaring plants for adults are present within the broader landscape and both are recommended for inclusion in future buffer planting plans
Mammals								
Little Brown Bat (Little Brown Myotis) (Myotis lucifugus)	END	Species and General Habitat Protection	Bat Conservation International distribution maps	Overwintering habitat: Caves and mines that remain above 0 degrees Celsius. Maternal Roosts: Often associated with buildings (attics, barns etc.). Occasionally found in trees (25-44 cm dbh) (MNRF Guelph - Waterloo List, 2014)	Moderate. May occur as a foraging visitant. Potential for maternity roosting in forest habitat with cavity trees / loose bark as well as existing buildings.	General Wildlife Surveys / SAR habitat assessment	No observations (acoustic monitoring / exit surveys not conducted)	Minimal. No known / confirmed habitat. No impact to suitable habitat in the forest (to be retained in full, with 30 m setback). Potentially suitable woodland habitat will be enhanced via buffer naturalization. No impact to individuals anticipated with removal of isolated trees / buildings outside of the active bat period (i.e., between October 1 and March 31) .

Species	ESA Status ¹ and Regional Occurrence	ESA Protection ²	Source of Record (Date)	Key Habitats Used by Species in Ontario	Reasonable Likelihood of Presence in Study Area	Surveys Undertaken	Results of Field Surveys	Likelihood and Magnitude of Impacts to Species or Habitat
Northern Long-eared Bat (Northern Myotis) (Myotis septentrionalis)	END	Species and General Habitat Protection	Bat Conservation International distribution maps	Overwintering habitat: Caves and mines that remain above 0 degrees Celsius. Maternal Roosts: Often associated with cavities of large diameter trees (25-44 cm dbh). Occasionally found in structures (attics, barns etc.)(MNRF Guelph - Waterloo List, 2014)	Moderate. May occur as a foraging visitant. Potential for maternity roosting in forest habitat with cavity trees.	General Wildlife Surveys / SAR habitat assessment	No observations (acoustic monitoring / exit surveys not conducted)	Minimal. No known / confirmed habitat. No impact to suitable habitat in the forest (to be retained in full, with 30 m setback). Potentially suitable woodland habitat will be enhanced via buffer naturalization. No impact to individuals anticipated with removal of isolated trees / buildings outside of the active bat period (i.e., between October 1 and March 31) .
Small-footed Bat (Myotis leibii)	END	Species and General Habitat Protection	Bat Conservation International distribution maps	Overwintering habitat: Caves and mines that remain above 0 degrees Celsius. Maternal Roosts: primarily under loose rocks on exposed rock outcrops, crevices and cliffs, and occasionally in buildings, under bridges and highway overpasses and under tree bark (MNRF Guelph - Waterloo List, 2014)	Minimal. Low potential to occur on the subject property as a foraging visitant (generally less common than other bat species in Southern Ontario). Low potential for maternity roost habitat in forested areas or buildings (preferred habitat in cliff faces or exposed rock outcrops).	General Wildlife Surveys / SAR habitat assessment	No observations (acoustic monitoring / exit surveys not conducted)	Minimal. No known / confirmed habitat. No impact to suitable habitat in the forest (to be retained in full, with 30 m setback). Potentially suitable woodland habitat will be enhanced via buffer naturalization. No impact to individuals anticipated with removal of isolated trees / buildings outside of the active bat period (i.e., between October 1 and March 31) .
Tri-colored Bat (Perimyotis subflavus)	END	Species and General Habitat Protection	Bat Conservation International distribution maps	Overwintering habitat: Caves and mines that remain above 0 degrees Celsius. Maternal Roosts: Manmade structures or tree cavities. Foraging over still water, rivers, or in forest gaps (COSEWIC 2013f)	Minimal. Low potential to occur as foraging visitant and low potential for maternity roost habitat in forest and buildings (uncommon and localized distribution in Ontario, COSEWIC, 2013).	General Wildlife Surveys / SAR habitat assessment	No observations (acoustic monitoring / exit surveys not conducted)	Minimal. No known / confirmed habitat. No impact to suitable habitat in the forest (to be retained in full, with 30 m setback). Potentially suitable woodland habitat will be enhanced via buffer naturalization. No impact to individuals anticipated with removal of isolated trees / buildings outside of the active bat period (i.e., between October 1 and March 31) .
Plants								
Butternut (Juglans cinerea)	END	Species and General Habitat Protection	MECP Communication (2020)	Generally grows in rich, moist, and well-drained soils often found along streams. It may also be found on well-drained gravel sites, especially those made up of limestone. It is also found, though seldomly, on dry, rocky and sterile soils. In Ontario, the Butternut generally grows alone or in small groups in deciduous forests as well as in hedgerows (MNRF Guelph - Waterloo List, 2014).	Moderate. Potential habitat on woodland edges and along Kilamanagh Creek.	Ecological Land Classification and Botanical Inventory	No observations.	None. Not recorded during field investigations and no known records on the subject property.
Reptiles								
Snapping Turtle (Chelydra serpentina)	SC	N/A	Ontario Reptile and Amphibian Atlas (2019)	Generally inhabit shallow waters where they can hide under the soft mud and leaf litter. Nesting sites usually occur on gravelly or sandy areas along streams. Snapping Turtles often take advantage of man-made structures for nest sites, including roads (especially gravel shoulders), dams and aggregate pits (MNRF Guelph - Waterloo List, 2014)	Moderate. Suitable habitat in Kilamanagh Creek with marginal dispersal and foraging habitat present in Tributary 2.	General Wildlife Surveys / SAR habitat assessment	No observations.	Minimal - Potential habitat in Kilamanagh Creek is within the Protected Countryside of the Greenbelt Plan and will be retained in full. Tributary 2 only provides marginal habitat (due to low / lack of water, absence of refuge habitat). The realignment of Tributary 2 will increase the amount of habitat available on the subject property and anticipated to be of better quality than what is currently present in Tributary 2. Potential during-construction impacts can be mitigated with the recommended mitigation measures and best management practices.

APPENDIX

E

AGENCY

CORRESPONDENCE



December 6, 2020

Ministry of the Environment, Conservation and Parks
Permissions and Compliance
Species at Risk Branch

Dear Ministry of the Environment, Conservation and Parks staff,

WSP Canada Inc. (WSP) has been retained by Tribal Partners Canada Inc. to complete natural environment investigations and reporting in support of two future development applications in Caledon. The subject properties are located at 12035 and 12892 Dixie Road. The natural heritage component will evaluate impacts to natural heritage features on and adjacent to each subject property, documented in Comprehensive Environmental Impact Study and Management Programs (CEISMP) for each application. As part of our investigations, updated ecological background information is required for each subject property and adjacent natural areas (see attached figures). As such, we are formally contacting you to request any available natural heritage information pertinent to the subject properties.

- Upon review of the Natural Heritage Information Centre (NHIC) database, there are records of the following Species at Risk and provincially rare species within 1 km of each of the properties:
 - Bank Swallow (*Riparia riparia*; THR, no date)
 - Bobolink (*Dolichonyx oryzivorus*; THR, no date)
 - Eastern Meadowlark (*Sturnella magna*; THR, no date)
 - Eastern Wood-pewee (*Contopus virens*; SC, no date)

Additional information we are seeking includes any of the following information that is not publicly available through Land Information Ontario (LIO) / NHIC:

Species at Risk (SAR)

- Locations, observation dates and any other relevant information about SAR – if possible, please provide the UTM's/accuracy codes;
- Locally rare species lists or species records and/or rare vegetation communities known from the study area
- Records of Significant Wildlife Habitat

If further information is required, please feel free to contact the undersigned at 519-904-1798 or through email at steven.leslie2@wsp.com. Thank you for your assistance, it is greatly appreciated.

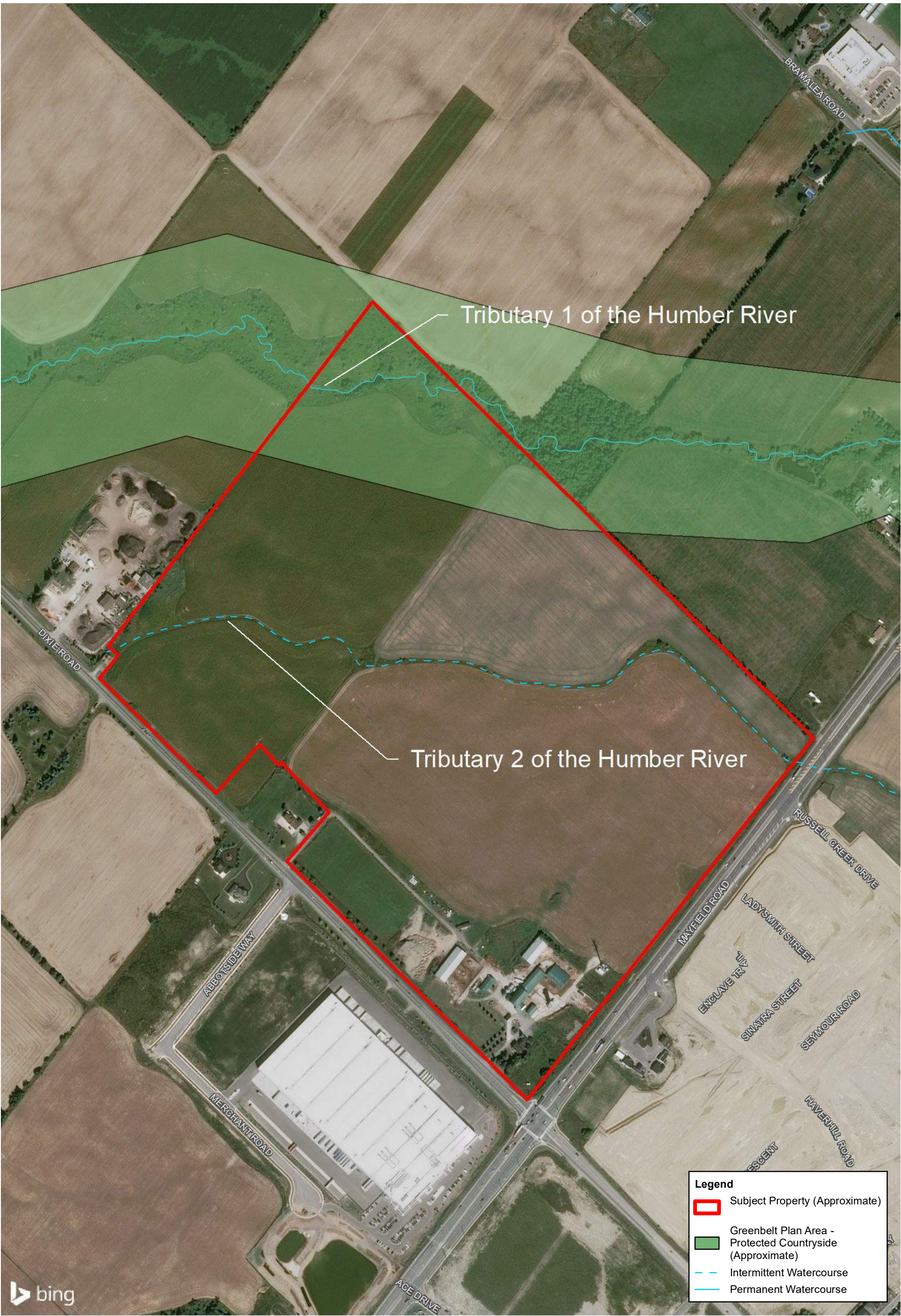
Yours sincerely,

Steven Leslie
Ecologist, WSP

cc: Carleigh Oude-Reimerink, Armstrong Planning & Project Management
Jeff Gross, WSP

582 Lancaster Street West
Kitchener, ON
Canada N2K 1M3

T: +1 519 743-8778
F: +1 519 743-8778
wsp.com





From: Eplett, Megan (MECP) [<mailto:Megan.Eplett@ontario.ca>]
Sent: December 21, 2020 11:07
To: Leslie, Steven <Steven.Leslie2@wsp.com>
Cc: Gross, Jeff <Jeff.Gross@wsp.com>; Carleigh Oude-Reimerink <carleigh@armstrongplan.ca>
Subject: RE: SAR Info Request - 12892 and 12035 Dixie Road

Hello Steven,

Apologies for not being more clear in my initial response. Tributary 1 (Kilamanagh Creek) on both 12892 and 12035 Dixie Road is considered occupied Redside Dace habitat.

Thanks,

Megan

Megan Eplett | Management Biologist | Permissions and Compliance | Species at Risk Branch | Ontario Ministry of Environment, Conservation and Parks
50 Bloomington Road, Aurora, Ontario, L4G 0L8 | Phone: 289-221-1794 |
Email: megan.eplett@ontario.ca

From: Leslie, Steven <Steven.Leslie2@wsp.com>
Sent: Wednesday, December 16, 2020 3:06 PM
To: Eplett, Megan (MECP) <Megan.Eplett@ontario.ca>
Cc: Gross, Jeff <Jeff.Gross@wsp.com>; Carleigh Oude-Reimerink <carleigh@armstrongplan.ca>
Subject: RE: SAR Info Request - 12892 and 12035 Dixie Road

CAUTION -- EXTERNAL E-MAIL - Do not click links or open attachments unless you recognize the sender.

Hi Megan,

Thank you very much for the quick response, it is greatly appreciated.

One thing I was hoping to confirm is the status of Tributary 1 on 12035 Dixie Road and Tributary 1 on 12892 Dixie Road. Within each subject property, does MECP consider these watercourses to be Redside Dace habitat?

Thanks,

Steven

From: Eplett, Megan (MECP) [<mailto:Megan.Eplett@ontario.ca>]
Sent: December 16, 2020 14:56
To: Leslie, Steven <Steven.Leslie2@wsp.com>
Cc: Gross, Jeff <Jeff.Gross@wsp.com>; Carleigh Oude-Reimerink <carleigh@armstrongplan.ca>
Subject: RE: SAR Info Request - 12892 and 12035 Dixie Road

Hello Steven,

Please find below species at risk information for both sites.

12035 Dixie Road – In addition to the species listed in your letter, please note MECP also has records of Butternut in the vicinity of the property. With regards to Tributary 2 this does connect with a Redside Dace occupied reach of the West Humber River further downstream. The tributary should be evaluated to determine if it meets the criteria to be considered contributing habitat for Redside Dace as per O.reg. 242/08.

12892 Dixie Road – The tributaries on the property connect further downstream to a Redside Dace occupied portion of the West Humber River. The tributaries on site should be evaluated to determine if they meet the criteria to be considered contributing habitat for Redside Dace as per O.reg. 242/08. As there is a woodlot located on the property if tree removal is proposed Butternut and species at risk bats should be considered.

Should you have any questions please feel free to contact MECP for further advice.

Thanks,

Megan

Megan Eplett | Management Biologist | Permissions and Compliance | Species at Risk Branch | Ontario Ministry of Environment, Conservation and Parks
50 Bloomington Road, Aurora, Ontario, L4G 0L8 | Phone: 289-221-1794 |
Email: megan.eplett@ontario.ca

From: Leslie, Steven <Steven.Leslie2@wsp.com>
Sent: Sunday, December 6, 2020 8:09 PM
To: Species at Risk (MECP) <SAROntario@ontario.ca>
Cc: Gross, Jeff <Jeff.Gross@wsp.com>; Carleigh Oude-Reimerink <carleigh@armstrongplan.ca>
Subject: SAR Info Request - 12892 and 12035 Dixie Road

CAUTION -- EXTERNAL E-MAIL - Do not click links or open attachments unless you recognize the sender.

To whom it may concern,

Please see attached information request letter and Subject Property figures for two properties located in Caledon. This letter serves as a request for available information related to Species at Risk that are relevant to each property.

If there are any questions or concerns, please do not hesitate to reach out to the undersigned.

Thank you,

Steven Leslie, B.E.S.

Ecologist

Ecology & Environmental Impact Assessment (EIA)



T+ 1 519-904-1798

582 Lancaster Street West
Kitchener, Ontario,
N2K 1M3 Canada

wsp.com

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-LAEmHhHzdJzBITWfa4Hgs7pbKI

August 21, 2020

Town of Caledon
6311 Old Church Road
Caledon, ON L7C 1J6

RE: DART Request – 12035 Dixie Road and Pt Lt 19 Con 4, Caledon ON

Armstrong Planning & Project Management was retained by Tribal Partners to submit a request for a DART Meeting for the lands approximately 97 acres (39 hectares) in size and municipally known as 12035 Dixie Road in the Town of Caledon, and the lands approximately 50 acres (20 hectares) in size with the legal description of “PT LT 19 CON 4 EHS CHINGUACOUSY AS IN RO811026; EXCEPT 29, 30, 33 & 34 43R20417, PT 1 & 2 43R16098 & PT 4 43R16437; CALEDON” (“Pt Lt 19 Con 4”). The lands are located directly adjacent to each other on the north side of Mayfield Road and on the east side of Dixie Road.

SITE DESCRIPTION:

The lands are located within the Rural Area of the Town of Caledon. To the immediate west is the rural service area boundary of the Mayfield West Study Area Boundary. To the south, is the built-up settlement area of the City of Brampton including employment uses to the west and residential uses directly south across from Mayfield Road.

We acknowledge that the lands are located outside of the Urban Boundary and Settlement Area. We have submitted requests to both the Town of Caledon and Region of Peel to request inclusion of these lands within the Urban Boundary and Settlement Area. We recognize that these lands are within the area being considered for Urban Boundary Expansion within the Region of Peel, as per the latest mapping (Focus Study Area (FSA) (2041) map).

The lands are generally flat in nature and are currently being farmed. There is a drainage feature that runs through the middle of both properties. WSP has been retained by Tribal Partners to assess this feature, and through preliminary assessment, it has been determined that this drainage ditch is not an absolute constraint (which is consistent with the assessment for the downstream portion of the feature on the lands to the south, in Brampton). As such, it is proposed that this drainage feature be removed or relocated. Relocation or removal of the drainage feature on 12035 Dixie Road and Pt Lt 19 Con 4 is critical for ensuring the viability of development on these lands, as such, TRCA has been engaged.

PROPOSED DEVELOPMENT:

Due to the GTA West Transportation Corridor Route Planning and Environmental Assessment Study ('GTA West Study') the majority of available Employment Lands are 'frozen'. Once a final route is picked for the 410 extension a significant amount of employment lands will effectively be removed from the 'employment lands' bank within the Mayfield West Secondary Plan Area to be used for the highway. It is essential that these lands be replaced in a timely manner to ensure there is viable land available for employment, which will ultimately ensure targets for job creation are met within the Town of Caledon and Region of Peel. It is our opinion that there is a lack of available (and viable) employment lands within the Town of Caledon that would support a large e-commerce development.

Please note that this is part of a 2-property development (see 12862 and 12982 Dixie Road, Caledon ON – DART Meeting Request Letter). We are proposing to rezone and redesignate the subject lands as employment lands to facilitate the development of an e-commerce facility that would span over both sites, creating 3,000 new jobs for the Region of Peel and Town of Caledon.

CONCEPT PLAN:

The subject site would host two e-commerce buildings with a floorplate of approximately 520,000 square feet for Building A, and a floorplate of approximately 830,000 square feet for Building B. A total of 2,270 parking spaces are proposed to be provided. In addition, 480 truck trailer stalls are proposed and loading is provided around the perimeter of Building A and Building B. Building heights would be 45 feet and 100 feet respectively, however, all of our submissions are subject to an automation equipment design exercise. The employee count, shipping, site coverage and setbacks will not be impacted or change as a result of the additional building space being increased as a result of final automation design. Access is planned off of both Mayfield Road and Dixie Road.

SITE ADDRESS, LEGAL DESCRIPTION, AND SITE AREA:

	PROPERTY 1 (CATION)	PROPERTY 2 (SHEARD)
Municipal Address	12035 Dixie Road, Caledon ON	No Number, Dixie Road, Caledon ON
Legal Description	Pt Lt 18, Conc 4 Ehs(ching) As In Ro1055677 S&e Ch25744 & Pts 1 To 14,16 To 26, 43r20417 & Pts 9,10 & 11, Exprop.pl Pr1385233 ; S/t Ch21926 ; Caledon	Pt Lt 19 Con 4 Ehs Chinguacousy As In Ro811026; Except 29, 30, 33 & 34 43r20417, Pt 1 & 2 43r16098 & Pt 4 43r16437 ; Caledon
Site Area	392429 m2	201,109 m2
Roll Number	212413000717900	212413000718000
PIN	143470318	143470016

APPLICANT AND AGENT CONTACT INFORMATION

Applicant:

Armstrong Planning & Project Management
Carleigh Oude-Reimerink
416-444-3300 x3003
carleigh@armstrongplan.ca

Agent:

Tribal Partners
Robin Comfort
905-567-0808
robin.comfort@tribalpartners.com

Should you have any questions please do not hesitate to contact me further at extension 3003 or at carleigh@armstrongplan.ca.

Regards,

A handwritten signature in black ink, appearing to read 'C. Oude-Reimerink', with a stylized flourish at the end.

