



GUIDING SOLUTIONS IN THE
NATURAL ENVIRONMENT

12541 & 12577 Airport Road Geomorphic Assessment Humber River Watershed Town of Caledon, Regional Municipality of Peel

Prepared For:

Nishan Transport Inc.

Prepared By:

Beacon Environmental Limited

Date: *Project:*

April 2021 220196

Table of Contents

| | page |
|---|-----------|
| 1. Introduction | 1 |
| 2. Policy Context | 1 |
| 2.1 <i>Endangered Species Act</i> (2007) | 1 |
| 2.2 Provincial Policy Statement (2020) | 2 |
| 2.3 The Greenbelt Plan (2017) | 2 |
| 2.4 Regional Municipality of Peel Official Plan (Office Consolidation – 2018) | 3 |
| 2.5 Town of Caledon Official Plan (Office Consolidation – 2018) | 4 |
| 2.6 Toronto and Region Conservation Authority Regulations and Guidelines | 4 |
| 2.6.1 Conservation Authorities Act (Ontario Regulation 166/06) | 4 |
| 2.6.2 The Living City Policies (2014) | 5 |
| 3. Background Review | 5 |
| 3.1 Climate | 5 |
| 3.2 Watershed Conditions | 6 |
| 3.3 Geology | 6 |
| 3.4 Fluvial Geomorphology | 6 |
| 3.5 Aquatic Habitat | 6 |
| 3.6 Historical Assessment | 7 |
| 4. Existing Conditions | 8 |
| 4.1 Reach Delineation | 8 |
| 4.2 Rapid Assessments | 8 |
| 4.2.1 Methods | 8 |
| 4.2.2 Results | 9 |
| 5. Analysis | 10 |
| 5.1 Meander Belt | 10 |
| 5.1.1 Redside Dace Occupied Habitat | 10 |
| 6. Policy Conformance | 11 |
| 7. Conclusions | 11 |
| 8. References | 12 |

Figures

- Figure 1. Site Location
- Figure 2. Reach Delineation, Photo Locations and Meander Belt

after page 2
 after page 10

Tables

| | |
|---|----|
| Table 1. Summary of Key Historical Observations | 7 |
| Table 2. General Reach Characteristics – Reach SC-1 | 9 |
| Table 3. Rapid Assessment Results – Reach SC-1 | 10 |

Appendices

- Appendix A. Historical Aerial Imagery
- Appendix B. Photographic Record

1. Introduction

Beacon Environmental Limited (Beacon) has been retained by Nishan Transport Inc. to undertake a geomorphic assessment for the lands located at 12541 and 12577 Airport Road in the Town of Caledon, Regional Municipality of Peel (hereto referred as the “subject property”; **Figure 1**). The subject property, which is located within the jurisdiction of the Toronto and Region Conservation Authority (TRCA), is a rectangular parcel of land with an approximate area of 11.85 ha located east of Airport Road and north of Regional Road 14 (Mayfield Road). It is understood that development opportunities are being considered for the subject property. Presently, land use within the subject property consists of agricultural fields with a residence, barn, and associated outbuildings.

A tributary associated with the West Humber River, known as Salt Creek, traverses the south-west corner of the subject property and is classified as Redside Dace (*Clinostomus elongatus*) occupied habitat by the Ministry of Conservation, Environment and Parks (MECP). Under Ontario Regulation 242/08 of the *Endangered Species Act* (ESA 2007), the definition of regulated habitat includes the meander belt width, plus vegetated areas or agricultural lands within 30 metres of the meander belt.

The purpose of this geomorphic assessment was to inform the determination of environmental constraint limits in relation to the subject property through the delineation of Redside Dace regulated habitat limits (referencing 30 m from the meander belt). Characterization and evaluation of headwater drainage features identified within the subject property has been addressed through the Natural Heritage Evaluation (NHE) completed by Beacon (2021). The following tasks were undertaken in support of the study:

- Background review of available materials (topographic mapping, recent and historic aerial photography, watershed reports);
- Desktop assessment to delineate reaches based on underlying geomorphic controls;
- Historic assessment to determine trends in channel planform and land use;
- A field assessment to characterize existing geomorphic conditions and document evidence of active channel processes;
- Following applicable policies and guidelines, delineate the meander belt width on a reach basis, referencing recent aerial imagery, historic trends in channel planform (where feasible), and valley floor dimensions; and
- In accordance with Ontario Regulation 242/08, delineate the limit of Redside Dace regulated habitat referencing 30 m from the meander belt.