Carleigh Oude-Reimerink, RPP

Pre-Consultation (DART) Meeting Form

Date: August 10, 2020
Development Team: Planning & Development Services

File Number: PRE 20-0097
Lead Planner: Justin Cook

Project Information

Project Name: Robin Comfort
Proposal: Tribal Partners is proposing to build 1.2 to 1.5 million square foot E-commerce facilities that are in close proximity to Highway 410.
Proposed GFA: 124,475.5 m² / 1,339,843 ft²

Applicant Information

Applicant Name: TRIBAL PARTNERS INC.
Telephone Number: (416) 427-7637
Email Address: robin.comfort@tribalpartners.com
Owner Name: 1058063 ONTARIO LIMITED

Property Information

Municipal Address: 12035 Dixie ROAD;
Legal Description: Part W Lot 18, Concession 4 (EHS);
2124130007179000000;
PIN: 122050 Site Area: 39.23 ha / 96.95 ac

Planning Documents

Provincial Documents: Provincial Policy Statement: ☒ Places to Grow Plan: ☒
Oak Ridges Moraine Conservation Plan: ☐ Greenbelt Plan: ☒
Region of Peel Official Plan: See Region of Peel Official Plan
Town of Caledon Official Plan: Prime Agriculture and Environmental Policy Area
Zoning By-law: Agricultural (A1) & Environmental Policy Area 2 (EPA2)
Conservation Authority: TRCA: ☒ CVC: ☐ NVCA: ☐ LSRCA: ☐

Existing Planning Applications on the Property

File Number	Type/Stream	Status
SC 2005-0026T	Full	Approved
PRE 2020-0097	Preliminary Meeting	PreConsultation

Required Planning Approvals

Plan of Subdivision:	Regular Stream: <input type="checkbox"/>	Palgrave Estates Stream: <input type="checkbox"/>
Plan of Condominium:	Conversion: <input type="checkbox"/>	Leasehold Stream: <input type="checkbox"/> Freehold Stream: <input type="checkbox"/>
	Standard: <input type="checkbox"/>	Common Elements: <input type="checkbox"/> Phased: <input type="checkbox"/> Vacant Land: <input type="checkbox"/>
Official Plan Amendment:	Regular Stream: <input checked="" type="checkbox"/>	Expansion of Settlement Area: <input checked="" type="checkbox"/>
Zoning By-law Amendment:	Regular Stream: <input checked="" type="checkbox"/>	Lifting of 'H': <input type="checkbox"/> Temporary Use: <input type="checkbox"/>
Site Plan Approval:	Full Stream: <input checked="" type="checkbox"/>	Development Agreement Required: <input type="checkbox"/>
	Amendment: <input type="checkbox"/>	Scoped: <input type="checkbox"/> Fast Track: <input type="checkbox"/>
	FIT Facility Protocol: <input type="checkbox"/>	Telecommunication Facility Protocol: <input type="checkbox"/>

Other Approvals/Requirements

Niagara Escarpment Plan Amendment: ☐ Niagara Escarpment Development Permit: ☐
Region of Peel Official Plan Amendment: ☒ Conservation Authority Approval: ☒
Building Permit: ☒ Fill Permit: ☐
Development Charges: ☒ Cash-in-Lieu of Parkland:* ☒
Securities: ☒ Other: MTO Approval ☒

* May require peer review at the Applicant's cost



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Complete Application Requirements

Document	Required Number of Copies	Document	Required Number of Copies
Completed Application Form	X	Fee(s) ³	X
Pre-Consolidation (DART) Meeting Form	X	Cover Letter	X
OBC Data Matrix	X	Zoning Matrix	X
Scalable Concept Plan	X	Survey Plan	
Full-Size, Scalable Site Plan Drawings	X	Draft Zoning By-Law Amendment	X
Plan of Subdivision		Draft Official Plan Amendment	X
Plan of Condominium		Agricultural Impact Assessment	X
Aggregate Resource Impact Study		Archaeological Resource Assessment	
Air Quality Assessment		Architectural Design Plan	
Architectural Design Guidelines		Commercial Impact Study	
Built Heritage and Cultural Heritage		Cultural Heritage Impact Assessment	X
Comprehensive Broader Scale		Elevation Drawings	X
Demarcation of Areas Regulated by a Conservation Authority		Erosion and Sediment Control Plan	X
Comprehensive Environmental Impact Study and Management Program	X	Fiscal Impact Analysis	
Feature Stakings	X	Fiscal Market Study	
Floodplain Analysis		Floor Plan Drawings	X
Functional Servicing Plan	X	Geotechnical Reports	X
Heritage Conservation Plan		Housing Distribution Analysis	
Hydrogeological Impact Assessment ¹	X	Landscape Plan	X
Neighbourhood Concept Plan		Noise and Vibration Study ¹	X
On-street Parking Analysis		On-street Utilization Plan	
Pedestrian Circulation and Trail Plan		Phase 1 Environmental Site Assessment	X
Planning Justification report	X	Sub-watershed Study or CEISMP ²	X
Site Grading Plan	X	Site Servicing Plan	X
Soil Stability Report		Stormwater Management Plan	X
Traffic Impact Study	X	Tree Inventory Analysis	X
Urban Design Brief	X	Visual Impact Report	X
Water Balance / Budget Analysis		Woodlot Edge Hazard Risk Assessment	
Engineering Cost Estimate	X	Landscaping Cost Estimate	X
Engineering Letter of Conformance	X	Landscape Letter of Conformance	X
Other		Other	

1. Town will require report to be peer reviewed at the applicant's expense
2. Containing necessary studies (Natural Heritage, HDF assessment and Aquatics, Feature-Based Water Balance evaluation and assessment if required, Geomorphic Analysis and Erosion Hazard delineation, Hydrology and Hydraulics, Hydrogeological investigation/Overall Water balance, and Functional Servicing Report) and identification of existing conditions, potential impacts, and mitigation/implementation/management plans for the development area. A Terms of Reference should be submitted to TRCA for approval prior to undertaking the study.
3. See Fees By-law for Details



Pre-Consultation (DART) Meeting Form

Confirmation

For Official Plan amendment and/or Zoning By-law Amendment applications, templates will be forwarded to you electronically. Please sign below to confirm that you have received and reviewed the following documents:

Official Plan Amendment Template:

Name

Date

Zoning By-law Amendment Template:

Name

Date

Where design guidelines are applicable, the documents below are to be reviewed, consulted and addressed through the proposed application. All documents can be found on the Town's website. Please sign below to confirm that you have consulted with the necessary guidelines.

Industrial/Commercial Design Guidelines



Urban Design Guidelines



Name

Date

Notes

This form addresses only those items that are required in order for the Town to deem that application complete and be able to begin the review process. If an application does not contain the items noted above along with the items included in the appropriate process manual, the application will be deemed incomplete and will not be accepted by the Town of Caledon. As a result of comments received during the processing of the application(s), amendments, addendums, and/or additional studies and material may be required.

Submitted studies may be required to be peer reviewed, for which the costs would be born by the applicant.

Consultation

Is further consultation required? Yes ☒ No ☐

If yes, please explain: As the Town and Region are currently undertaking Official Plan Reviews, advancing an application prior to the conclusion of these reviews will require consultation with the Town, Region, and TRCA to determine possible approval processes.

* The applicant is to request further consultation, unless otherwise described above, upon addressing the issue to be discussed.

Expiration

As per By-law No. 2008-118, a new Pre-Consultation Meeting will be required should the application not be submitted by the expiry date. If additional consultation is required, it should be held prior to the expiry date to ensure all matters have been addressed and the application submission is complete.

Pre-Consultation (DART) Meeting Expiry Date: March 23, 2021

Agreement of Complete Application Requirements

The proposal as described on this form has been reviewed during the Pre-Consultation Meeting and both the applicant and Town of Caledon staff are in agreement that the terms checked on the list contained in this Form identify all material that will be required for the indicated application to be deemed complete.

Applicant

Name: _____ Signature: _____ Date: _____

Lead Planner

Name: Justin Cook

Signature:



Date: September 23, 2020



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Checklist

Application Form/Amendment

- ☒ Completed municipal application form
- ☐ Proposed draft Regional Official Plan Amendment
- ☒ Proposed draft Local Official Plan Amendment
- ☒ Proposed draft Zoning By-law Amendment

Plans/Drawings

- ☒ Site Plan –6 Copies
- ☒ Landscape Plan - 6 Copies
- ☐ Condominium Draft Plan – Copies
- ☒ Concept Plan - 4 Copies
- ☒ Grading Plan – 6 Copies
- ☒ Drainage Plan – 6 Copies
- ☒ Plan of Survey - 4 Copies
- ☒ Draft Reference Plan -6 Copies
- ☒ Servicing Plan(s) – 6 Copies
- ☐ M-Plan - ____ Copies

Studies/Questionnaires

- ☒ Planning Justification Report
- ☐ Environmental Impact Study
- ☐ Noise Report
- ☐ Healthy Development Assessment (Caledon only)
- ☐ Sustainability Assessment (Brampton only) -
- ☐ Healthy by Design Questionnaire (Mississauga only)
- ☐ Wellhead Protection Questionnaire
- ☒ Hydrogeological Report
- ☐ Geotechnical Report
- ☒ Traffic Impact Study

Fees

Fees are payable to the Region and must be submitted in the form of a certified cheque as a requirement of a complete submission

- ☐ Regional Official Plan Amendment Processing Fee (\$20,000)
- ☒ Local Official Plan Amendment Processing Fee (\$12,000)
- ☐ Subdivision Processing Fee (\$20,000)
- ☐ Condominium Processing Fee (\$3,000)
- ☐ Site Plan Application Processing Fee for Major (\$1,000) and Minor (\$500)
- ☒ Other fees:

Report Fee \$515 as per current bylaw 67-2019

Please be advised that additional processing fees, including agreement fees, may be required. This will be determined after the initial submission is received.

Other Information

For subdivision applications, a digital copy of the proposed plan of subdivision must adhere to the following specifications:

- 6-degree UTM projection (zone 17)
- NAD 83
- All external boundaries of 21T-plan and internal lot/block layout plus lot/block numbers
- One of the following formats:
 - Double precision ARC/INFO polygon coverage with 0.01 fuzzy tolerance and lot/block information as an attribute in export format – E00 file
 - ArcView shape file with the same attribute information
 - Microstation DGN file with linework on level #1 and lot/block numbers on level #2

- ☒ Functional Servicing Report
- ☒ Single/Multi use Demand Table (☐ Water only / ☒ Water & Wastewater)
- ☒ Stormwater Management Report
- ☒ PINS/Parcel Abstract
- ☐ Agricultural Impact Study
- ☐ Subwatershed Study
- ☐ Conceptual Study (ROPA)
- ☒ Environmental Site Assessment Report
 - ☒ Phase I Environmental Site Assessment;
 - ☐ Phase II Environmental Site Assessment;
 - ☐ Record of Site Condition
- ☐ Waste Management Plan
- ☐ Other

NOTE: All opinions offered by staff are based on preliminary review and subject to change based on review of additional information and studies received at the subsequent application stage(s)

Servicing:

- The proposal requires connection to a minimum municipal watermain size of 300mm.
- Servicing of this site may require municipal and/or private easements and the construction, extension, twinning and/or upgrading of municipal services.
- All works associated with the servicing of this site will be at the applicant's expense. The applicant will also be responsible for the payment of applicable fees, DC charges, legal costs and all other costs

Access:

- The access type and location on Dixie Road and Mayfield Road will be determined via the TIS. Terms of reference must be submitted for our review prior to the commencement of the study.
- ROW Requirements
 - o Dixie Road: 41.5m ultimate (20.75m from the centerline) 0.3m Reserve
 - o Mayfield Road: 55.5m ultimate (27.75m from the centerline) 0.3m Reserve

Date: September 17, 2020

Planner: Abiral Homagain

File Number: DART-20-042C / PRE-2020-0096

Applicant Name: Armstrong Planning & Project Management / William Charles Sheard & 1058063 Ontario Limited

Location: 12035 Dixie Road

Notes:

Please be advised that any preliminary work on the Local Official Plan Amendment prior to the approval of the Regional Official Plan Amendment for the Settlement Area Boundary Expansion study as Part of the MCR– would be proceeding at the Town's and applicant's own risk.

Waste

Not in the vicinity of a landfill site
Private waste collection will be required

Health

Explore permeable/porous paving instead of black asphalt to reduce negative aesthetic and environmental impacts;
Preferential parking for carpool and carshare vehicles is encouraged.

General Requirements

At the pre-consultation stage, the applicant will be notified of the required submission materials to fulfill the needs of a complete application. All submissions must be provided directly to the planning department at the local area municipality (Brampton, Caledon, Mississauga) unless otherwise instructed by a Region of Peel Planner. All submissions must include a covering memo indicating the file number, address and/or location, nature of the proposal, a list of submitted material and a copy of this completed checklist provided by the Regional Planner at the pre-consultation stage.

- If Plans (e.g. site plan, landscape plan) must include the following:
 - A Key Plan illustrating the general geographic location of the subject lands must be located on all proposed copies of the plan
 - Waste collection area, if applicable; and,
 - Regional property requirements, if abutting a Regional road.
 - must show all easements (including Instrument Numbers and party to)
- Plans/drawings must be collated into sets and be folded to 216mm x 356mm (8.5" x 14") with the title box exposed.
- Along with the required number of physical copies, a digital copy (PDF) of all materials must be submitted.

Development Information and Materials

Region of Peel Official Plan: <https://www.peelregion.ca/planning/officialplan/>

Public Works Manuals

- Infrastructure within proximity of LRT: <https://www.peelregion.ca/pw/other/standards/linear/design/pdfs/lrt-design-standard-april2015.pdf>
- Regional Roads and Traffic: <https://www.peelregion.ca/pw/other/standards/linear/design/pdfs/designroads-july2009.pdf>
- Functional Servicing and Stormwater Management Report Criteria: <http://www.peelregion.ca/pw/other/standards/linear/reports/pdfs/swm-fsr-final-july2009.pdf>
- Standard Drawings (to determine which standards apply): <http://www.peelregion.ca/pw/other/standards/linear/drawings>
- Site Plan Process for Site Servicing Submission Requirements: <http://www.peelregion.ca/pw/other/standards/linear/procedures/pdf/site-plan-process2009.pdf>
- Sanitary Sewer: <https://www.peelregion.ca/pw/other/standards/linear/design/pdfs/sani-sewer.pdf>
- Storm Water: <https://www.peelregion.ca/pw/other/standards/linear/design/pdfs/sewer-design-update.pdf>
- Waste Collection: <https://www.peelregion.ca/pw/standards/design/waste-collection-design-manual-2016.pdf>
- Watermain Design: <https://www.peelregion.ca/pw/other/standards/linear/design/pdfs/water-design.pdf>

Region of Peel Fees By-Law: <https://www.peelregion.ca/council/bylaws/2010s/2019/bl-67-2019.pdf>

Traffic Impact Study – Terms of Reference: <http://www.peelregion.ca/pw/transportation/business/traffic-impact-study.asp>

Street Naming Guidelines: <https://www.peelregion.ca/planning/pdf/street-name-guidelines.pdf>

Healthy Peel by Design: <https://www.peelregion.ca/healthy-communities>

Affordable Housing Active Design: Guidelines and Standards: <http://www.peelregion.ca/health/resources/healthybydesign/pdf/CDI-0560.pdf>

Region of Peel's Housing & Homelessness Plan: <https://www.peelregion.ca/housing/homelessness/pdf/plan-2018-2028.pdf>

Conservation Authority Protocol for Plan Review and Technical Clearance:

<https://www.peelregion.ca/planning/business/pdf/ConservationAuthorityProtocolPlanReviewTechClearance.pdf>

General Guidelines for the Preparation of Acoustical Reports: <https://www.peelregion.ca/planning/noise-guidelines.pdf>

Pedestrian and Bicycle Facility Design Guidelines: <http://www.peelregion.ca/pw/construction/pdf/pedestrian-bicycle-facility-design-guidance.pdf>

Protocol for the Use of Non-Potable Groundwater Criteria in Brownfield Redevelopment in Peel Region:
<http://www.peelregion.ca/planning/pdf/water.pdf>

Municipal Planning Resources

City of Brampton: <http://www.brampton.ca/EN/Business/planning-development/Pages/welcome.aspx>

Town of Caledon: <https://www.caledon.ca/en/townhall/developmentplanning.asp>

City of Mississauga: <http://www.mississauga.ca/portal/residents/planningandbuilding>

Public Works

10 Peel Centre Dr.
Suite A
Brampton, ON
L6T 4B9
tel: 905-791-7800

peelregion.ca

September 21, 2020

Justin Cook
Town of Caledon
6311 Old Church Road
Caledon ON L7C 1J6

**Re: Planning Application Requirements Checklist
12035 Dixie Road (Cation Lands) # DART-20-042C
Town of Caledon**

Regional staff have reviewed the materials provided by the applicant as part of the September 10th Development Application Review Team (DART) meeting. We offer the following preliminary comments and application requirements for the proposed Town of Caledon Official Plan Amendment (OPA), Zoning By-law Amendment (RZ).

Please note that these are preliminary comments only that are based on the limited information that we have from the DART meeting. Further comments will be provided when more information becomes available.

Preliminary Comments

The Region's Official Plan (ROP), Schedule D, shows the settlement boundary limits. The subject site falls outside of these limits and is not in a settlement boundary. Section 7.9.2.12 of the ROP states that the Region will consider an expansion to the boundary "only through a Regional Official Plan Amendment which is based on municipal comprehensive review" provided certain criteria are met.

For these reasons, the applicant was advised at the DART that the lands need to be included in the settlement area through a Regional Official Plan Amendment (ROPA) prior to approval of a Local Official Plan Amendment (LOPA). As per Peel Region By-Law 1-2000, until such time as ROP approvals are in effect, the LOPA application would be forwarded to the Region for approval by the Commissioner after the related ROPA comes into force.

Regional staff is supportive of Town OPA, RZ, and applications being processed concurrently, but please be advised that until such time as the ROPA is approved it is at the applicant's risk.

Next Steps – Settlement Boundary Expansion

Regional Official Plan and Municipal Comprehensive Review:

Through the Peel 2041+ Official Plan and Municipal Comprehensive Review (MCR), the ROP is currently being reviewed in order to keep it current, meet the goals and requirements of Provincial plans and legislation, and support Regional and local community building objectives. It was noted at the DART meeting that the applicant has made a submission for consideration of the subject lands to be included in the settlement area as part of the Settlement Area Boundary Expansion Study which is being undertaken as part of the Region's Official Plan Review. This request will be considered through this process.

It is mandated that the Region's Official Plan Amendment be approved by the Province by July 1, 2022. Further information on the Region's Official Plan Review is available at the following link:

<http://www.peelregion.ca/officialplan/review/>

Planning Application Requirements Checklist:

Should the subject lands be brought into the settlement boundary through an approved planning process, a checklist has been provided which sets out the Regional requirements to review applications for a Local Official Plan Amendment and Zoning By-law Amendment. The Region's Planning Application Requirements Checklist is attached.

Concluding Comments

I am available to discuss this proposal further with the Town and applicant. If there are any questions or concerns, please contact me at your earliest convenience at 905-791-7800 ext. 8730, or by email at: abiral.homagain@peelregion.ca.

Best,



Abiral Homagain, Junior Planner
Development Services

Enc. Planning Application Requirements Checklist

Public Works

10 Peel Centre Dr., Suite A, Brampton, ON L6T 4B9
Tel: 905-791-7800 www.peelregion.ca



TECHNICAL MEMORANDUM

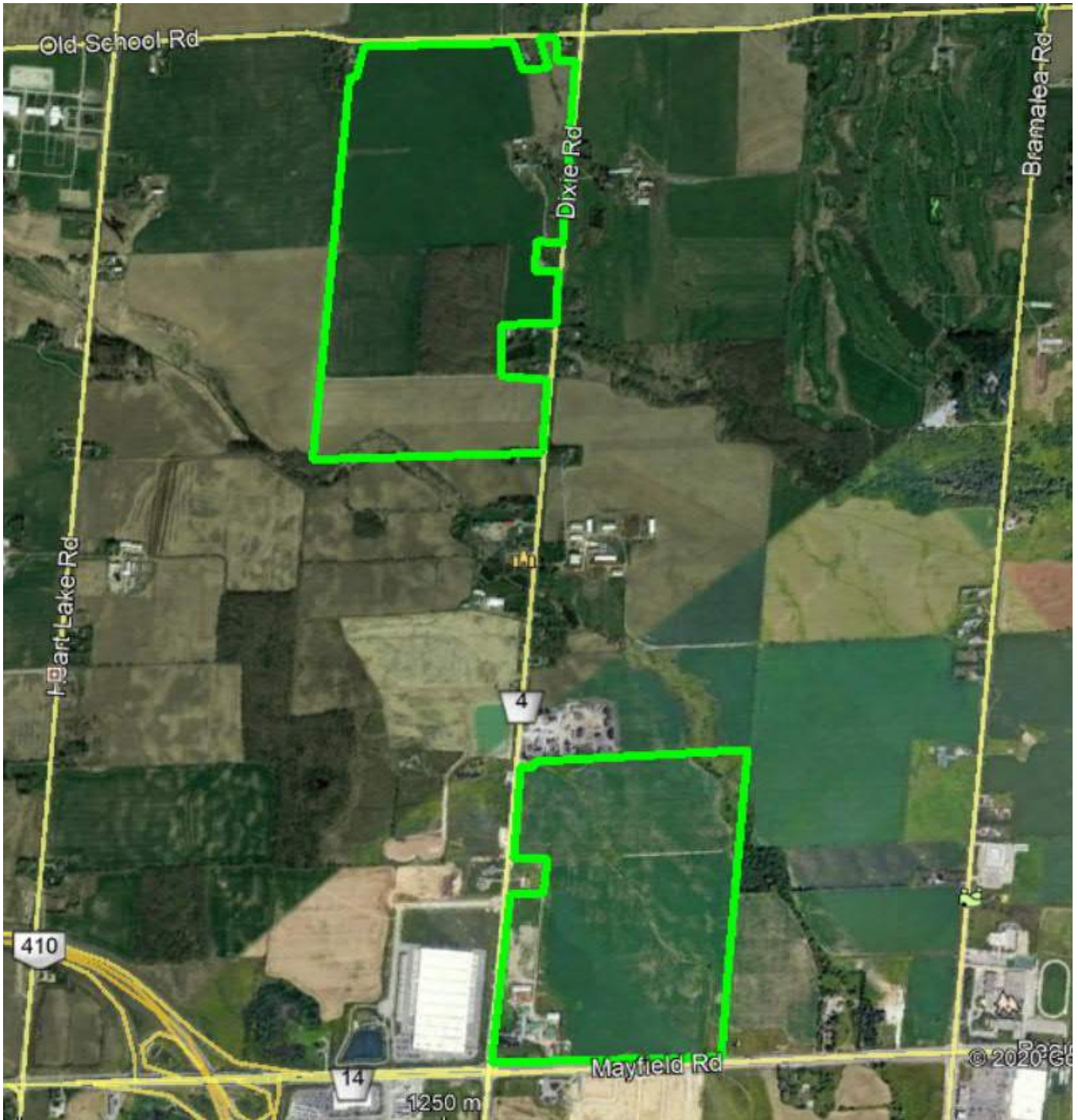
To:	Jason Wagler, Senior Planner, TRCA Evan Bearss, Ecologist, TRCA Lina Alhabash, Planner, TRCA Tychon Carter-Newman, Planner, TRCA Kyle Poole, Landscape Architect, Town of Caledon Jay Menary, Development Engineering Technologist, Town of Caledon
From:	Leanne Wallis, Ecologist, WSP Carleigh Oude-Reimerink, Senior Planner and Project Manager, Armstrong Planning and Project Management
RE:	12035 Dixie Rd and 12892 Dixie Rd, Caledon Site Walk (October 27, 2020) to Confirm Wetland and Woodland Limits
Date:	November 19, 2020
Revision:	

INTRODUCTION

WSP Canada Inc. and Armstrong Planning and Project Management have been retained by Tribal Partners Canada Inc. to provide ecological, planning, and project management services related to the proposed e-commerce facility developments at 12035 Dixie Rd ("the south property") and 12892 Dixie Rd ("the north property"), Caledon, Ontario. Both properties are located on Dixie Rd between Mayfield Rd and Old School Rd, just north of the Caledon/Brampton boundary (see Figure 1).

This technical memorandum documents the results of a site walk involving staff from WSP Canada Inc. (Leanne Wallis), Armstrong Planning and Project Management (Carleigh Oude-Reimerink), Toronto and Region Conservation Authority (TRCA) (Jason Wagler, Evan Bearss, Lina Alhabash, Tychon Carter-Newman) and Town of Caledon (Kyle Poole, Jay Menary) on October 27, 2020 to confirm the wetland and woodland limits on the subject properties.

Figure 1: Study Area showing north property (12892 Dixie Rd) and south property (12035 Dixie Rd), approximate limits



12035 DIXIE RD

Two adjacent properties (12035 Dixie Rd and Pt Lt 19 Con 4 EHS Chinguacousy as in R0811026; except 29, 30, 33 & 34 43R20417, PT 1 & 2 43R16098 & PT 4 43R16437; Caledon) are herein referred to as 12035 Dixie Rd. The combined size is approximately 147 acres (59 hectares) and the property is currently zoned and designated agricultural and is used for agricultural purposes. A linear drainage feature is present through the farm field, a creek is present along the northeast corner of the property, and small wetland patches are present elsewhere along the north, east, and south property boundaries. A woodland is present on the neighboring property to the east, with the woodland abutting the boundary with the subject property.

Wetland limits were pre-flagged by WSP prior to the site walk. These limits were reviewed and accepted by TRCA representatives. Woodland limits were pre-flagged by WSP prior to the site walk. These limits were reviewed and accepted by Town of Caledon representatives.

TRCA representatives stated a top of bank limit would be required along the valley crest in the northeast corner of the property. TRCA flagged the limit during the site walk.

The wetland, woodland, and top of bank limits will be professionally surveyed by R. Avis Surveying. The surveyed limits will be provided in digital format to TRCA and the Town of Caledon for review and inclusion into their GIS data set.

TRCA representatives stated a slope stability study would be required at a steep point ("Flag 3") along the valley crest in the northeast corner of the property.

12892 DIXIE RD

12892 Dixie Rd is approximately 197 acres (80 hectares) and the property is also zoned and designated agricultural and is currently used for agricultural purposes. Two drainage features are present in the northeast corner, and a creek is present along the south property boundary. A woodland is also present on the subject property.

Wetland limits were pre-flagged by WSP prior to the site walk. These limits were reviewed and accepted by TRCA representatives. Woodland limits were pre-flagged by WSP prior to the site walk. These limits were reviewed and accepted by Town of Caledon representatives.

Town of Caledon representatives stated that the ongoing selective cutting of trees within the woodland should follow forestry and arboriculture best management practices. The Town of Caledon representatives requested a copy of the forestry management plan (Jackson Stewardship, 2019) which was submitted to the Town via electronic transfer on November 19, 2020.

TRCA representatives stated a top of bank limit would be required at two locations: 1) along the valley crest above the drainage feature in the northeast corner of the property, and 2) along the valley crest above the creek along the south property boundary. TRCA flagged the limits during the site walk.

In addition, TRCA representatives stated a valley contiguous vegetation limit was required in the northeast corner of the property. This limit is an extension of the top of bank limit and includes contiguous vegetation in the vicinity of the farmhouse.

The wetland, woodland, and top of bank limits will be professionally surveyed by R. Avis Surveying. The surveyed limits will be provided in digital format to TRCA and the Town of Caledon for review and inclusion into their GIS data set.

TRCA representatives stated a feature-based water balance would be required for the watercourse within the woodland.

TRCA representatives stated an erosion analysis would be required for the watercourse within the woodland.

TRCA representatives stated a headwater drainage feature (HDF) analysis would be required upstream of the drainage feature south of the farmhouse.

TRCA representatives stated a slope stability analysis would be required along the south property limit in the vicinity of the creek.

OTHER COMMENTS

Terms of Reference for the study are to be reviewed by TRCA staff.

Town of Caledon Development Engineering staff are to be circulated all engineering reports and studies for review through future development application submission.

CONCLUSIONS

- The wetland limits at 12035 Dixie Rd and 12892 Dixie Rd as delineated by WSP received approval from TRCA representatives.
- The woodland limits at 12035 Dixie Rd and 12892 Dixie Rd as delineated by WSP received approval from Town of Caledon representatives.
- Top of bank limits at 12035 Dixie Rd and 12892 Dixie Rd were flagged by TRCA representatives.
- All verified limits at 12035 Dixie Rd and 12892 Dixie Rd will be professionally surveyed. The surveyed limits will be provided in digital format to TRCA and the Town of Caledon for review and inclusion into their GIS data set.
- TRCA and Town of Caledon representatives advised that the following surveys will be required, at the locations outlined above:
 - 12035 Dixie Rd: Slope Stability Study
 - 12892 Dixie Rd: Feature-based Water Balance; Erosion Analysis, HDF Analysis, Slope Stability Study

Thank you,



Leanne Wallis
Terrestrial Ecologist
WSP Canada



Carleigh Oude-Reimerink
Senior Planner, Project Manager
Armstrong Planning and Project Management



Steve Leslie
Ecologist
WSP Canada

APPENDIX

F

TERMS OF
REFERENCE



12035 DIXIE ROAD
CALEDON, ONTARIO

COMPREHENSIVE ENVIRONMENTAL IMPACT STUDY AND MANAGEMENT PROGRAM (CEISMP)

NATURAL HERITAGE TERMS OF REFERENCE



Prepared for:
Tribal Partners Canada Inc.
Prepared By:
WSP Canada Inc.
December 2020

Signatures

Prepared by



Steven Leslie, B.E.S.,
Ecologist

December 7, 2020

Date

Reviewed by



Jeff Gross, MSc.,
Senior Ecologist

December 7, 2020

Date

WSP Canada Inc. prepared this report solely for the use of the intended recipient, **Tribal Partners Canada Inc.**, in accordance with the professional services agreement. The intended recipient is solely responsible for the disclosure of any information contained in this report. The content and opinions contained in the present report are based on the observations and/or information available to **Tribal Partners Canada Inc.** at the time of preparation. If a third party makes use of, relies on, or makes decisions in accordance with this report, said third party is solely responsible for such use, reliance or decisions. WSP Canada Inc. does not accept responsibility for damages, if any, suffered by any third party as a result of decisions made or actions taken by said third party based on this report. This limitations statement is considered an integral part of this report.

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LIST OF APPENDICES

Appendix A: Subject Property Overview Figure

1.0 INTRODUCTION

WSP Canada Inc. (WSP) has been retained by Tribal Partners to provide input to a Comprehensive Environmental Impact Study and Management Program (CEISMP) in support of future development on two adjacent properties, herein identified as 12035 Dixie Road (the Subject Property), located at the north corner of the Dixie Road and Mayfield Road intersection in Caledon. To confirm the natural heritage scope of work for the CEISMP, we have prepared these Terms of Reference (TOR), based on relevant policies in the Town of Caledon Official Plan (2018), Toronto and Region Conservation Authority (TRCA) Environmental Impact Statement Guidelines (2014), pre-consultation (DART meeting) comments from the Town of Caledon dated September 23, 2020, background information and 2020 field surveys of the Subject Property. This also includes scope for a fluvial geomorphic analysis, provided by GeoMorphix Ltd. The Subject Property location and the surrounding landscape are shown on the Figure in Appendix A.

To document existing natural environment conditions, WSP has completed background information review and field investigations on the subject property from July 2020 through fall 2020 (refer to Section 4.1). WSP's Ecology Group completed a preliminary characterization of existing natural features and assessed natural heritage features and functions. Field investigations included documenting vegetation communities, wildlife and fish habitat, and determining the potential for Species at Risk (SAR) or their habitat to occur within the Subject Property. To identify constraint limits, woodland and wetland delineations were completed by WSP staff, subject to confirmation in the field with Town of Caledon and TRCA staff.

2.0 SITE CONTEXT

2.1 Overview

The Subject Property has a total area of approximately 59 hectares. Adjacent lands include agricultural fields, woodlands / riparian areas along a tributary of the Humber River, industrial / commercial properties to the west / southwest, and existing and residential homes to the southeast. Almost all of the Subject Property is under active agricultural use (crops), though there are natural areas associated with two tributaries of the Humber River, as discussed below and shown in Appendix A.

2.2 Natural Features

The natural heritage overview presented below is based on three field surveys from July 2020 through October 2020 and review of available background information. Natural areas, which comprise approximately 4.05 ha (or 7%) of the Subject Property, include: woodland and riparian areas along the northernmost tributary of the Humber River (herein identified as Tributary 1 of the Humber River), located within and adjacent to the north limit of the property; small patches of wetland vegetation; and a smaller, ephemeral / intermittent tributary of the Humber River (herein identified as Tributary 2 of the Humber River) through the middle of the Subject Property.



Aquatic habitat includes the aforementioned tributaries of the Humber River: Tributary 1 is a permanent watercourse and has associated riparian areas located within and adjacent to the northernmost portion of the Subject Property; and Tributary 2 is a small ephemeral / intermittent drainage feature that conveys surface flows through the centre of the Subject Property, entering the Subject Property from the west corner at Dixie Road and flowing off the Subject Property at the east corner to lands east of Mayfield Road. Natural vegetation along Tributary 2 is limited to a very narrow strip of disturbed cultural meadow and meadow marsh species, bounded by cropland throughout its length.

2.3 Designations

There are a number of existing natural heritage designations and natural heritage features on or adjacent to the Subject Property (see Appendix A):

Areas Regulated by TRCA under Ontario Regulation 166/06 of the Conservation Authorities Act:

- Two regulated watercourses are present:
 - Two tributaries of the Humber River flowing west to east as described above (per TRCA online mapping; December 2020, field confirmed by WSP).

Region of Peel Official Plan (2018)

- Tributary 1 of the Humber River, and associated natural areas (riparian and woodland) on and adjacent to the Subject Property are designated as *Core Areas of the Greenlands System* in the Official Plan (Schedule A; Section 2.3).
- The entire Subject Property is designated as *Prime Agricultural Area* (per Schedule B).

Town of Caledon Official Plan (2018)

- The entire Subject Property is designated as *Prime Agricultural Area* (per Schedule A).

Greenbelt Plan (2017)

- Tributary 1 of the Humber River, and associated natural areas (riparian and woodland) on and adjacent to the Subject Property, are designated as *Protected Countryside – Natural Heritage System* of the *Greenbelt Area* (per Schedule 4); generally coincident with *Core Areas of Greenlands System* in the Region of Peel Official Plan (2018), with approximate limits shown on the Figure in Appendix A.

No other existing regional, provincial, or federal natural heritage designations apply to the Subject Property.

3.0 BACKGROUND INFORMATION REVIEW

Background information reviewed includes the following:



- Relevant Region of Peel Official Plan (2018); Town of Caledon Official Plan (2018); and Greenbelt Plan (2017) policies and guidelines;
- Natural Heritage Information Centre (NHIC) database;
- Land Information Ontario and air photo mapping;
- Ontario Reptile and Amphibian Atlas (ORAA; Ontario Nature 2020);
- Ontario Breeding Bird Atlas (OBBA; Bird Studies Canada 2006);
- eBird.org data (Audubon and Cornell Lab of Ornithology, no date);
- Atlas of the Mammals of Ontario (Dobbyn 1994);
- Inaturalist (Inaturalist.org 2020); and
- Fisheries and Oceans Canada (DFO) – Aquatic Species at Risk Mapping (2020).

4.0 SCOPE OF WORK

4.1 Field Surveys & Analyses Completed to Date

Field investigations completed to date are summarized below, with additional details provided in the field survey chronology (Appendix B):

- General Field Reconnaissance (multiple dates in 2020)
- Fluvial geomorphological assessment (GeoMorphix Ltd.)
 - Desktop analysis
 - Field verification on one date (November 26, 2020) including the following tasks at each watercourse on the Subject Property:
 - Rapid Geomorphic Assessments (MOE, 2003) to evaluate channel stability;
 - Rapid Stream Assessments (Galli, 1996) to determine stream health;
 - Channel classification using the modified Channel Evaluation Model (Downs, 1995);
 - Habitat sketch maps per Newson and Newson (2000); and
 - Detailed geomorphic assessment on Tributary 2 of the Humber River.
- Aquatic Field Surveys (targeted surveys on two dates; July 30, 2020 and December 7, 2020):
 - Headwater Drainage Features (HDF) field assessment across the site – based on guidance provided in the Evaluation, Classification and Management of Headwater Drainage Features Guidelines (CVC & TRCA, January 2014)
- Vegetation Surveys (targeted survey on 1 date – September 17, 2020):
 - General vegetation overview
 - ELC habitat classification and mapping (as per Ecological Land Classification for Southern Ontario protocols)
 - Botanical inventory



- Wetland and woodland delineation flagged by a qualified WSP ecologist on September 17, 2020
 - Limits to be confirmed during a site walk with TRCA and Town of Caledon and surveyed for use on base plans included in the submission
- General Wildlife and SAR habitat Assessments (four dates from July to December 2020)
 - A list of SAR potentially present in the study area was developed using background information review sources, including database information from NHIC, avian and herpetofauna atlases and other sources, as relevant. This approach is consistent with recent MECP guidance, specifically the Client's Guide to Preliminary Screening for Species at Risk (Draft, MECP 2019).

4.1 Outstanding Tasks For CEISMP

Outstanding reporting / data analysis tasks to be initiated upon acceptance of the TOR:

- Confirm with agencies and survey staked woodland and wetland limits;
- Submit agency information requests (TRCA, MECP);
- Documentation of results and conclusions of the Headwater Drainage Feature assessment;
- Erosion hazard delineation through erosion setback or meander belt width;
- Fall botanical inventory and ELC community characterization / mapping refinement;
- Submit CEISMP Report for agency review; and
- Revise and finalize CEISMP Report in consideration of agency comments.

5.0 REPORT

A CEISMP Report will be prepared in consideration of Region of Peel, Town of Caledon and TRCA policies and guidelines and the approved Terms of Reference, including the following components:

- Description of historical and present land uses of the Subject Property, including but not limited to: grading / filling activities; and easements or restrictions.
- Mapping natural areas on and immediately adjacent to the subject property, including natural area designations as defined by the Town, Region, the MNRF / MECP, etc. A general location aerial photograph will be provided that identifies the subject property, proposed development and natural areas both onsite and on the adjacent lands.
- Description of natural heritage attributes, including field survey existing conditions results / secondary source information and analyses assessment of headwater drainage features, and SAR habitat potential.
- Results of fluvial geomorphological assessment, hazard delineation, and conceptual channel realignment designs.



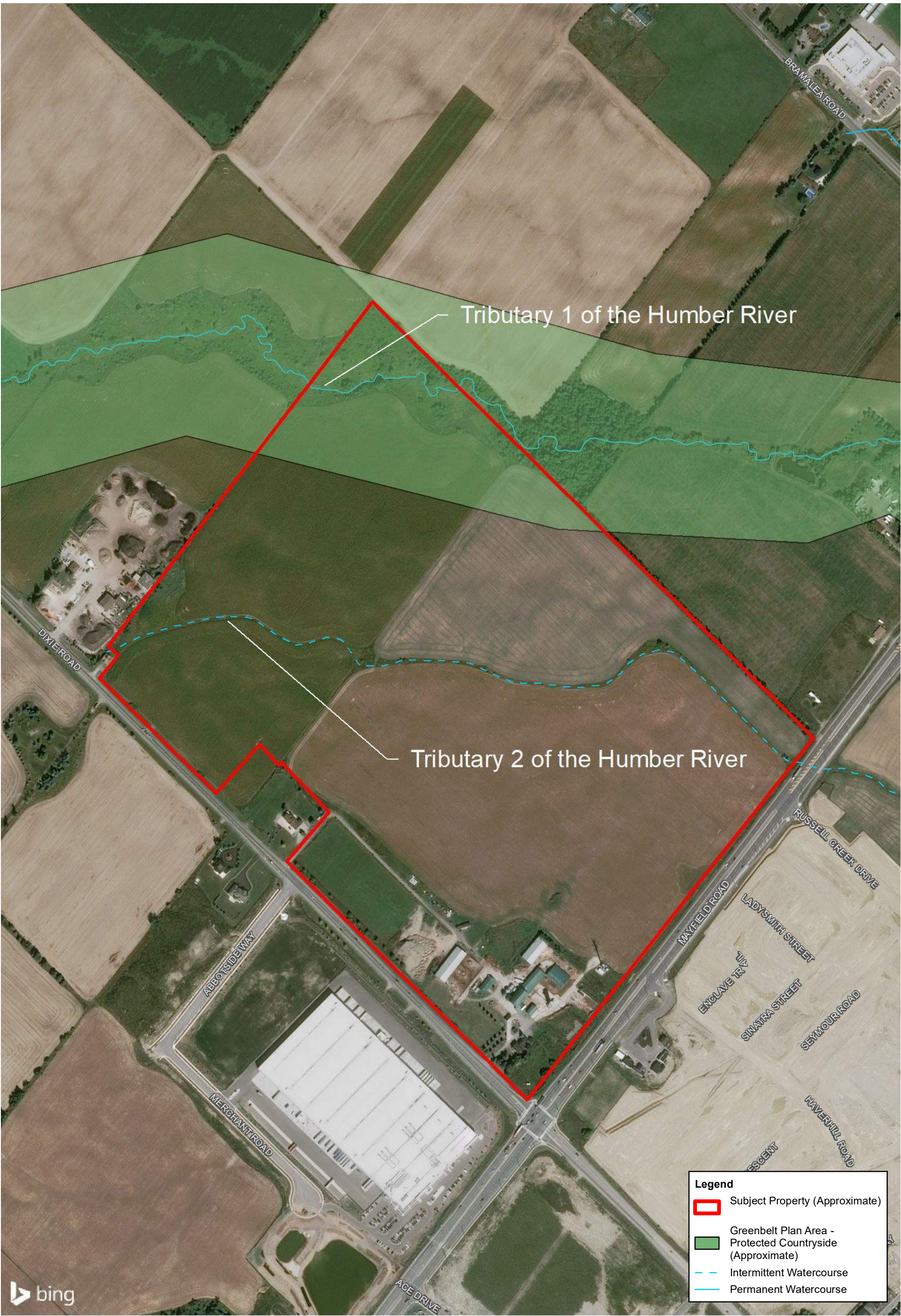
- Evaluation of *Significant Wildlife Habitat* using the Significant Wildlife Habitat EcoRegion Criteria Schedules for EcoRegion 6E (MNR January 2015), based on available background information and result of field surveys identified herein.
- Evaluation of SAR habitat and policy compliance discussion based on available background information and result of field surveys identified herein.
- Identification of natural heritage constraints and recommended development limits
- Integration of relevant technical information as relevant (e.g., water balance, geotechnical / slope stability, stormwater management, floodplain analysis)
- Commentary on potential direct and indirect impacts to ecological features and functions resulting from proposed activities.
- Discussion of relevant policies, regulations and guidelines at the municipal / regional, provincial and federal levels; discussion of policy compliance.
- Identification of proposed mitigation, protection, and restoration / enhancement measures e.
- Recommendations for Biological Monitoring and Geomorphological Monitoring (for conceptual channel realignment).

The report will also include technical appendices, such as species lists, photographs etc. Mapping of natural features identified and recommended setbacks will be provided on an air photo base at an appropriate scale. A final report will be submitted to the Town, Region and TRCA for review and comment as part of the development application, with revisions addressed as part of a resubmission, as required.