2. Policy Context

2.1 *Endangered Species Act (2007)*

The ESA (2007) came into effect on June 30, 2008, with over 200 species in Ontario identified as extirpated, endangered, threatened, or of special concern. The MECP provides oversight of the ESA for the regulation of Species at Risk (SAR) in Ontario. Under the ESA, native species that are in danger of becoming extinct or extirpated from the province are identified as being extirpated, endangered, threatened and special concern. These designations are defined as follows:

- Extirpated - a species that no longer exists in the wild in Ontario but still occurs elsewhere;
- Endangered – a species facing imminent extinction or extirpation in Ontario which is a candidate for regulation under Ontario's *Endangered Species Act*;
- Threatened - a species that is at risk of becoming endangered in Ontario if limiting factors are not reversed; and
- Special Concern (formerly Vulnerable) - a species with characteristics that make it sensitive to human activities or natural events.

Under the ESA, protection is provided to threatened or endangered species and their habitat, as well as providing stewardship and recovery strategies for species. Permitting is required to conduct works within habitat regulated for threatened or endangered species.

2.2 Provincial Policy Statement (2020)

The Provincial Policy Statement (Ministry of Municipal Affairs and Housing 2020) issued under the *Planning Act* (1990) outlines areas of provincial interest with respect to natural hazards. In support of the Policy Statement, a Technical Guide - Rivers and Streams: Erosion Hazard Limit document was prepared by MNR (2002) to outline standardized procedures for the delineation and management of riverine erosion hazards in the Province of Ontario. The guide presents erosion hazard protocols based on two generalized landform systems through which watercourses flow: confined and unconfined valley systems. Through this approach, the meander belt width plus an erosion access allowance is defined to determine the erosion hazard limit of an unconfined valley system. For confined valley systems, the erosion hazard limit is governed by geotechnical considerations, including the stable slope allowance and an applicable toe erosion allowance (i.e., channel migration component).

2.3 The Greenbelt Plan (2017)

The *Greenbelt Plan* (OMMAH 2017) identifies Protected Countryside lands within the Greenbelt Plan Area, which is made up of Agricultural System and a Natural System, with a series of settlement areas. The Agricultural System has two components, the agricultural land base and rural lands. The Natural System identifies lands that support both natural heritage and hydrologic features and functions. The *Greenbelt Plan* identifies Protected Countryside and Natural Heritage System within the western portion of the subject property.

Key hydrologic areas include:

- Significant groundwater recharge areas;
- Highly vulnerable aquifers; and
- Significant surface water contribution areas.

KNHFs include:

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



| | | |
|---|--------------------------------|---|
| Site Location | | Figure 1 |
| 12541 & 12577 Airport Road, Caledon | | |
| | | Project: 220196 Last Revised: September 2020 |
| Client: | Prepared by: BD Checked by: | |
| | 1:7,000 | Inset Map: 1:70,000 |
| Contains information licensed under the Open Government License—Ontario Orthoimagery Baselayer: 2019 (FBS) | | |

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

KHFs include:

- Permanent and intermittent streams;
- Lakes (and their littoral zones);
- Seepage areas and springs; and
- Wetlands.

Generally, development or site alteration is not permitted in KNHFs and KHFs within the Natural Heritage System, including any associated vegetation protection zone, unless exemptions within the *Greenbelt Plan* apply.

2.4 Regional Municipality of Peel Official Plan (Office Consolidation – 2018)

The *Regional Official Plan* (ROP) provides a long-term strategic policy framework to guide growth and development in Peel while protecting the environment and effectively managing resources. It identifies a Greenlands System consisting of Core Areas, Natural Areas and Corridors (NAC's), and Potential Natural Areas and Corridors (PNAC's) and includes policies aimed at protecting, maintaining, and restoring this system.