APPENDIX A

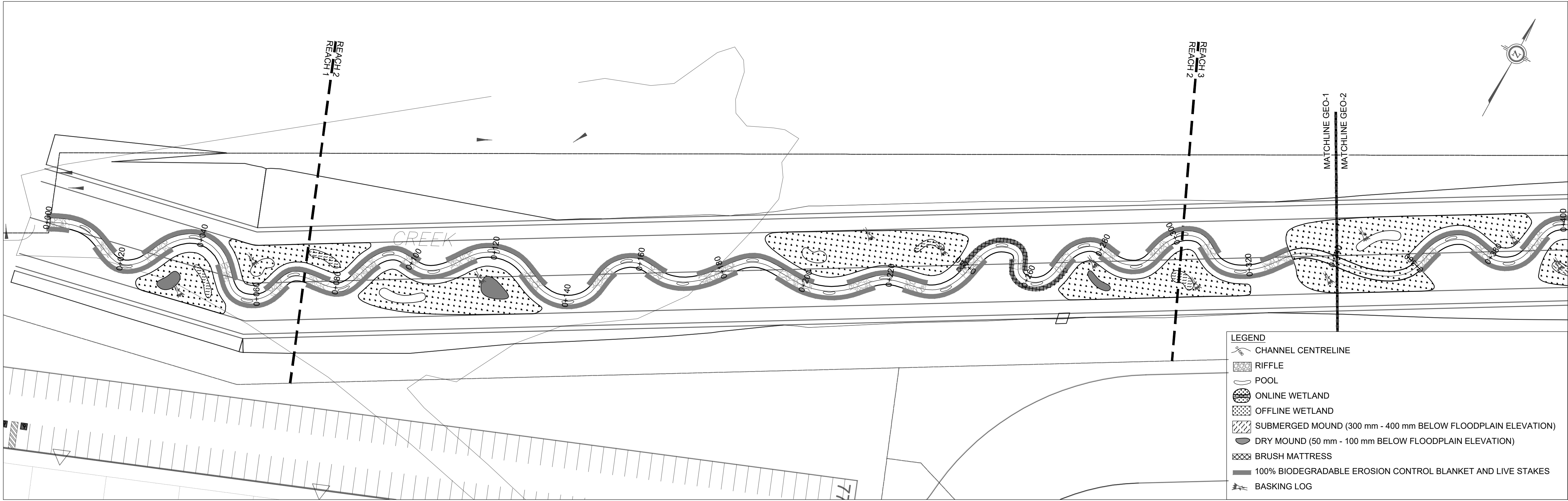
SUBJECT PROPERTY OVERVIEW FIGURE



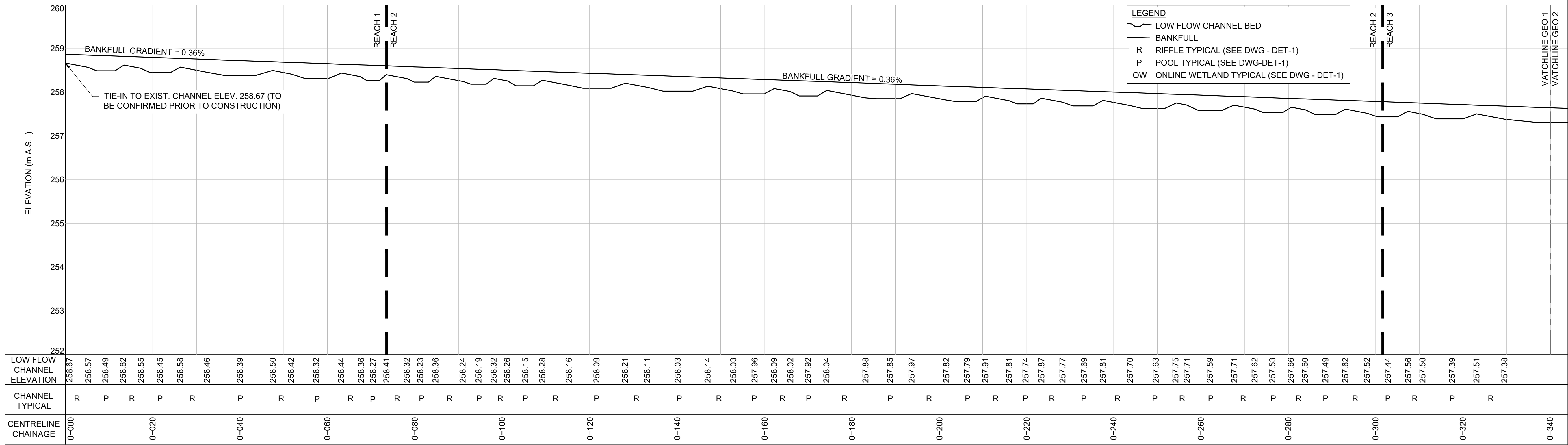
APPENDIX

G

CONCEPTUAL
NATURAL CORRIDOR
DESIGN



PLANFORM
1:500



PROFILE
H = 1:500; V=1:50

DRAFT FOR DISCUSSION

SCALED FOR PLOT ON 'ARCH D'

N
N.T.S.

KEY MAP
N.T.S.

GENERAL NOTES

- ALL CONTRACT DRAWINGS, SPECIFICATIONS AND APPLICABLE PERMITS MUST BE KEPT ON SITE DURING CONSTRUCTION FOR REFERENCE.
- THE CONTRACTOR MUST NOTIFY THE CONTRACT ADMINISTRATOR AND CONSERVATION AUTHORITY OF THE INTENT TO COMMENCE WORK AT LEAST 48 HOURS IN ADVANCE.
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- STABILIZE STOCKPILED SOILS THAT ARE STORED FOR PROLONGED PERIODS WITH THE APPLICATION OF A NURSE CROP AT A RATE OF 60 kg/ha.
- STABILIZE TEMPORARILY OR PERMANENTLY, ANY DISTURBED AREAS AS WORK PROGRESSES, OR SOON AS CONDITIONS ALLOW. ON SOILS THAT WILL BE EXPOSED FOR PROLONG PERIODS, TEMPORARILY INSTALL A BIODEGRADABLE EROSION CONTROL BLANKET ON EXPOSED SOILS, OR APPLY A NURSE CROP AT A RATE OF 60 KG/HA.
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DATE BY REVISIONS

DESIGNED BY: LD CHECKED BY: PV

DRAWN BY: GM/AS DATE: MARCH 2021



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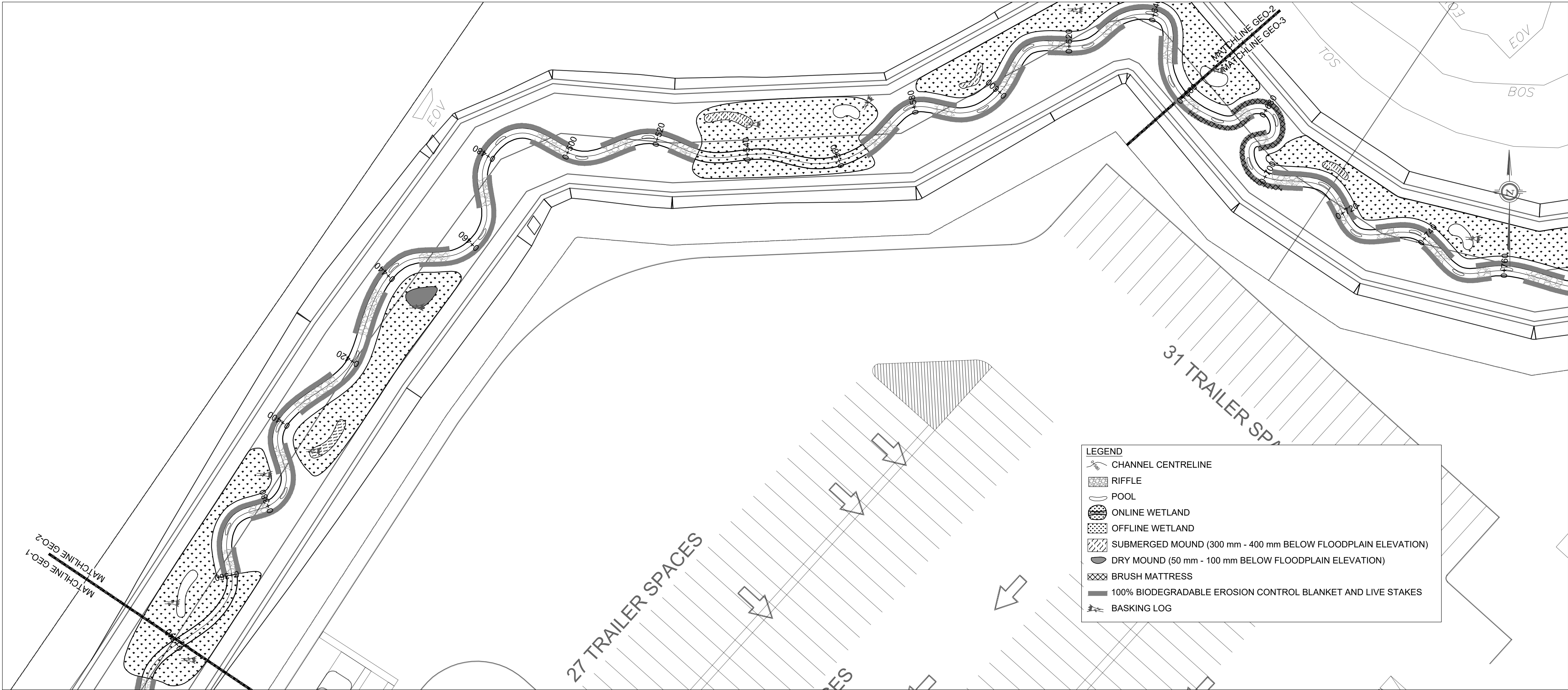
CONCEPTUAL CHANNEL DESIGN
PLANFORM AND PROFILE

PROJECT No.: 20109

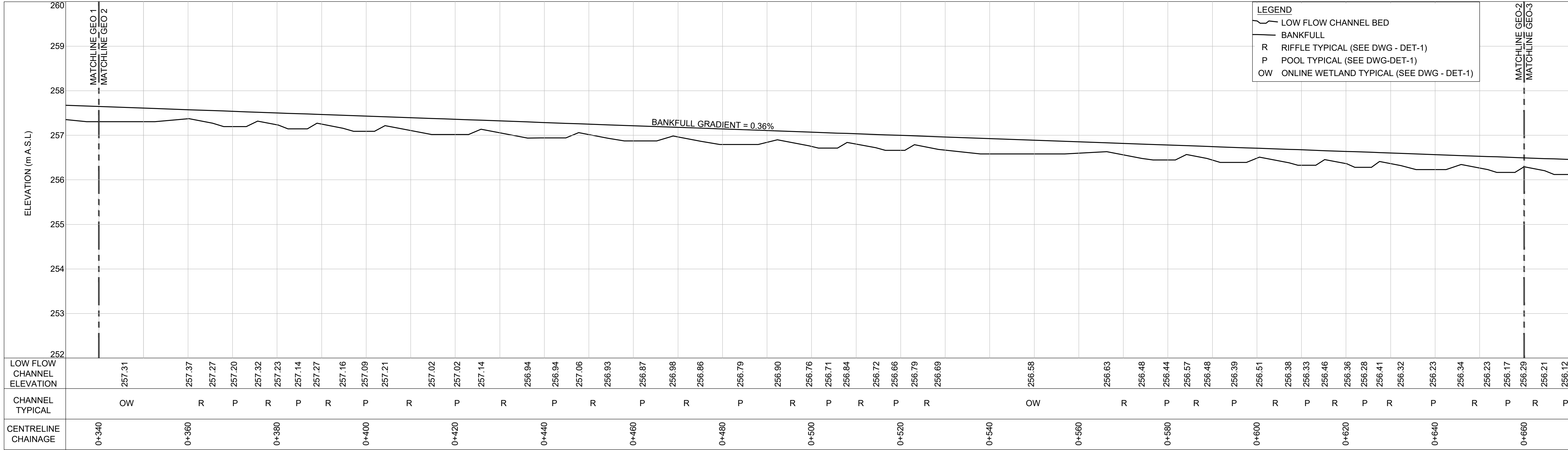
DRAWING No.: GEO-1

SCALE: AS NOTED

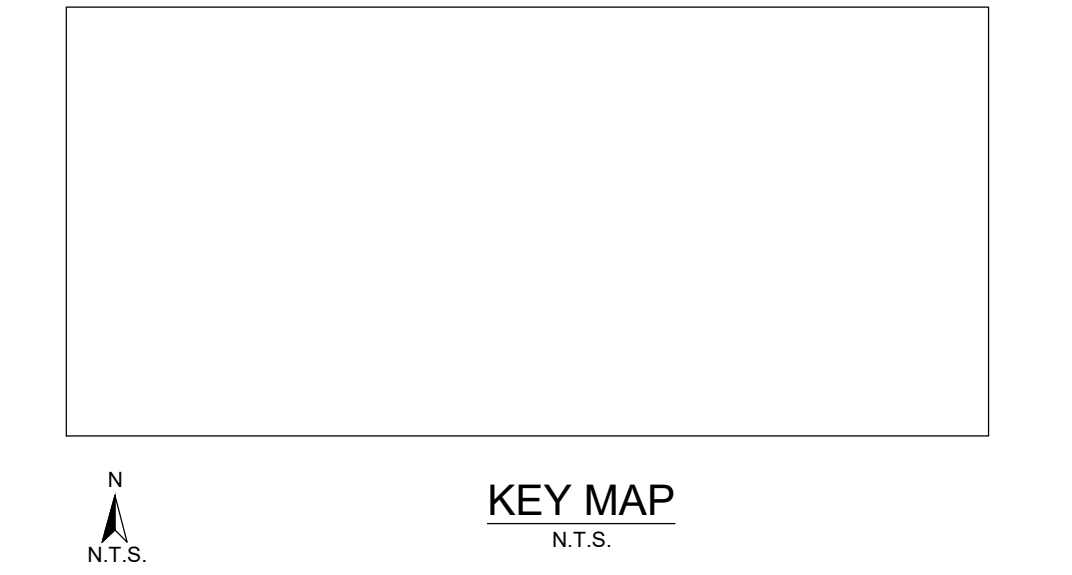
SHEET 1 OF 7



PLANFORM
1:500



PROFILE
H = 1:500; V = 1:50



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	DATE	BY	REVISIONS
DESIGNED BY:	LD	CHECKED BY:	PV
DRAWN BY:	GM/AS	DATE:	MARCH 2021
		 36 Main Street North, PO Box 205 Campbellville, Ontario L0P 1B0 T: 416.920.0926 www.geomorphix.com	
		21/03/17	

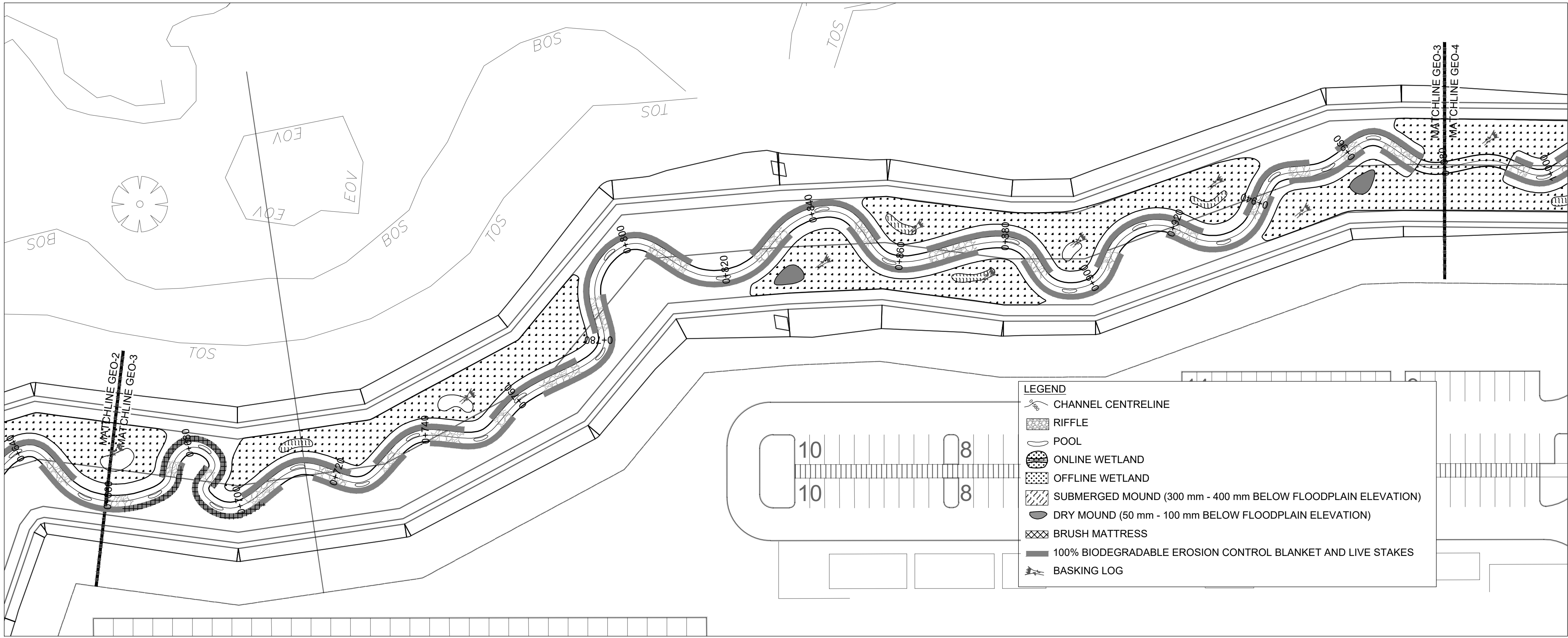
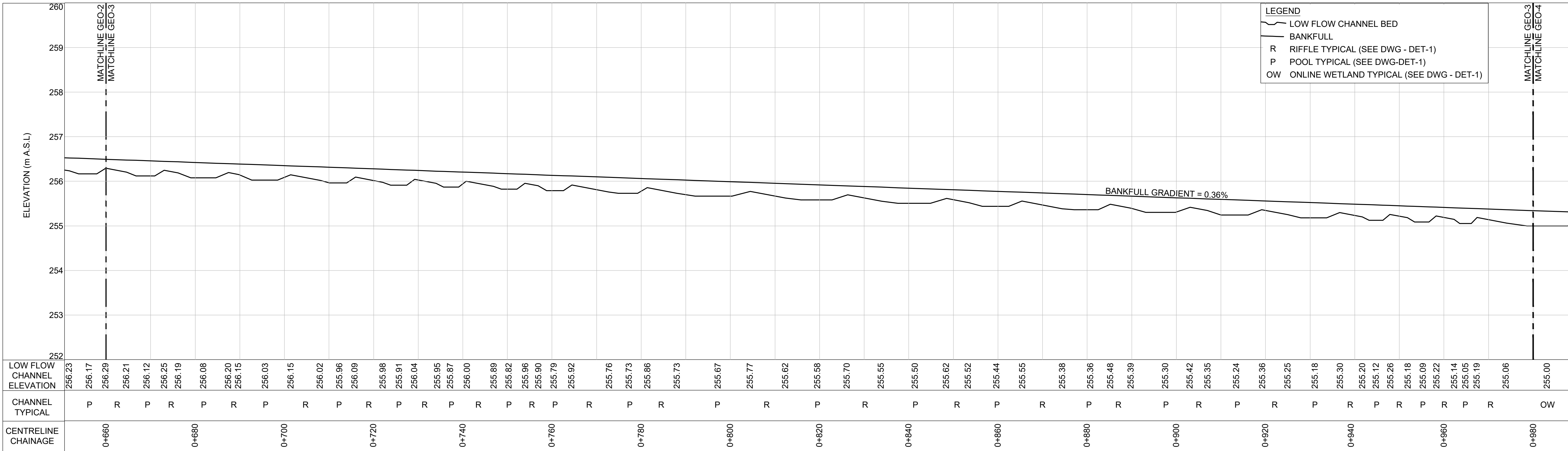
TRIBAL PARTNERS
CANADA INC.

CONCEPTUAL CHANNEL DESIGN
PLANFORM AND PROFILE

PROJECT No.: 20109	DRAWING No.: GEO-2
SCALE: AS NOTED	SHEET 2 OF 7

DRAFT FOR DISCUSSION

SCALED FOR PLOT ON 'ARCH D'



KEY MAP
N.T.S.

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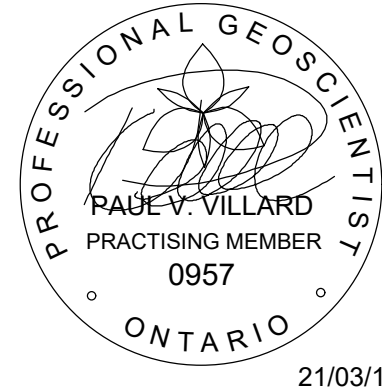
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DESIGNED BY: LD CHECKED BY: PV

DRAWN BY: GM/AS DATE: MARCH 2021



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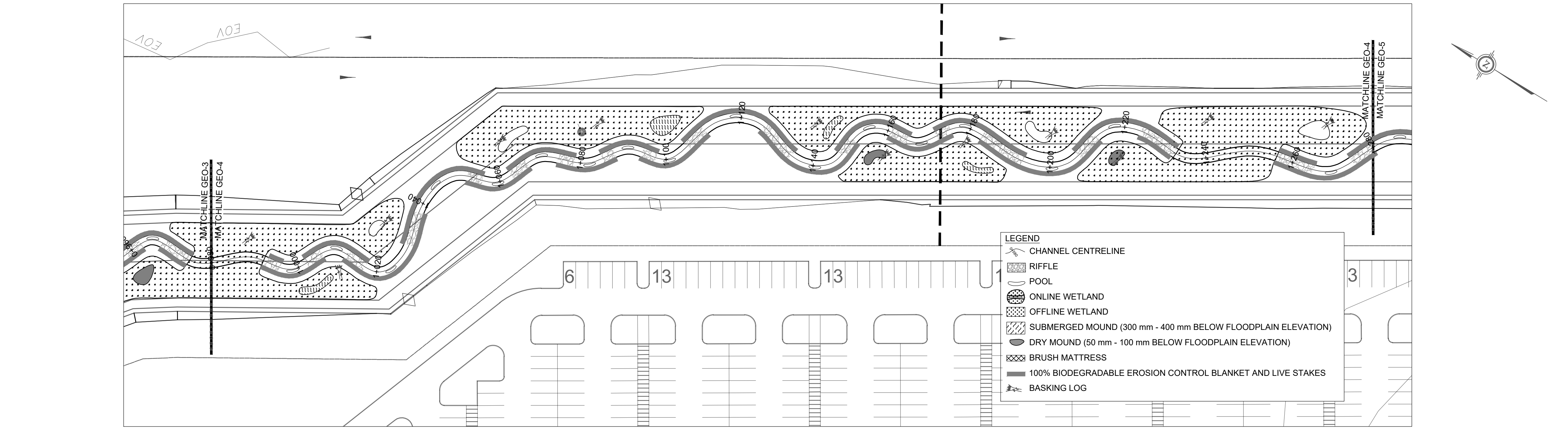
CONCEPTUAL CHANNEL DESIGN
PLANFORM AND PROFILE

PROJECT No.: 20109

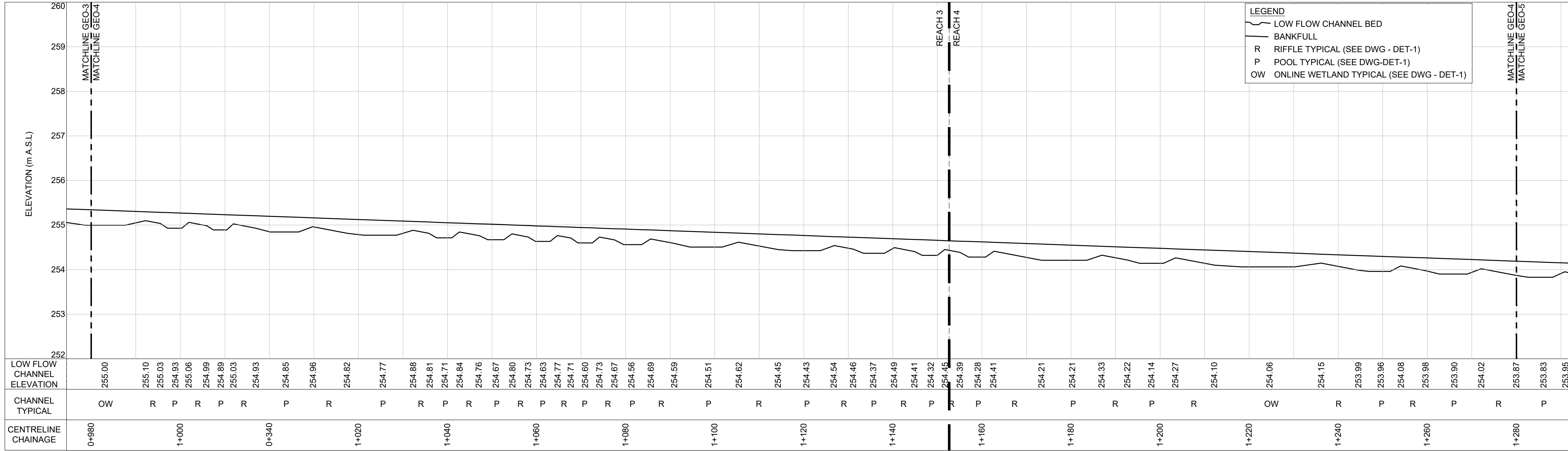
DRAWING No.: GEO-3

SCALE: AS NOTED

SHEET 3 OF 7



PLANFORM
1:500



PROFILE
H: 1:500, V: 1:500



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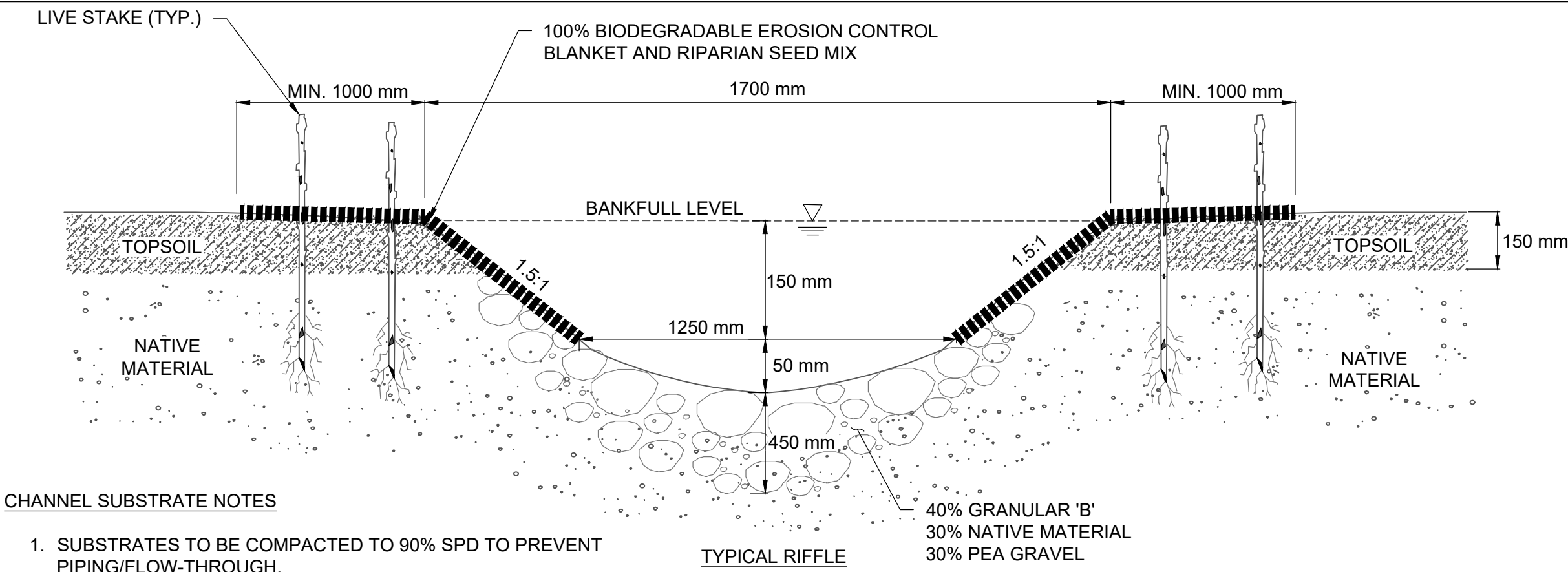
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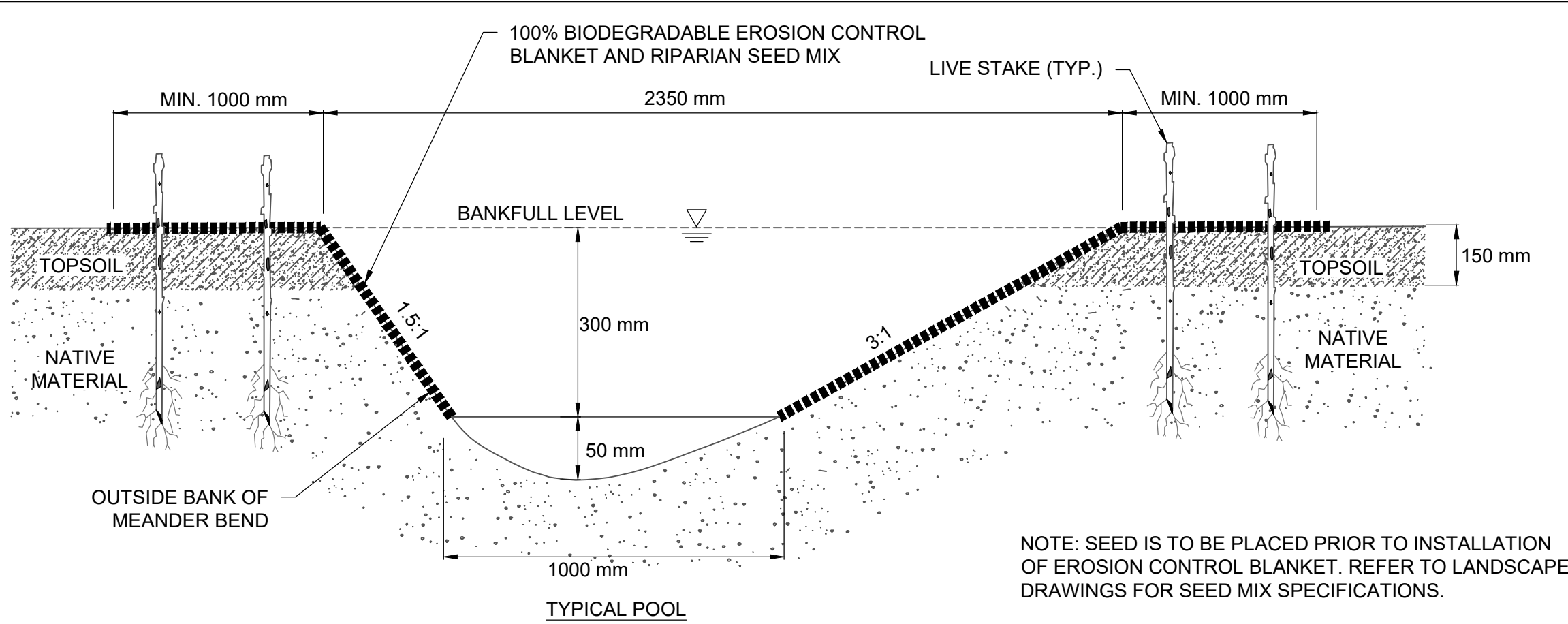
PROJECT No.: 20109	DRAWING No.: GEO-4
SCALE: AS NOTED	SHEET 4 OF 7



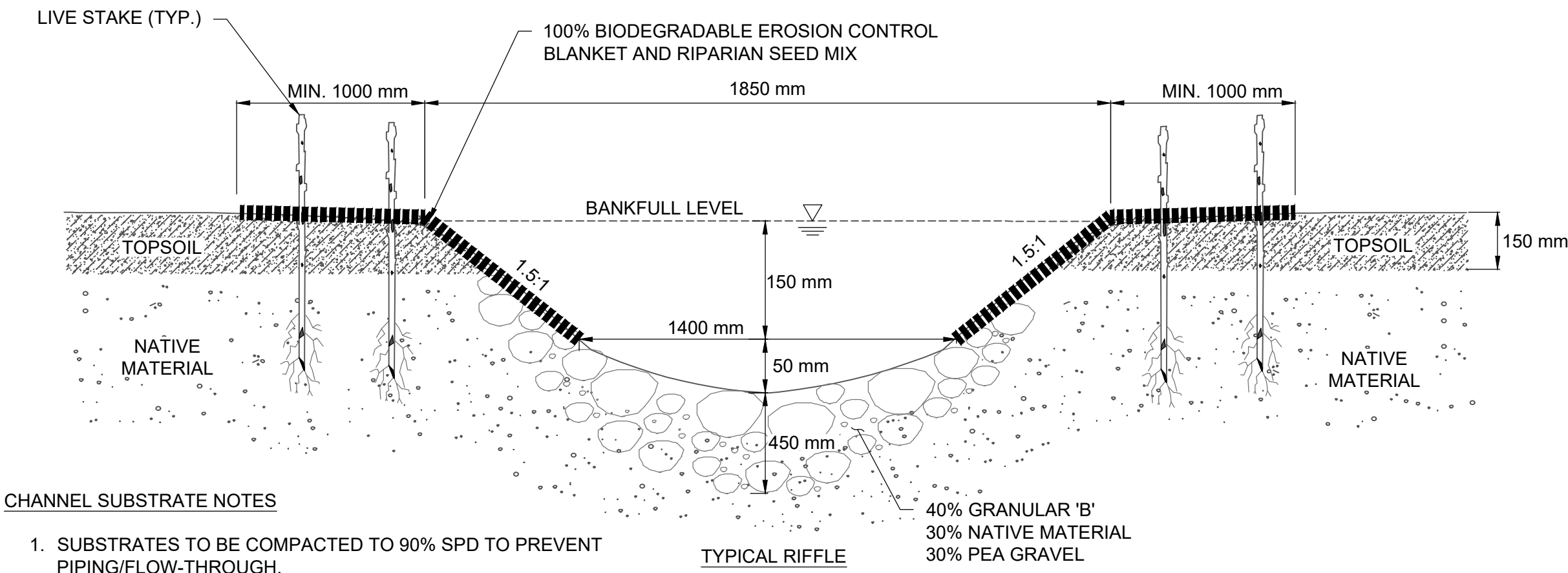
CHANNEL SUBSTRATE NOTES

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- FINE NATIVE MATERIAL TO BE ADDED TO SUBSTRATE MIX TO FILL INTERSTITIAL VOIDS, AS REQUIRED.

CHANNEL CROSS SECTIONS - REACH 1
N.T.S.



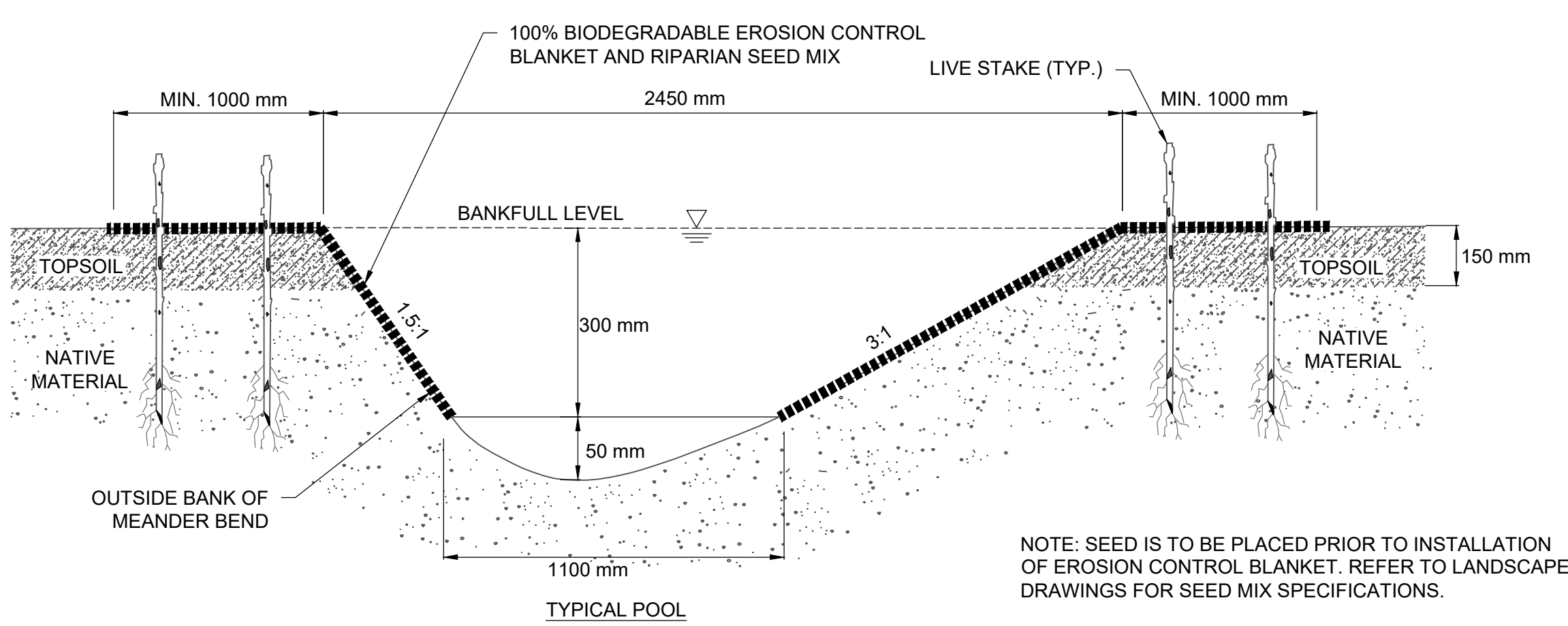
NOTE: SEED IS TO BE PLACED PRIOR TO INSTALLATION OF EROSION CONTROL BLANKET. REFER TO LANDSCAPE DRAWINGS FOR SEED MIX SPECIFICATIONS.



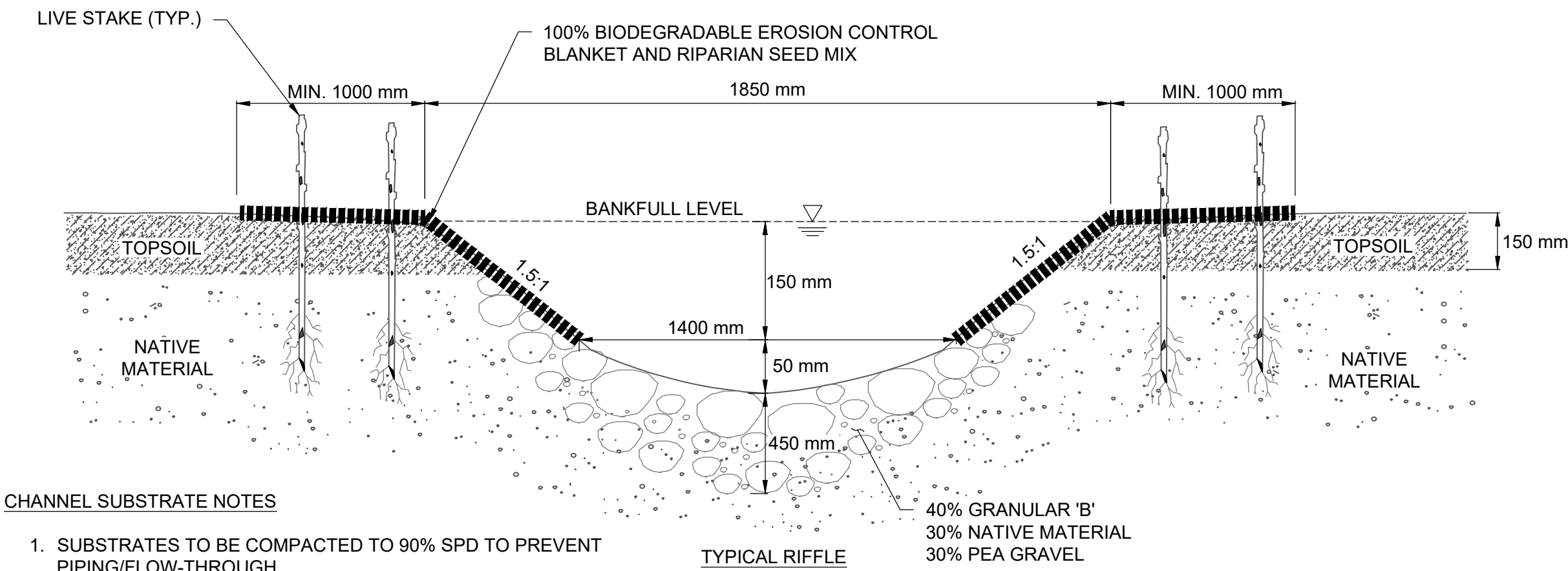
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CHANNEL CROSS SECTIONS - REACH 2
N.T.S.



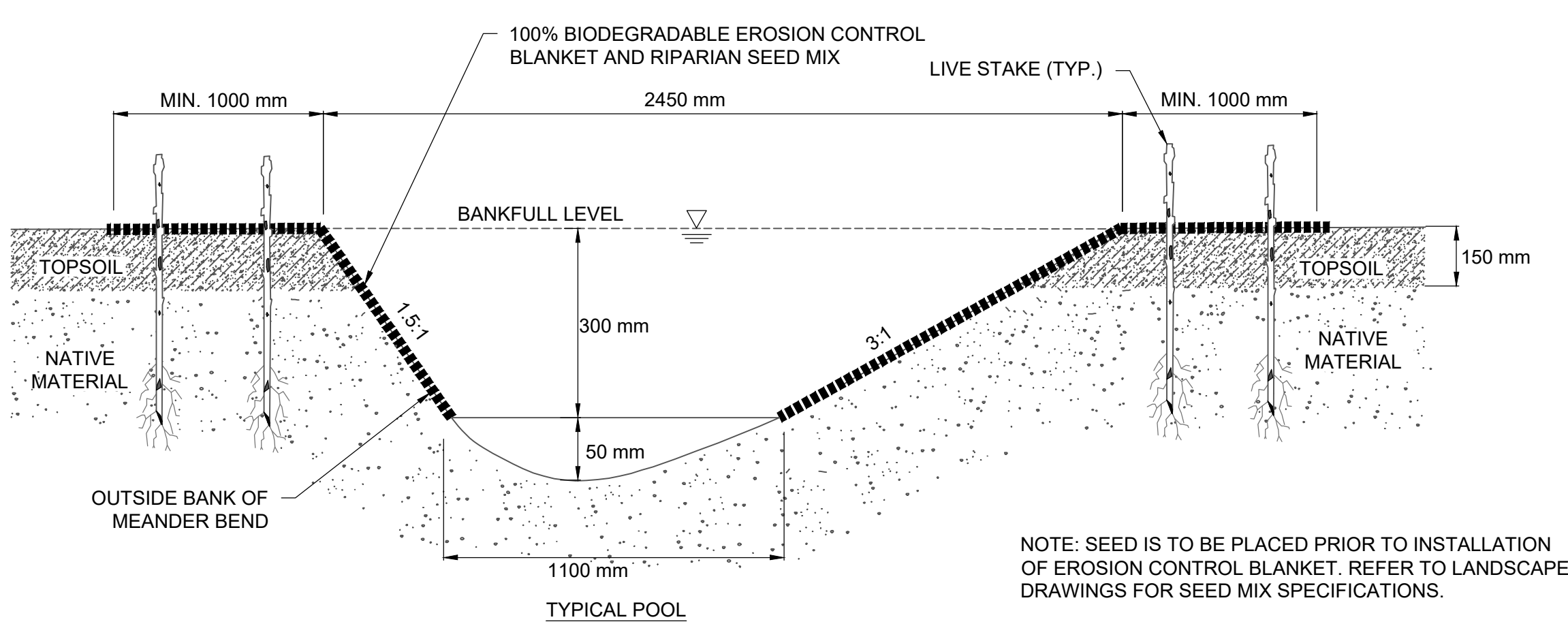
NOTE: SEED IS TO BE PLACED PRIOR TO INSTALLATION OF EROSION CONTROL BLANKET. REFER TO LANDSCAPE DRAWINGS FOR SEED MIX SPECIFICATIONS.