Key elements of the Region's Greenlands System include the following:

- *Areas of Natural and Scientific Interest;*
- *Environmentally Sensitive or Significant Areas (ESA);*
- *Escarpment Natural Areas;*
- *Escarpment Protection Areas;*
- *Fish and wildlife habitat;*
- *Habitats of threatened and endangered species;*
- *Wetlands;*
- *Woodlands;*
- *Valley and stream corridors;*
- *Shorelines;*
- *Natural lakes;*
- *Natural corridors;*
- *Groundwater recharge and discharge areas;*
- *Open space portions of the Parkway Belt West Plan; and*
- *Other natural features and functional areas.*

The various components of the Regional Greenlands System are to be interpreted, identified and protected in accordance with ROP policies.

The following maps and schedules were reviewed to determine the applicable policy framework for this application:

- *Schedule A - Core Areas of the Greenlands Systems in Peel* – shows Core Areas of the Greenland System on the subject property corresponding to the area associated with Salt Creek and woodland on the western portion.

Policy 2.3.2.6 prohibits development and site alteration within the Core Areas of the Greenlands System in Peel except for limited uses such as, but not limited to: conservation and erosion control projects, passive recreation, minor development, and existing uses.

Area municipalities are directed to adopt appropriate policies to allow the above exceptions when it can be demonstrated that there is no reasonable alternative location outside of the Core Area and the use, development or site alteration is directed away from the Core Area feature to the greatest extent possible and the impact to the Core Area feature is minimized and any impact to the feature or its functions that cannot be avoided is mitigated through restoration or enhancement to the greatest extent possible.

The area associated with the Salt Creek is considered part of the NAC of the Greenlands Systems designated under Policy 2.3.2.9 of the ROP. NAC's and PNAC's represent natural features and areas that are considered locally significant. Regional policies pertaining to NAC's and PNAC's defer their interpretation, protection, restoration, enhancement, proper management and stewardship to local municipalities.

2.5 Town of Caledon Official Plan (Office Consolidation – 2018)

The *Town of Caledon Official Plan (2018)* provides direction as to the land use within the Town.

Schedule A1 - Town of Caledon Town Structure shows that the subject property is designated as part of the Agricultural and Rural Area of the Growth Plan.

2.6 Toronto and Region Conservation Authority Regulations and Guidelines

2.6.1 Conservation Authorities Act (Ontario Regulation 166/06)

The TRCA regulates land use activities in and adjacent to wetlands, watercourses and valleylands under Ontario Regulation 166/06 (*Regulation for Development, Interference with Wetlands and Alterations to Shorelines and Watercourses*) made under the *Conservation Authorities Act*.

Subject to conformity with the municipality's Official Plan, the completion of appropriate studies and application for Conservation Authority permits, TRCA may grant permission for development within these areas if it can be proven that control of flooding, erosion, pollution or the conservation of land will not be affected by the development.

2.6.2 The Living City Policies (2014)

The TRCA's Living City Policy (LCP) was approved in November 2014 and replaces the Valley and Stream Corridor Management Program (1994). The LCP document, among other matters, implements current federal, provincial and municipal legislation, policies and agreements affecting conservation authorities; and implements the policies for TRCA's updated section 28 of Ontario Regulation 166/06. For purposes of implementing TRCA's Environmental Management Policies:

- Confined River or Stream Valleys are considered **Valley Corridors**; and
- Unconfined River or Stream Valleys are considered **Stream Corridors**.

According to the LCP, the boundaries of a valley or stream corridor generally require a minimum 10 m setback from the greater of:

- Physical top of the valley feature;
- Long term stable top of slope, where geotechnical concerns exist (which must be confirmed through an appropriate geotechnical analysis);
- Regulatory floodplain;
- Meander belt; and
- Limits of significant vegetation which is contiguous with the valley corridor.