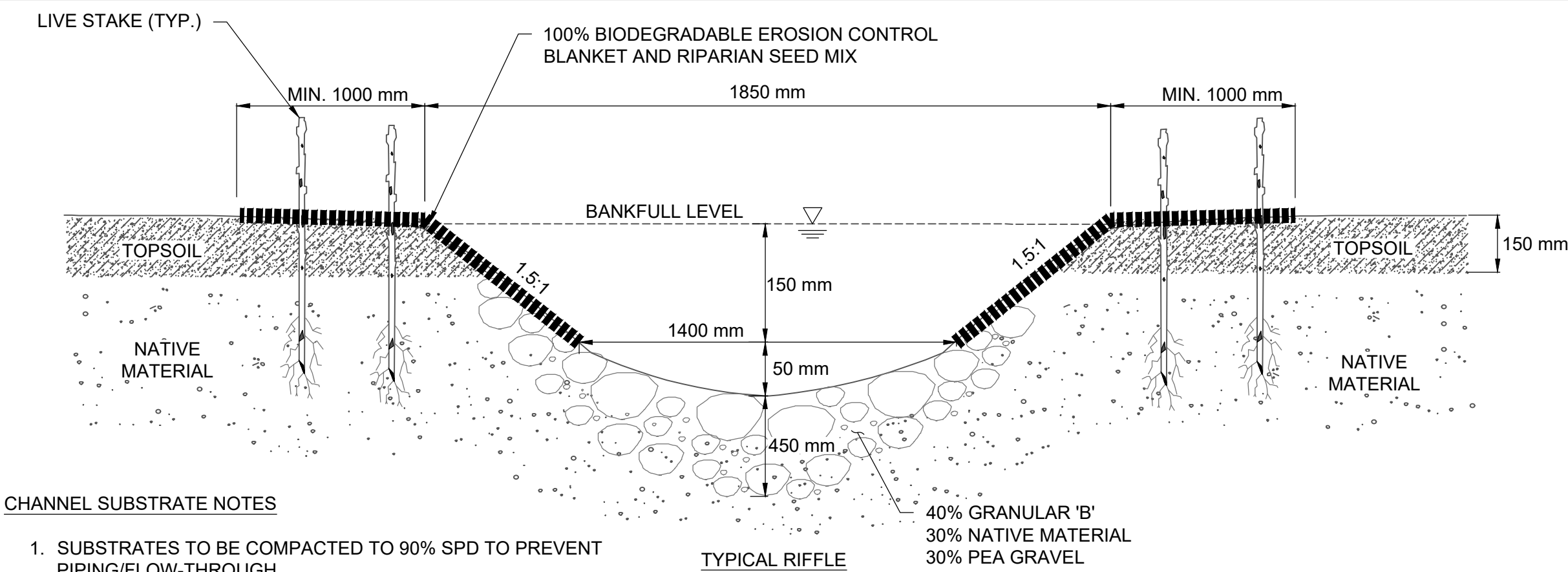
CHANNEL SUBSTRATE NOTES

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CHANNEL CROSS SECTIONS - REACH 2
N.T.S.



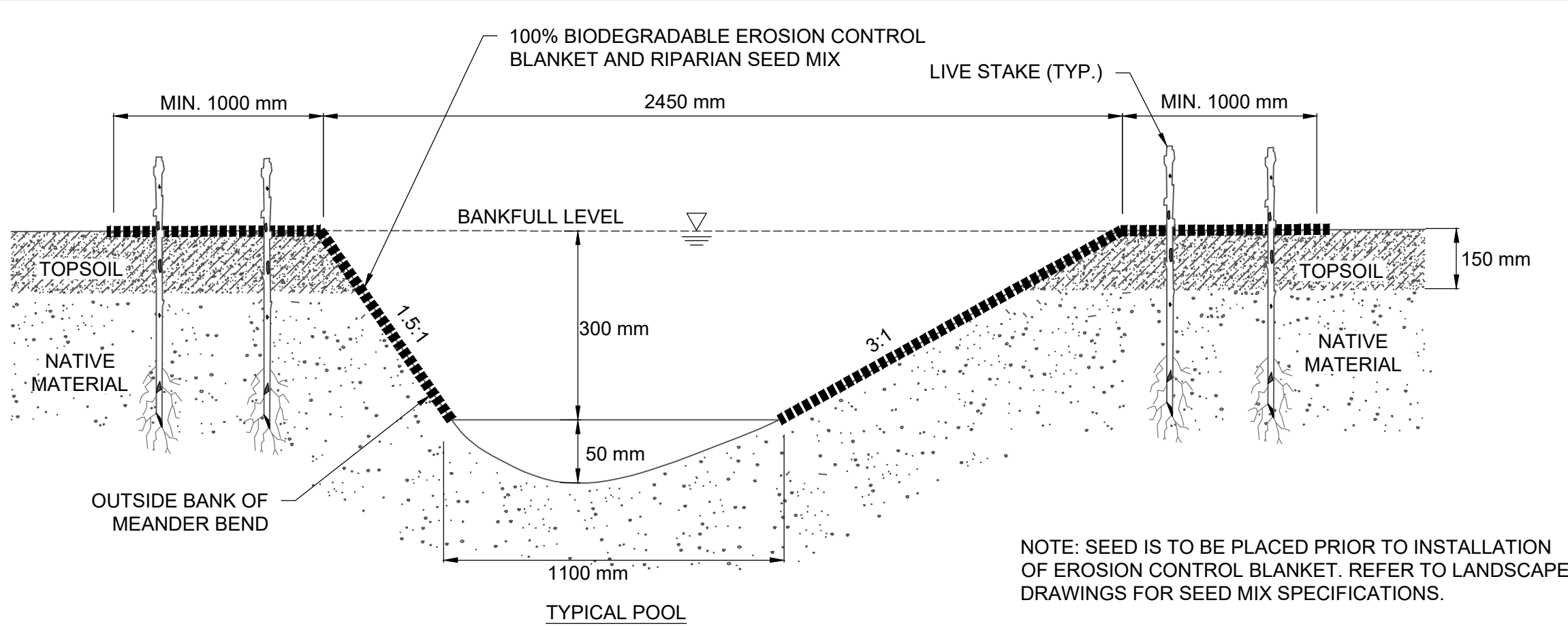
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CHANNEL CROSS SECTIONS - REACH 2
N.T.S.



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KEY MAP
N.T.S.

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- THE CONTRACTOR MUST NOTIFY THE CONTRACT ADMINISTRATOR AND CONSERVATION AUTHORITY OF THE INTENT TO COMMENCE WORK AT LEAST 48 HOURS IN ADVANCE.
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- STOCKPILES MUST BE LOCATED OUTSIDE THE ISOLATED WORK AREAS.
- STABILIZE STOCKPILED SOILS THAT ARE STORED FOR PROLONGED PERIODS WITH THE APPLICATION OF A NURSE CROP AT A RATE OF 60 kg/ha.
- STABILIZE TEMPORARILY OR PERMANENTLY, ANY DISTURBED AREAS AS WORK PROGRESSES, OR SOON AS CONDITIONS ALLOW. ON SOILS THAT WILL BE EXPOSED FOR PROLONG PERIODS, TEMPORARILY INSTALL A BIODEGRADABLE EROSION CONTROL BLANKET ON EXPOSED SOILS, OR APPLY A NURSE CROP AT A RATE OF 60 KG/HA.
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1.	21/03/17	LD	FIRST CONCEPTUAL DESIGN SUBMISSION
	DATE	BY	REVISIONS
DESIGNED BY:	LD	CHECKED BY:	PV
DRAWN BY:	GM/AS	DATE:	MARCH 2021
		 36 Main Street North, PO Box 205 Campbellville, Ontario L0P 1B0 T: 416.920.0926 www.geomorphix.com	
		21/03/17	

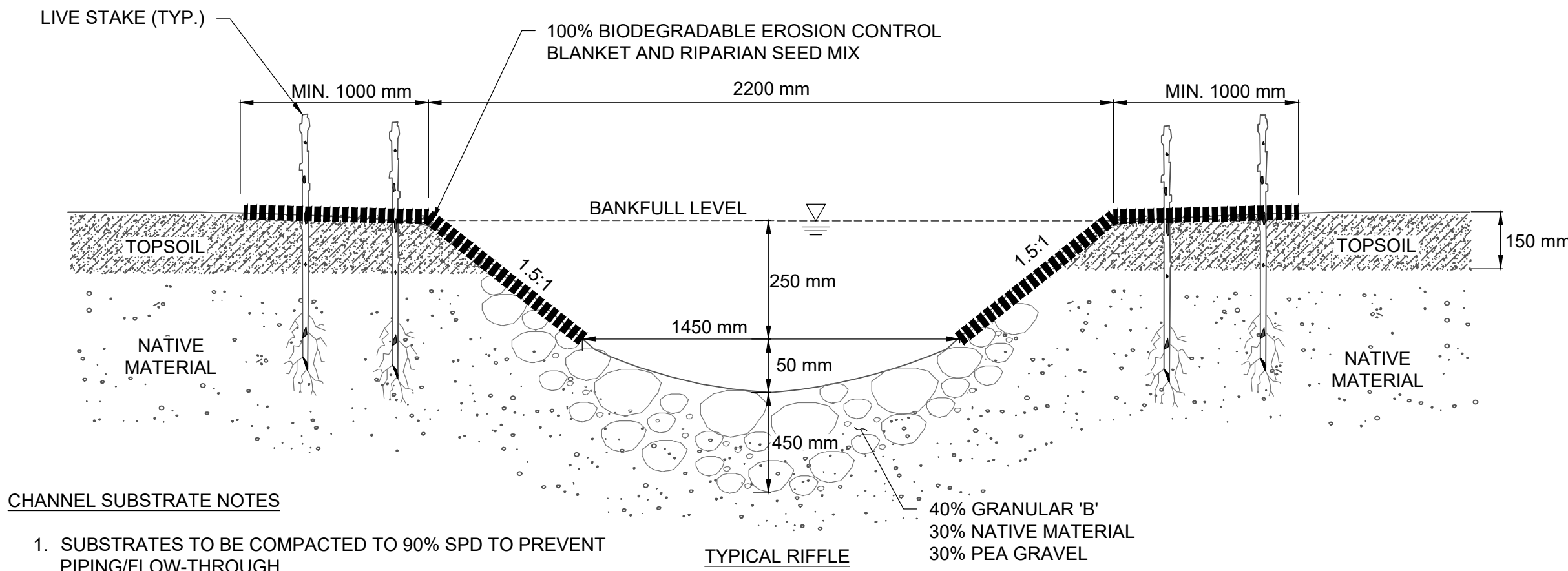
TRIBAL PARTNERS
CANADA INC.

CONCEPTUAL CHANNEL DESIGN RESTORATION DETAILS

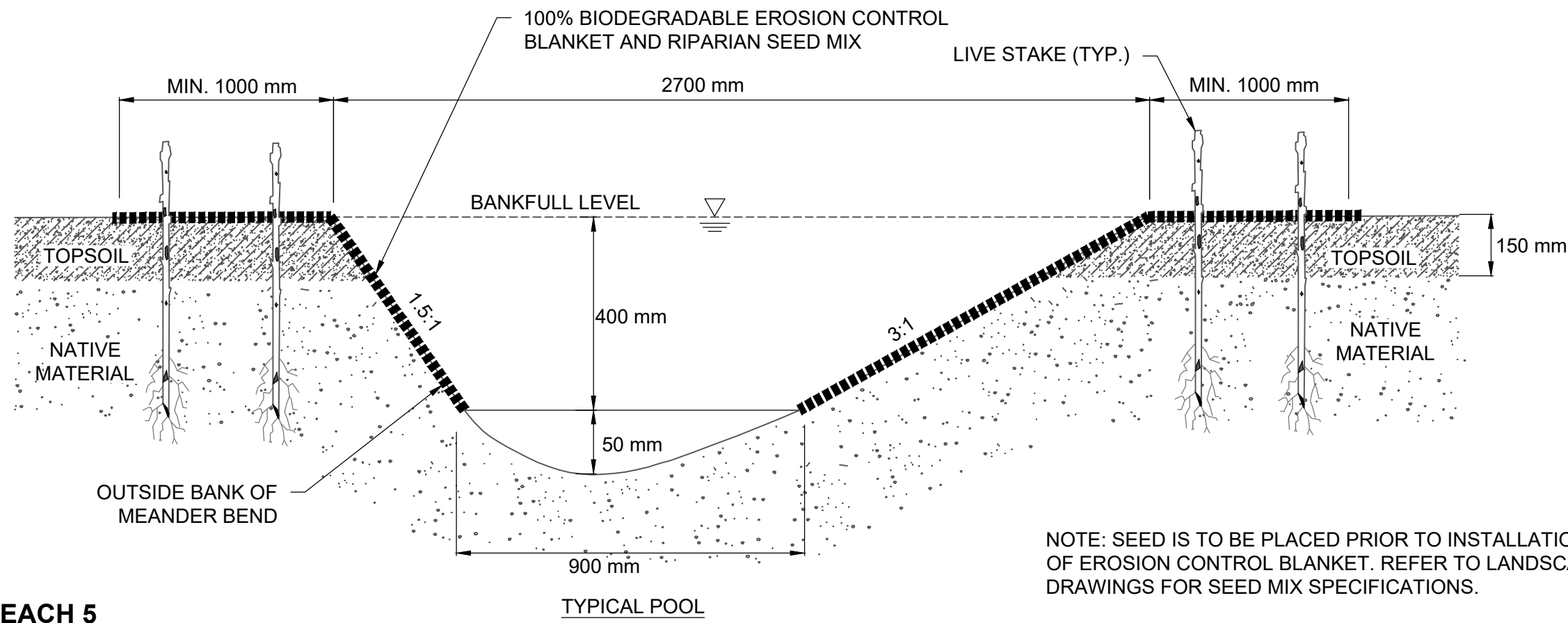
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SCALE: AS NOTED	SHEET 6 OF 7

DRAFT FOR DISCUSSION

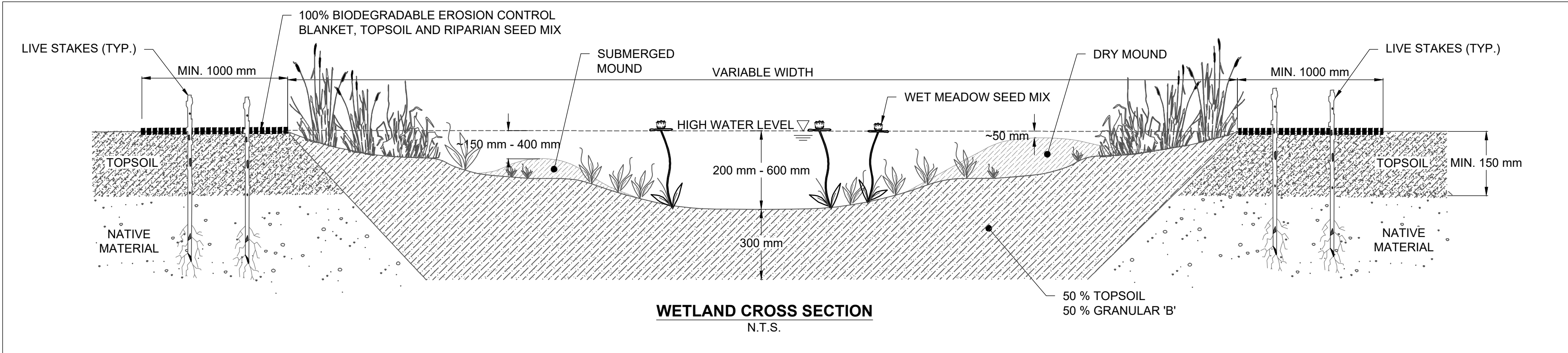
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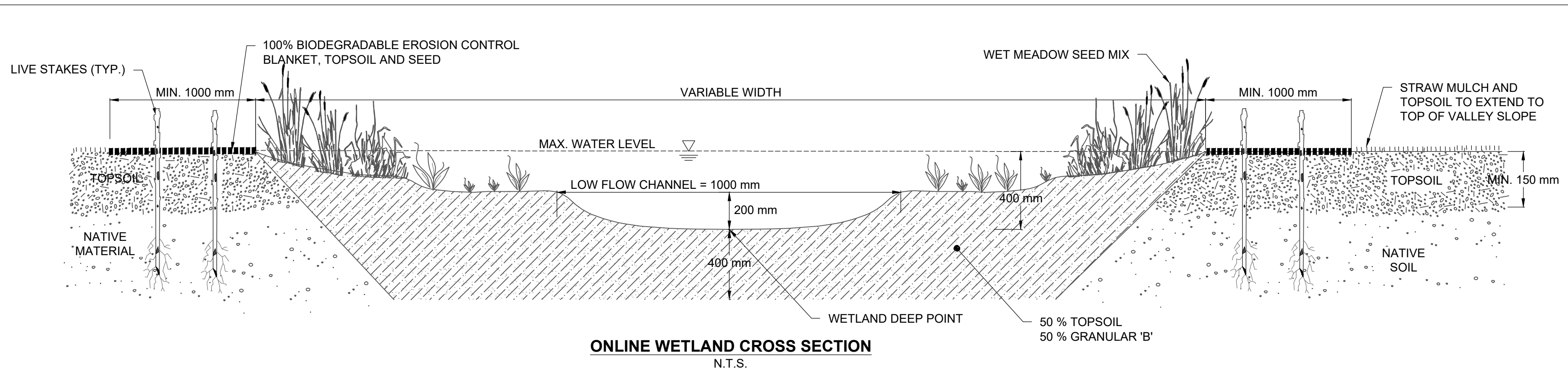
CHANNEL CROSS SECTIONS - REACH 5
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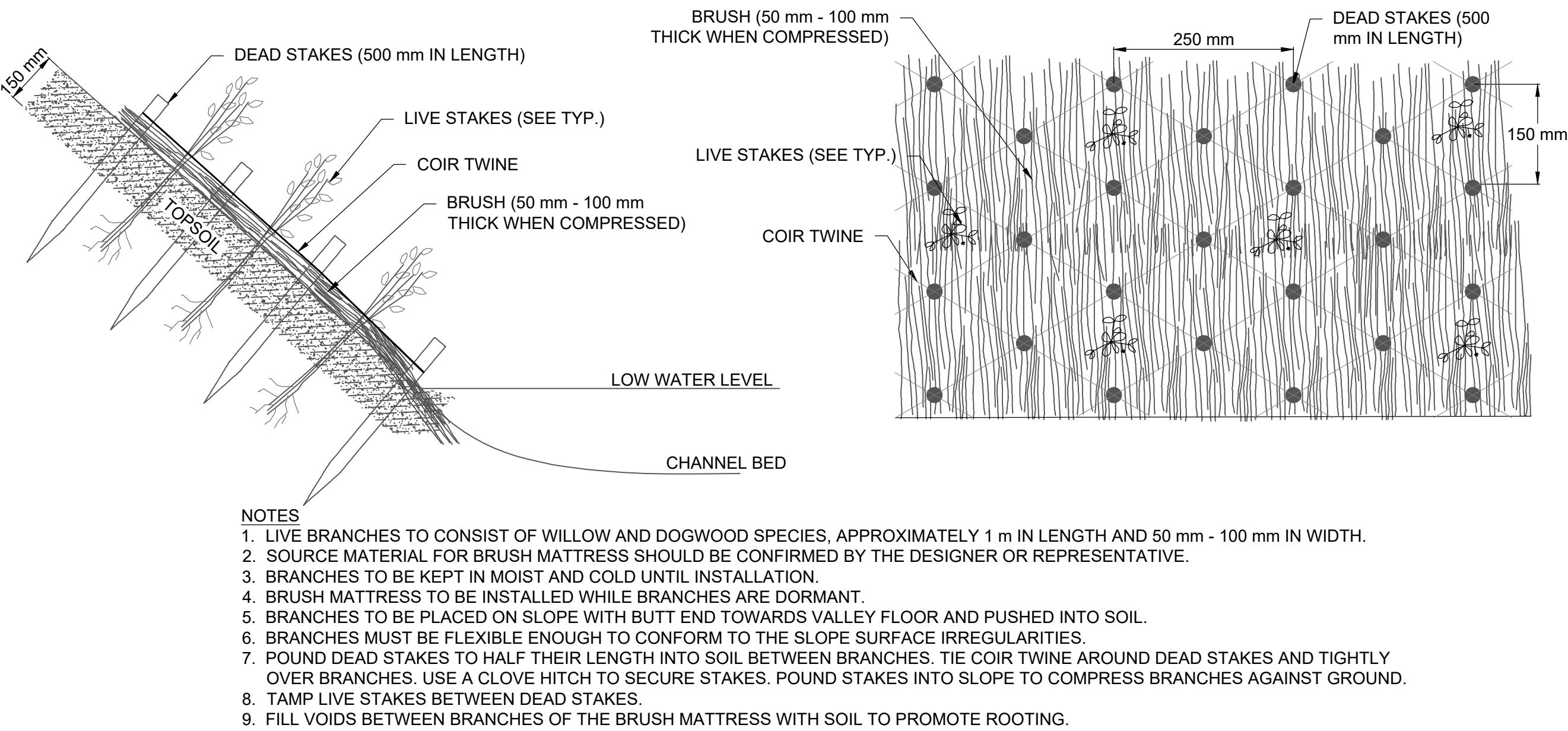
NOTE: SEED IS TO BE PLACED PRIOR TO INSTALLATION OF EROSION CONTROL BLANKET. REFER TO LANDSCAPE DRAWINGS FOR SEED MIX SPECIFICATIONS.



WETLAND CROSS SECTION
N.T.S.

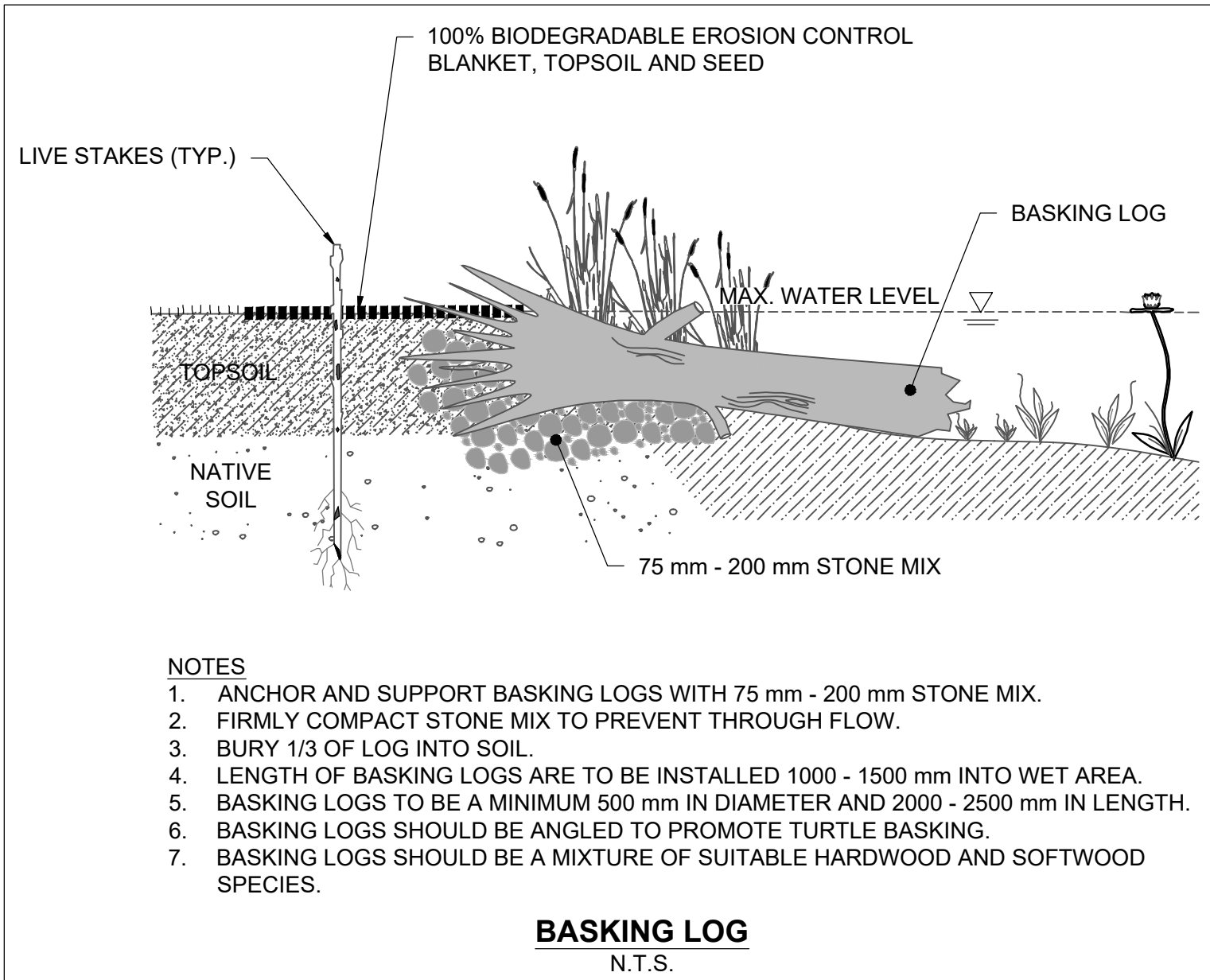


ONLINE WETLAND CROSS SECTION
N.T.S.



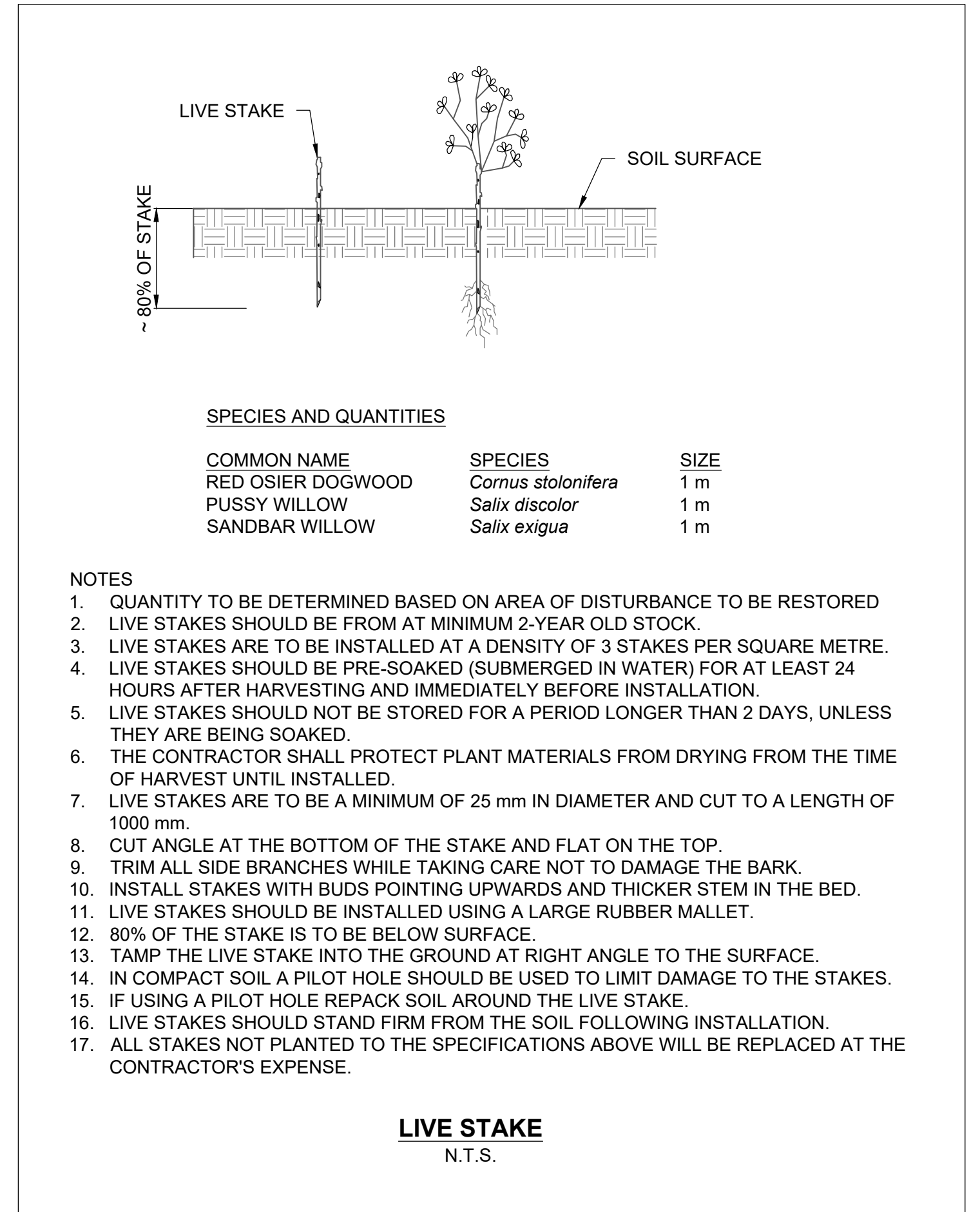
- NOTES
1. LIVE BRANCHES TO CONSIST OF WILLOW AND DOGWOOD SPECIES, APPROXIMATELY 1 m IN LENGTH AND 50 mm - 100 mm IN WIDTH.
 2. SOURCE MATERIAL FOR BRUSH MATTRESS SHOULD BE CONFIRMED BY THE DESIGNER OR REPRESENTATIVE.
 3. BRANCHES TO BE KEPT IN MOIST AND COLD UNTIL INSTALLATION.
 4. BRUSH MATTRESS TO BE INSTALLED WHILE BRANCHES ARE DORMANT.
 5. BRANCHES TO BE PLACED ON SLOPE WITH BUTT END TOWARDS VALLEY FLOOR AND PUSHED INTO SOIL.
 6. BRANCHES MUST BE FLEXIBLE ENOUGH TO CONFORM TO THE SLOPE SURFACE IRREGULARITIES.
 7. POUND DEAD STAKES TO HALF THEIR LENGTH INTO SOIL BETWEEN BRANCHES. TIE COIR TWINE AROUND DEAD STAKES AND TIGHTLY OVER BRANCHES. USE A CLOVE HITCH TO SECURE STAKES. POUND STAKES INTO SLOPE TO COMPRESS BRANCHES AGAINST GROUND.
 8. TAMP LIVE STAKES BETWEEN DEAD STAKES.
 9. FILL VOIDS BETWEEN BRANCHES OF THE BRUSH MATTRESS WITH SOIL TO PROMOTE ROOTING.

BRUSH MATTRESS
N.T.S.



- NOTES
1. ANCHOR AND SUPPORT BASKING LOGS WITH 75 mm - 200 mm STONE MIX.
 2. FIRMLY COMPACT STONE MIX TO PREVENT THROUGH FLOW.
 3. BURY 1/3 OF LOG INTO SOIL.
 4. LENGTH OF BASKING LOGS ARE TO BE INSTALLED 1000 - 1500 mm INTO WET AREA.
 5. BASKING LOGS TO BE A MINIMUM 500 mm IN DIAMETER AND 2000 - 2500 mm IN LENGTH.
 6. BASKING LOGS SHOULD BE ANGLED TO PROMOTE TURTLE BASKING.
 7. BASKING LOGS SHOULD BE A MIXTURE OF SUITABLE HARDWOOD AND SOFTWOOD SPECIES.

BASKING LOG
N.T.S.



LIVE STAKE
N.T.S.



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1.	21/03/17	LD	FIRST CONCEPTUAL DESIGN SUBMISSION
	DATE	BY	REVISIONS
DESIGNED BY: LD			CHECKED BY: PV
DRAWN BY: GM/AS			DATE: MARCH 2021



PROFESSIONAL GEOSCIENTIST
AUDREY VILLARD
PRACTISING MEMBER
0957
ONTARIO



GEO MORPHIX
Geomorphology
Earth Science
Observations

36 Main Street North, PO Box 205
Campbellville, Ontario L0P 1B0

T: 416.920.0926
www.geomorphix.com

21/03/17

TRIBAL PARTNERS
CANADA INC.

CONCEPTUAL CHANNEL DESIGN RESTORATION DETAILS

PROJECT No.: 20109	DRAWING No.: DET-2
SCALE: AS NOTED	SHEET 7 OF 7

DRAFT FOR DISCUSSION

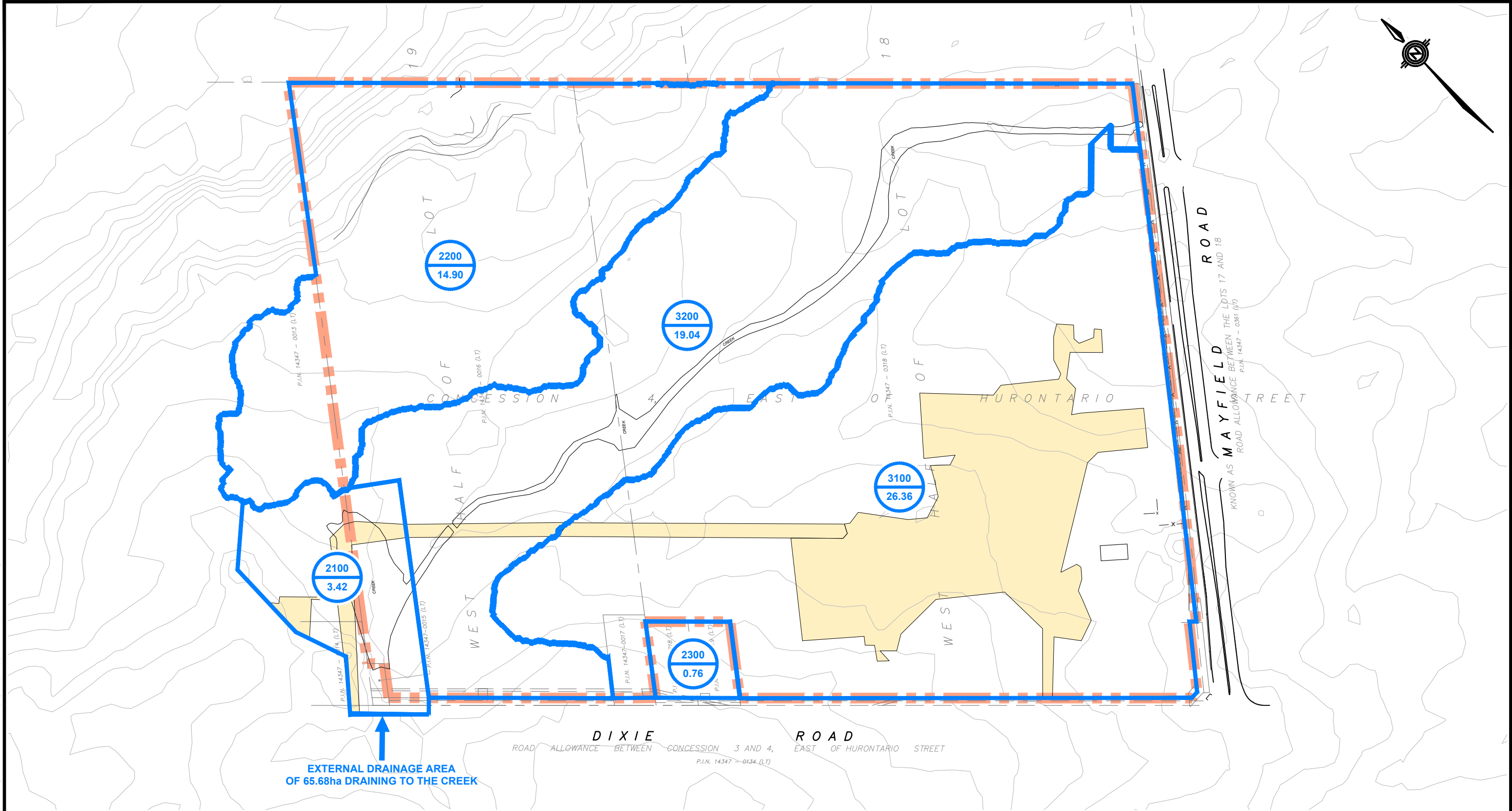
SCALED FOR PLOT ON 'ARCH D'

APPENDIX

H

SWH PLANS

FIGURE 2.dwg - 12035 Dixie Rd - Existing Conditions C:\Users\bailey\BIM_360\WSP Canada projects (AMER)\Land Development Ontario\Project Files\20M-01429 - 12035 Dixie Road\UNSWM\CAD\FIGURES\ Mar 04, 2021 - 11:28am



LEGEND



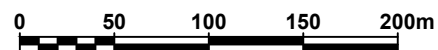
PROPERTY BOUNDARY
CATCHMENT BOUNDARY



IMPERVIOUS



CATCHMENT ID.
DRAINAGE AREA (ha)




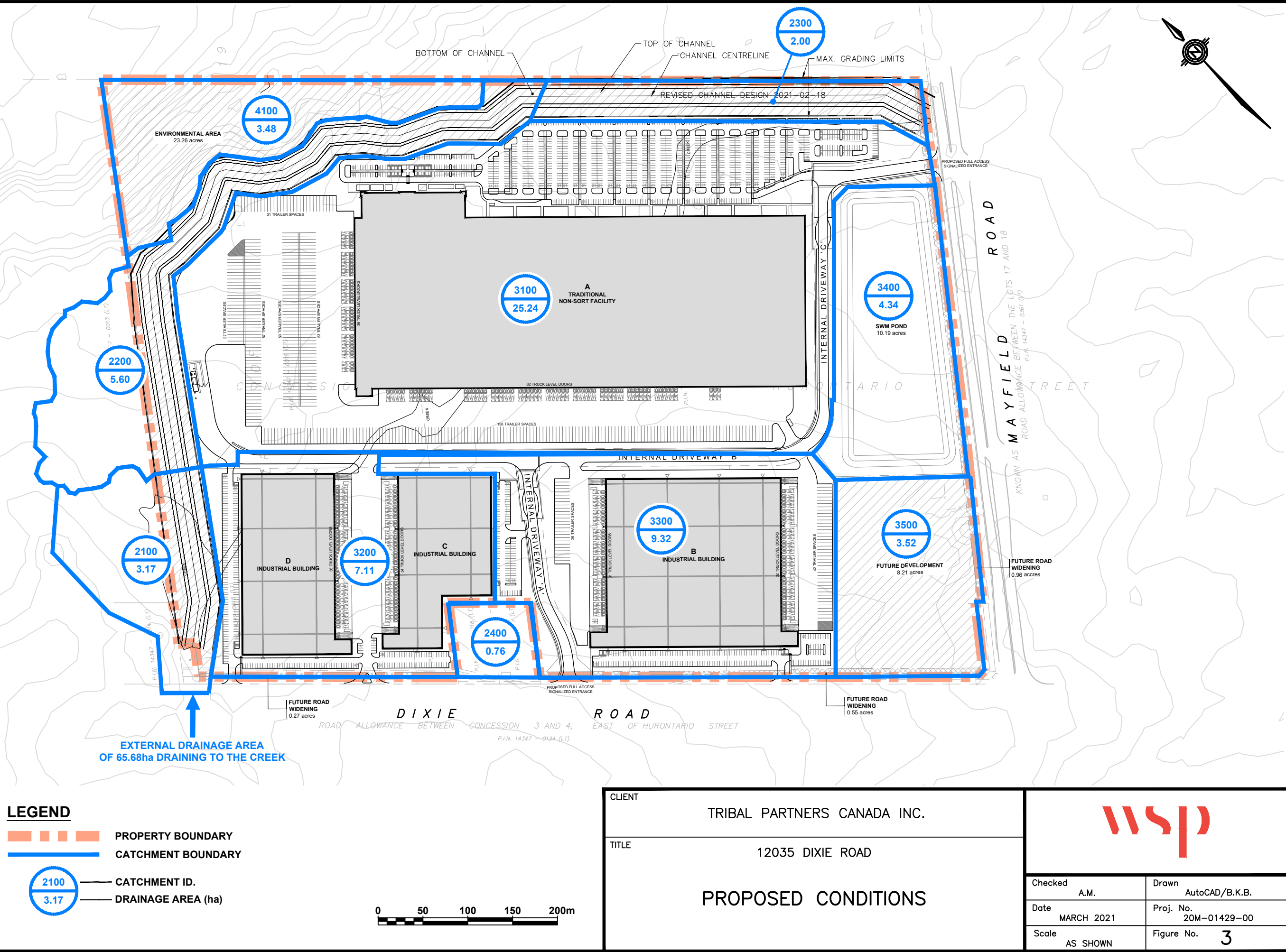
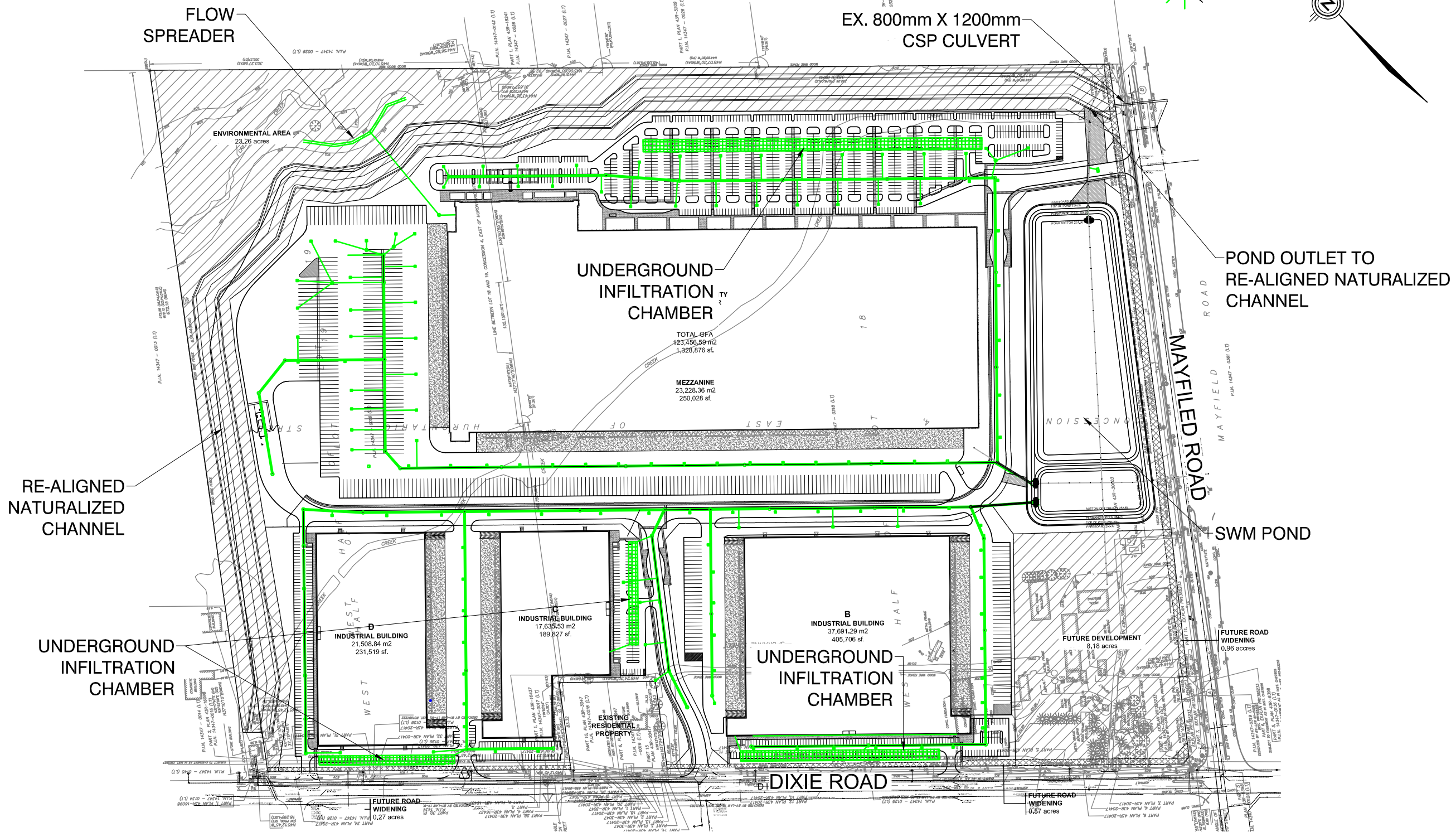
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TITLE	12035 DIXIE ROAD		
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		A.M.	AutoCAD/B.K.B.
		Date	Proj. No.
		MARCH 2021	20M-01429-00
		Scale	Figure No.
		AS SHOWN	2

FIGURE 3.dwg - 12035 Dixie Rd - Proposed Conditions C:\Users\bailey\BIM 360\WSP Canada projects (AMER)\Land Development Ontario\Project Files\20M-01429 - 12035 Dixie Road\MUNSWM\CAD\FIGURES Mar 11, 2021 - 9:21am



PLOTDATE: Mar 11, 2021 - 11:25pm, Giebert



LEGEND

- LIMIT OF PROPERTY
- == EX. STORM SEWER
- PROP. STORM CONNECTION

CLIENT

TRIBAL PARTNERS CANADA INC.