It is the policy of TRCA:

That erosion hazard limits will be determined through site specific field investigations and technical reports where required, in accordance with the text of TRCA's Regulation and Provincial and TRCA standards. Where erosion hazard limits are required and not available, or where existing erosion hazard information does not meet current Provincial or TRCA standards, TRCA may require the erosion hazard to be determined by a qualified professional, at the expense of the proponent, to the satisfaction of TRCA.

The *Belt Width Delineation Procedures* (TRCA 2004) document outlines standards for delineating the meander belt in TRCA jurisdiction.

3. Background Review

3.1 Climate

Climate provides the driving energy for a fluvial system and directly influences basin hydrology and rates of channel erosion, particularly through precipitation. Precipitation records obtained from climate normals (1981-2010) recorded at the Toronto Lester B. Pearson Airport, located south of the subject property, averaged 58 mm per month in winter (November through February), and 70 mm in summer (March to August; Environment Canada 2020). This increase over the summer months is likely a result of convective thunderstorms. While total precipitation amounts are greater during the summer months, snowmelt and rain-on-snow events tend to produce the highest flows within a watershed.

3.2 Watershed Conditions

In 2008, the TRCA prepared a *State of the Watershed Report* for the Humber River Watershed as a key reference document for land use planning decisions within and adjacent to the Humber River watershed. This report provided the basis for the Watershed Management Plan and provided an overview of existing environmental conditions within the watershed. The Humber River watershed drains a total area of 903 km² and is made up of 5 subwatersheds: Main Humber, East Humber, West Humber, Lower Humber, and Black Creek. The subject property is situated within the West Humber subwatershed (TRCA 2008).

3.3 Geology

The planimetric form of a watercourse is fundamentally a product of the channel flow regime and the availability of sediments (i.e., surficial geology) within the stream corridor. The 'dynamic equilibrium' of these inputs govern channel planform. These factors are influenced in smaller systems by physiography, riparian vegetation and land use. The subject property falls within the South Slope physiographic region (Chapman and Putnam, 1984); this area is defined by the southern slope of the Oak Ridges Moraine that gently slopes south, towards Lake Ontario. The South Slope physiographic region consist of a smooth clay till plain that is faintly drumlinized and contains deeply incised stream valleys. Although the topography is relatively flat, infiltration is limited by the high clay content resulting in high runoff characteristics. Surficial geology within the property is dominated by low permeability silt, clay, and silt till of the Halton Till formation. Locally, within the valley corridor, the river reworks a veneer of modern alluvial clay, silt, sand, gravel and organic deposits (TRCA 2008).

3.4 Fluvial Geomorphology

The TRCA (2008) *Humber River State of the Watershed Report* summarized existing fluvial geomorphic conditions throughout the watershed. The report characterized the portion of Salt Creek relevant to the subject property as a third order stream. In support of the watershed report, a regional monitoring program consisting of 35 geomorphic monitoring locations was initiated in 2001 to characterize baseline conditions within the Humber River watershed. Station GHU-15 was established on the Salt Creek, roughly 5 km downstream from the subject property. The report identified an upstream drainage area of 20.9 km² for GHU-15. Bankfull dimensions averaged 6.30 m in width and 0.34 m in depth. In general, the report noted on-going pressures on stream corridors associated with urbanization as a major management challenge throughout the watershed.

3.5 Aquatic Habitat

The subject property is located within Fishery Management Zone (FMZ) 4 of the Humber River watershed (OMNR and TRCA 2005). These zones delineate areas within which fish communities, thermal regimes and underlying environmental controls, remain relatively consistent. FMZ 4 is managed for the key target of Darter species. Although this reach has been identified as FMZ 4, the subject reach has also confirmed habitat for Redside Dace (*Clinostomus elongatus*) and potentially Brook Trout (*Salvelinus fontinalis*). The reach of the Salt Creek traversing the subject property was characterized as an intermediate riverine warmwater system.