TITLE

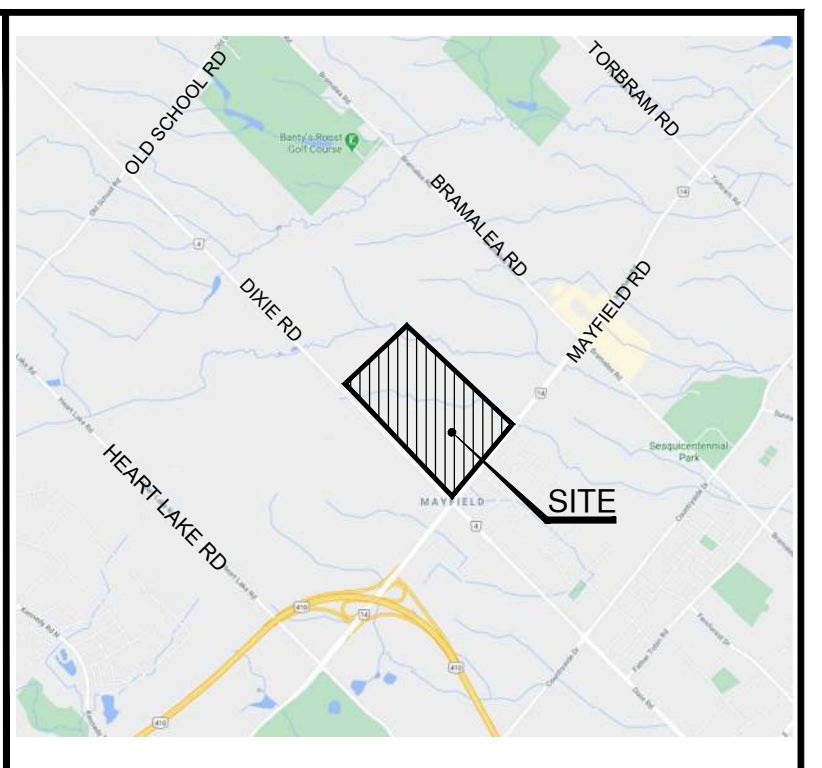
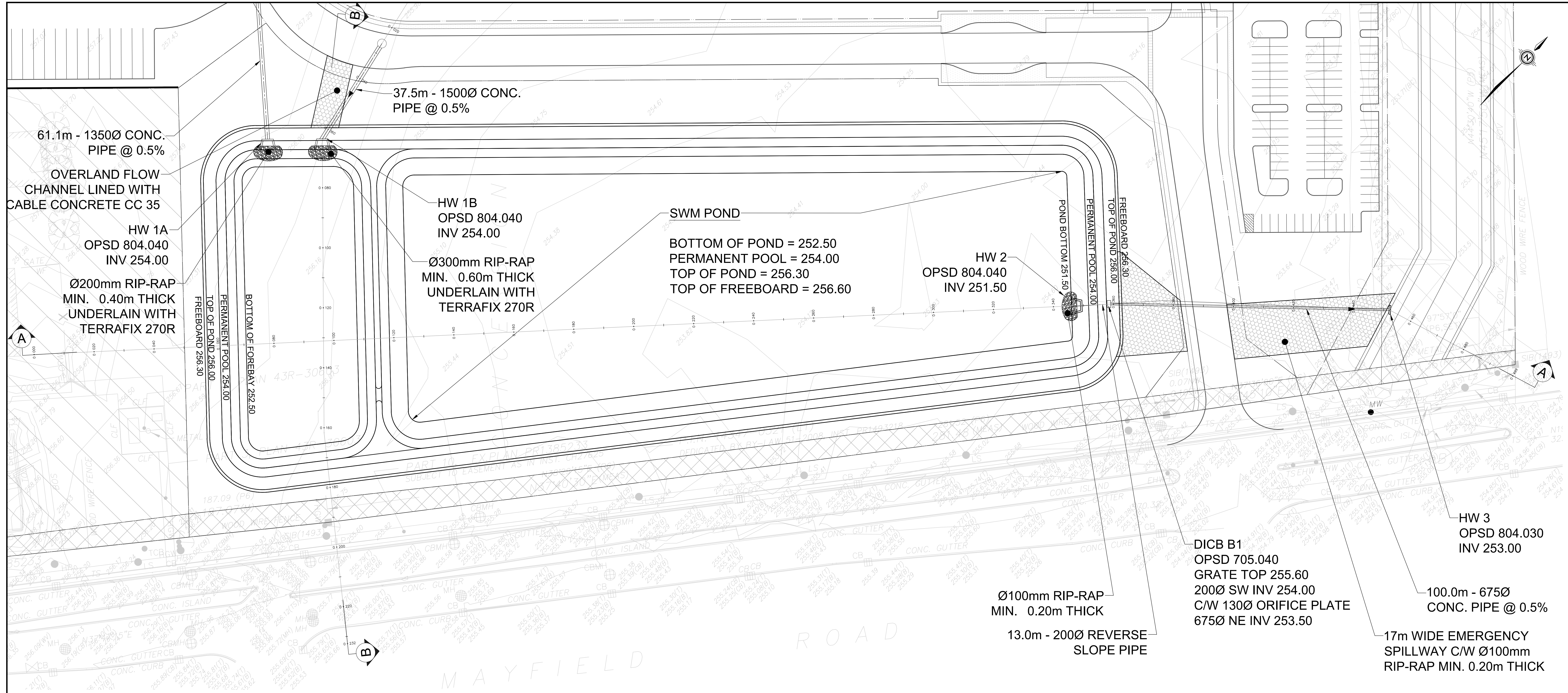
12035 DIXIE ROAD

STORM SERVICING PLAN



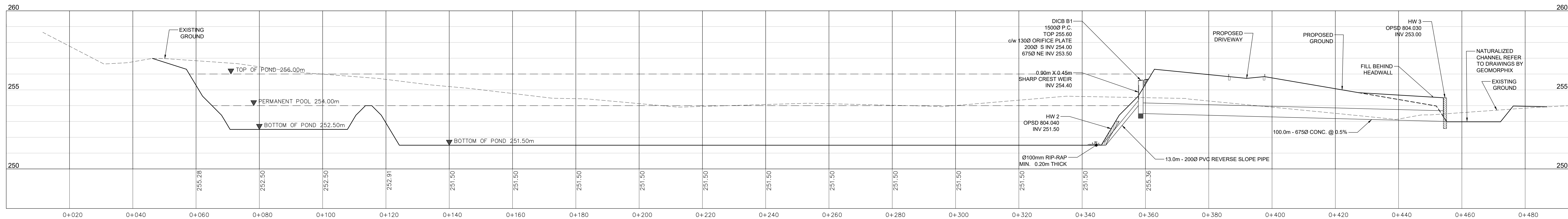
100 Commerce Valley Dr. West, Thornhill, ON Canada L3T 0A1
t: 905.882.1100 f: 905.882.0055 www.wsp.com

Checked	J.G.	Drawn	10/12 Cad
Date	MAR 2021	Proj. No.	20M-01429
Scale	1: 4000	Figure No.	6



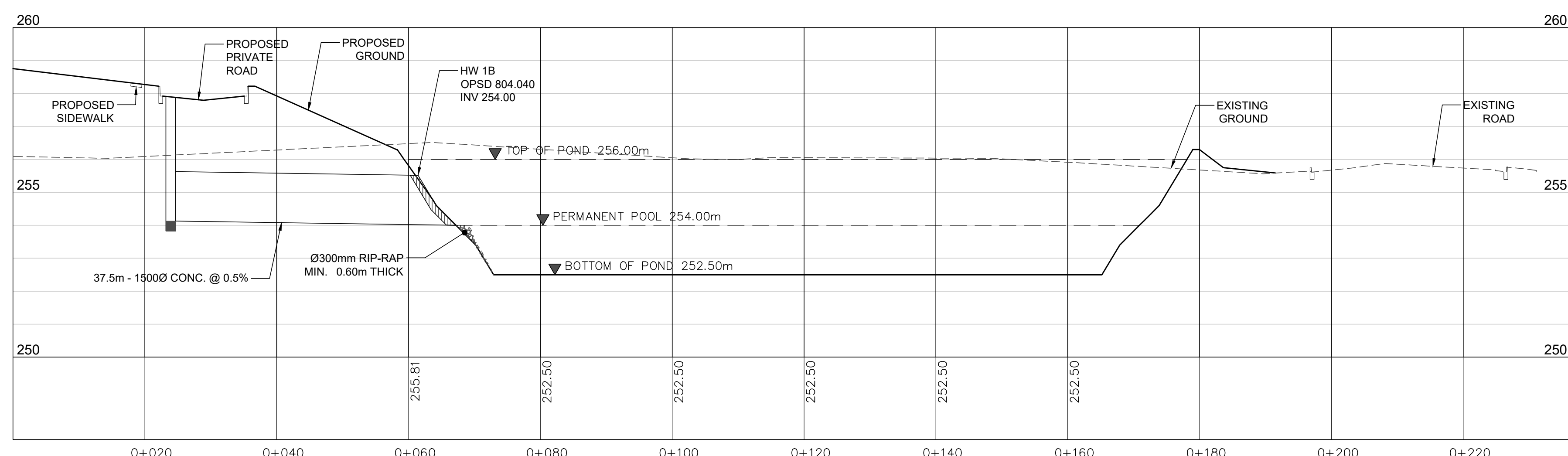
KEY PLAN NTS

- LEGEND**
- EX. ELEVATION
 - PROP. ELEVATION
 - EX. CONTOUR
 - OVERLAND FLOW
 - EXISTING VALVE & CHAMBER
 - EXISTING HYDRANT
 - EXISTING SANITARY MANHOLE
 - EXISTING STORM MANHOLE
 - EXISTING CATCHBASIN
 - SANITARY MANHOLE
 - STORM MANHOLE
 - DITCH INLET CATCHBASIN
 - PROPERTY LINE
 - LIMIT OF CONSTRUCTION



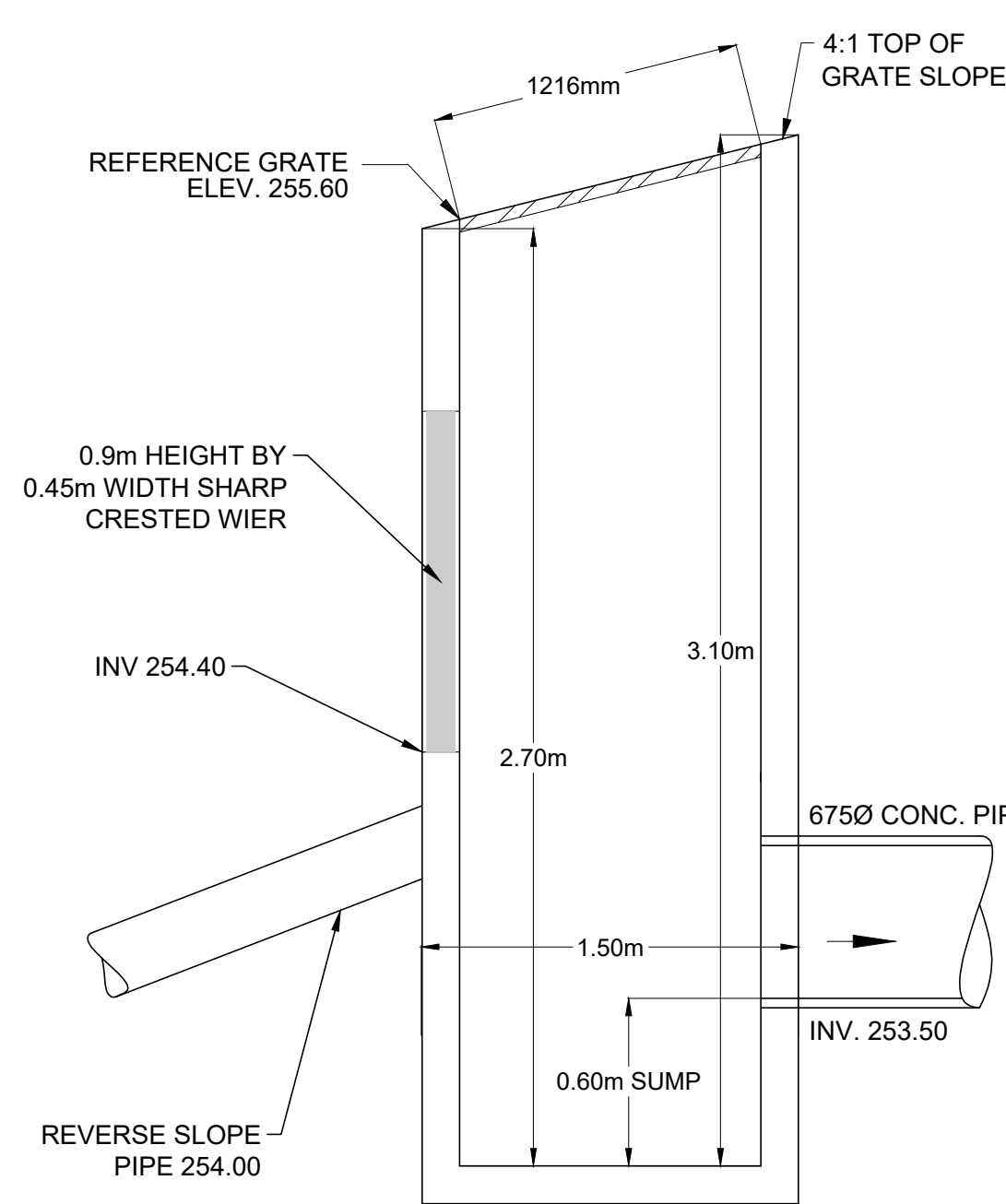
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SCALE H: 1:500
V: 1:100



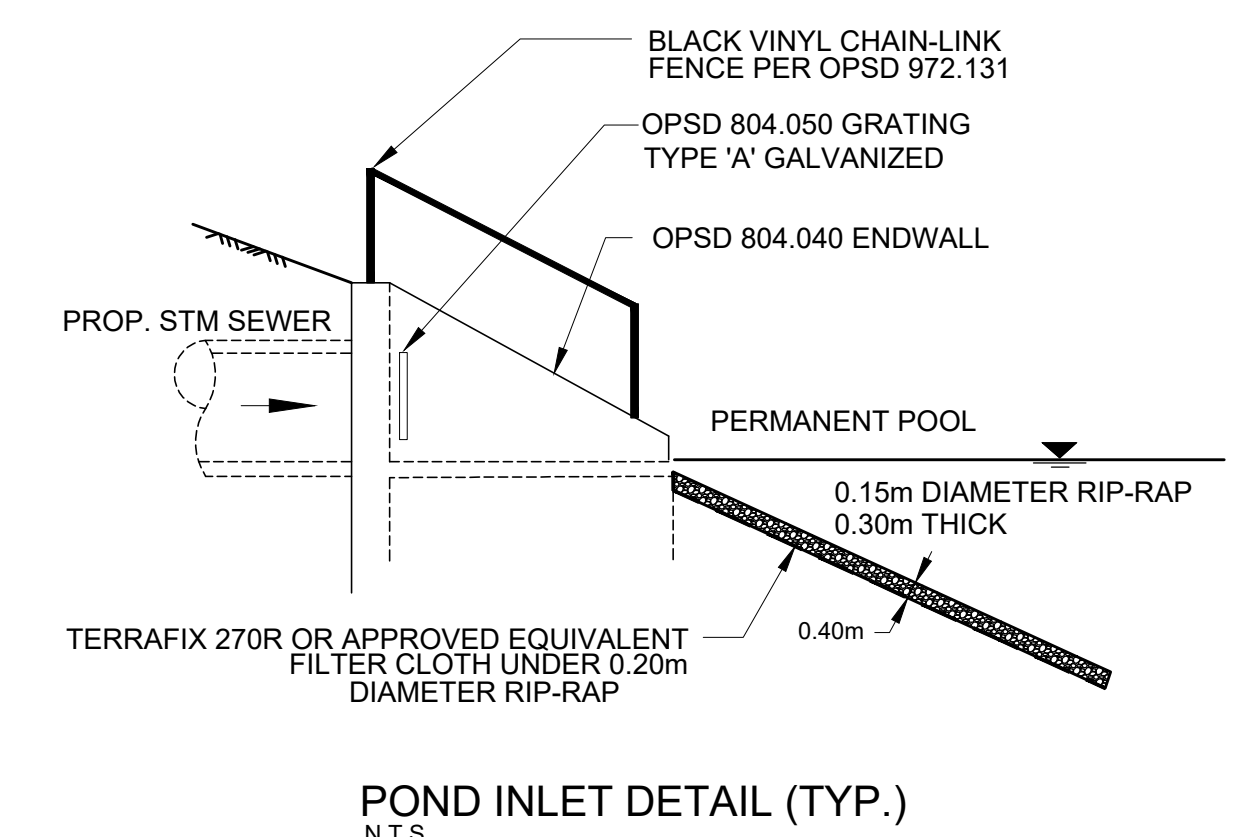
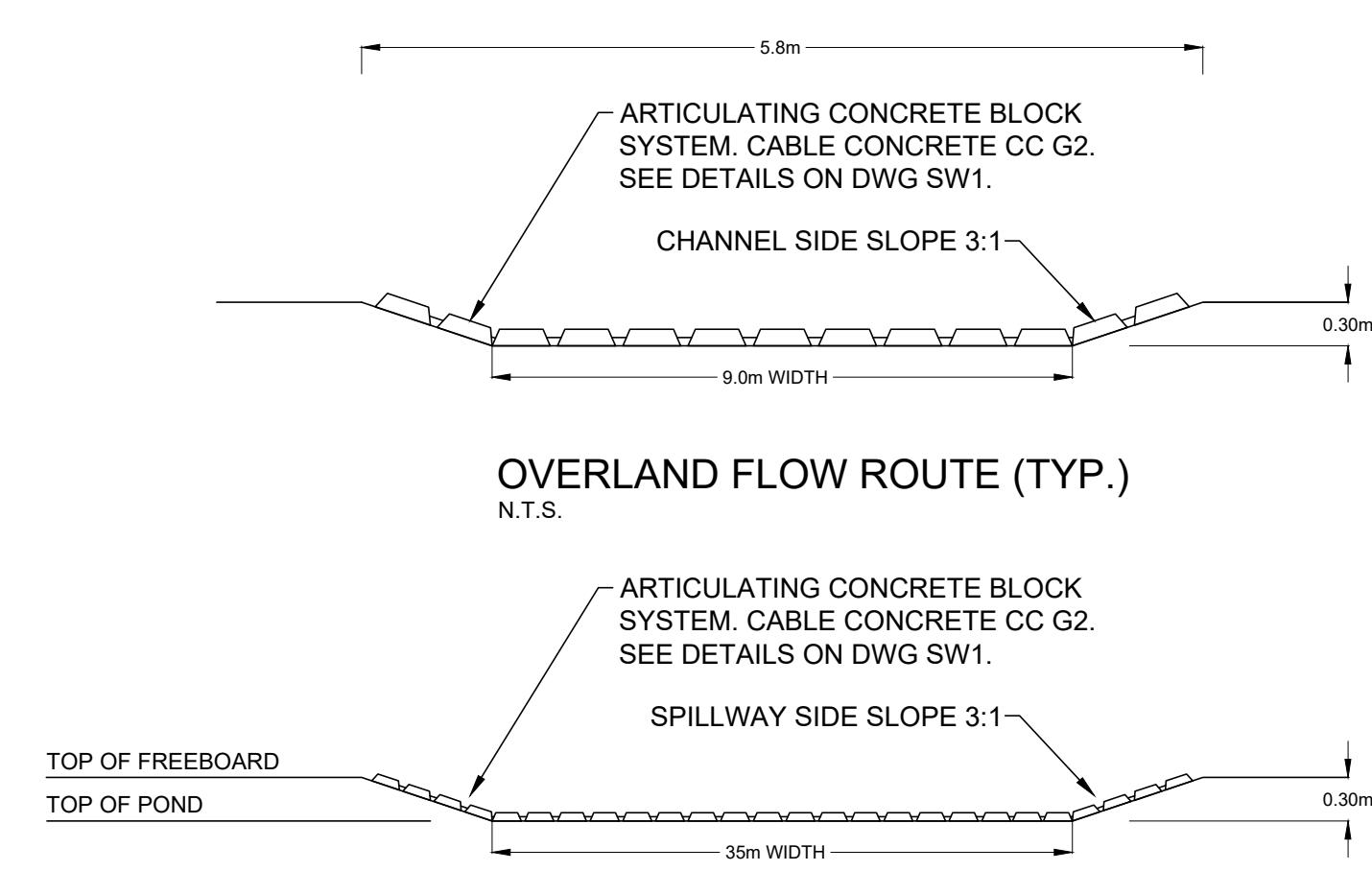
SECTION B-B

SCALE H: 1:500
V: 1:100



DICB B1 SECTION

N.T.S.



1	SUBMITTED FOR S.P.A.	J.G.	MAR. 11/21
No.	REVISIONS TO DRAWING	BY	DATE
ALL PREVIOUS ISSUES OF THIS DRAWING ARE SUPERSEDED			
CLIENT			
TRIBAL PARTNERS CANADA INC.			
MUNICIPALITY			
TOWN OF CALEDON			
PROJECT TITLE			
12035 DIXIE ROAD			
SHEET TITLE			
STORMWATER POND			
CONSULTANT			
wsp			
STAMP			
APPROVAL			
DESIGNED			
J.G.			
DRAWN			
10/12 CAD			
CHECKED			
A.W.			
SCALE			
1:500			
DATE			
MAR 2021			
PROJECT NUMBER			
20M-01429			
DWG. NUMBER			
SW1			