3.6 Historical Assessment

The following section presents an overview of historic conditions with respect to land use, land cover and channel conditions in the vicinity of the subject property. Historic analyses provide insight into the scale of natural and human-induced changes within a watershed, particularly the degree to which channel planform adjustment and land use has changed over time.

In support of the historic assessment, black and white aerial photographs and digital colour imagery were analysed and compared to obtain a simple, qualitative assessment of the degree of land use and channel planform change over time (**Appendix A**). **Table 1** provides a summary of specific observations regarding change in land use based on available historical aerial imagery.

Table 1. Summary of Key Historical Observations

| Time Period | Scale, Source | Observations |
|-------------|---|--|
| 1972 | 1:12,000 Northway/Photomap/Remote Sensing Ltd. | Land use is predominantly agricultural. Airport Road has been constructed. |
| | | In the vicinity of Airport Road, Salt Creek appears to have been recently channelized. Two offline ponds can be observed within the floodplain west of Airport Road. |
| | | South of the subject property, evidence of active channel processes included bank erosion and the formation secondary channels, as well as a meander avulsion (oxbow) within the floodplain. |
| | | Riparian conditions along the valley corridor consists of meadow vegetation and agricultural crops. |
| 2019 | First Base Solutions (Digital Image) | Land use has generally remained agricultural, though a transition to commercial land use could be observed south of the subject property in the vicinity of Mayfield Road. |
| | | Airport Road has been widened. |
| | | In the vicinity of Airport Road, within the subject property, the previously channelized section had narrowed and exhibited the initiation of a more sinuous planform. |
| | | South of the subject property, a driveway crossing of Salt Creek had been constructed and further channelization appears to have taken place. |

4. Existing Conditions

4.1 Reach Delineation

To facilitate a systematic evaluation of the relevant portion of Salt Creek, the watercourse was delineated into reaches. Reaches are homogenous sections of channel with regard to form and function and can, therefore, be expected to behave consistently along their length to changes in hydrology and sediment inputs, as well as to other modifying factors (Montgomery and Buffington 1997; Richards et al. 1997).

For the purposes of this study, the section of Salt Creek east of Airport Road within and south of the subject property was delineated as a single reach (Reach SC-1, see **Figure 1**). The determination of reach extents was based on a desktop assessment of transitions in riparian vegetation, degree of valley confinement, meander geometry (channel planform) and modifiers such as road crossings.

4.2 Rapid Assessments

4.2.1 Methods

In order to characterize existing geomorphic conditions along Reach SC-1 of Salt Creek, a field assessment was conducted on August 12, 2020 within the subject property limits. The following standardized rapid visual assessment methods were applied:

i. Rapid Geomorphic Assessment (RGA – MOE 2003)

The Rapid Geomorphic Assessment (RGA) documents observed indicators of channel instability by quantifying observations using an index that identifies channel sensitivity. Sensitivity is based on evidence of aggradation, degradation, channel widening and planimetric form adjustment. The index produces values that indicate whether the channel is stable/in regime (score <0.20), stressed/transitional (score 0.21-0.40) or in adjustment (score >0.41).

ii. Rapid Stream Assessment Technique (RSAT – Galli 1996)

The Rapid Stream Assessment Technique (RSAT) uses an index to quantify overall stream health and includes the consideration of biological indicators (Galli 1996). Observations concerning channel stability, channel scouring/sediment deposition, physical in-stream habitat, water quality, and riparian habitat conditions are used to calculate a rating that indicates whether the channel is in poor (<13), fair (13-24), good (25-34), or excellent (35-42) condition.

ii. Downs Classification Method (Downs 1995)

The Downs (1995, outlined in Thorne et al. 1997) classification method infers present and future potential adjustments based on physical observations, which indicate the stage of evolution, and type

of adjustments that can be anticipated based on the channel evolution model. The resultant index classifies streams as stable, laterally migrating, enlarging, undercutting, aggrading, or recovering.

4.2.2 Results

Within the extent assessed, Reach SC-1 was characterized as an intermittently defined watercourse with low sinuosity situated within a confined valley setting. The reach displayed a low gradient and low degree of entrenchment. Riparian conditions were generally characterized as fragmented, extending 1 to 5 channel widths from the banks laterally. Riparian vegetation consisted of grasses and herbaceous plants.

Where the channel was defined, bankfull dimensions averaged 2.5 m in width and 0.6 m in depth. The channel lacked a defined riffle-pool morphology. Multiple flow paths and secondary channel formation were noted throughout the extent assessed. Channel boundary materials consisted of clay, silt and sand. Channel morphology was heavily influenced by both the Airport Road crossing and downstream driveway crossing which had created a backwater influence which extended upstream to the subject property. The channel bank angles ranged between 30 – 60 degrees with less than 5% of banks exhibiting evidence of erosion.

RGA results indicated that Reach SC-1 was stable or ‘in regime’, with a score of 0.14. Minor evidence of aggradation and planform adjustment was observed in the form of siltation in pools, poor longitudinal sorting of bed materials and secondary channel formation. An RSAT score of 23 indicated a ‘fair’ degree of overall ecological health, with riparian habitat conditions and instream habitat noted as the primary limiting factor. The Downs model classified Reach SC-1 as S – ‘stable’ with evidence of R – ‘recovering’ based on the development of a sinuous channel within a straightened channel, including evidence of planform adjustment.

Rapid assessment results are summarized in **Table 2** and **Table 3** below. A photographic record of site conditions at the time of the assessment is provided in **Appendix B**.

Table 2. General Reach Characteristics – Reach SC-1

| Reach | Bankfull Width (m) | Bankfull Depth (m) | Riffle Substrate | Riparian Vegetation | Notes |
|-------|--------------------|--------------------|------------------|-------------------------------|---|
| SC-1 | 2.5 | 0.60 | Clay, silt, sand | Grasses and herbaceous plants | <ul style="list-style-type: none"> • Secondary channel formation • Backwater influence from downstream crossing |

Table 3. Rapid Assessment Results – Reach SC-1

| Reach | Rapid Geomorphic Assessment | | | Rapid Stream Assessment Technique | | | Downs Classification Method |
|-------|-----------------------------|-----------|-------------------------------------|-----------------------------------|-----------|---|---|
| | Score | Condition | Dominant Mode of Adjustment | Score | Condition | Limiting Feature | |
| SC-1 | 0.14 | In Regime | Aggradation and Planform Adjustment | 23 | Fair | Riparian Habitat Conditions and Physical Instream Habitat | S – ‘stable’ with evidence of R – ‘recovering’ |

5. Analysis

5.1 Meander Belt

The meander belt width is generally defined as the lateral extent that a meandering channel has historically occupied and will likely occupy in the future. Where the watercourse is confined, such as Reach SC-1, the valley wall acts as a constraint to channel migration along portions of the corridor.

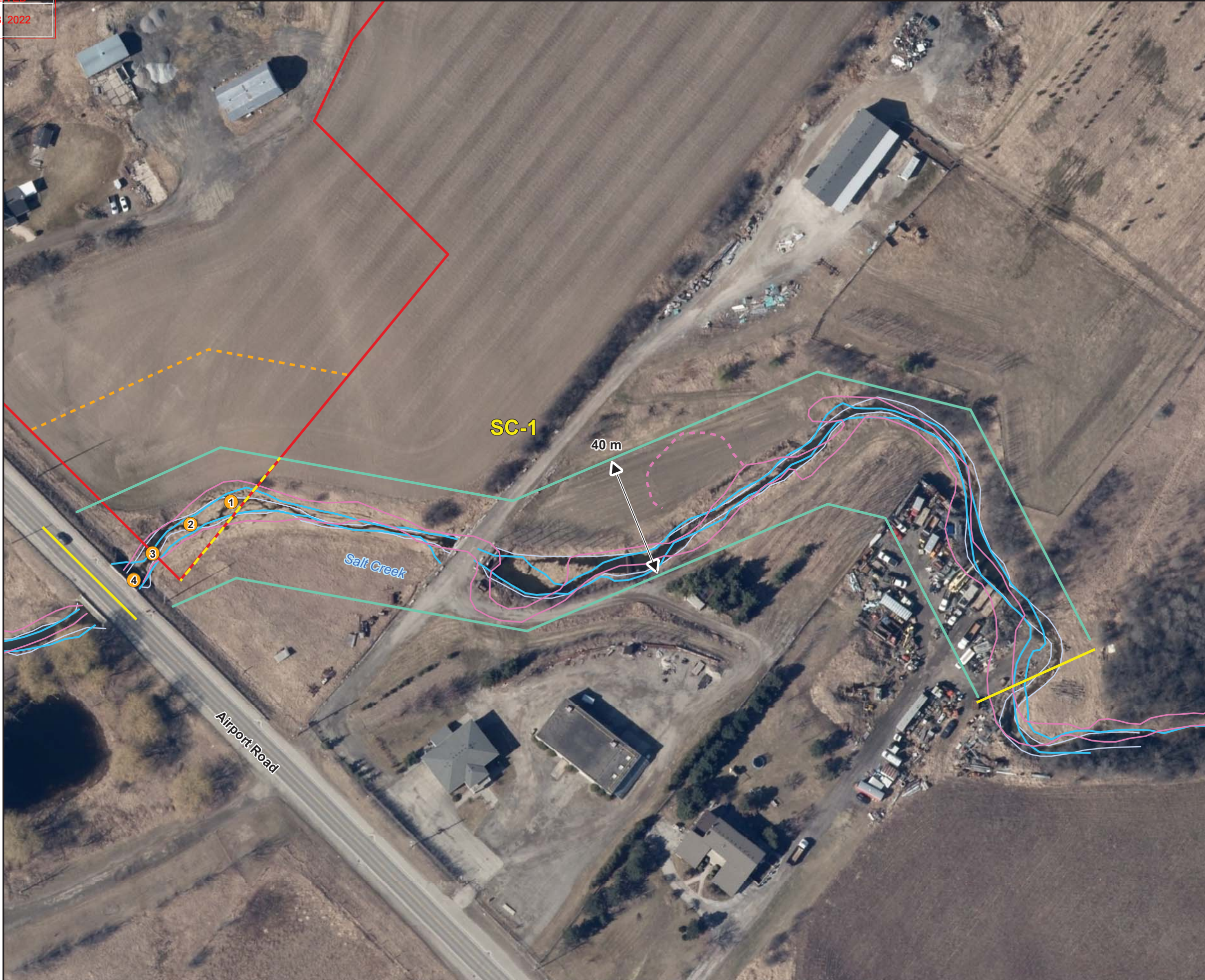
According to the Technical Guide – Rivers and Streams: Erosion Hazard Limit document (MNR 2002), in the case of unconfined river systems, the meander belt width plus an erosion access allowance is defined to determine the erosion hazard limit. Conversely, in the case of confined valley systems, the erosion hazard is governed by geotechnical considerations, including the stable slope allowance and an applicable toe erosion allowance (i.e., channel migration component). As Ontario Regulation 242/08 does not distinguish between confined and unconfined systems, delineation of the meander belt referenced historic and current channel processes, but also considered valley floor (floodplain dimensions).

Following TRCA (2004) procedures, the meander belt for Reach SC-1 was delineated based on the lateral extent of the outermost meander bends for those sections of reach that displayed a natural, meandering planform over the available historical record. The resultant 40 m dimension was then reviewed relative to available topographic mapping and field observations to ensure that it was sufficient to capture the active (bankfull) channel and evidence of lateral occupation of the floodplain at the reach scale.

Figure 2 illustrates the limits of the recommended 38 m meander belt for Reach SC-1.

5.1.1 Redside Dace Occupied Habitat

Figure 2 identifies all lands within 30 m of the meander belt limit as they pertain to the subject property.



Reach Delineation, Photo Locations and Meander Belt **Figure 2**

12451 & 12577 Airport Road
 Geomorphic Assessment

Legend

- Subject Property
- Extent
- Reach Break
- Governing Dimension
- Photo Locations
- Meander Belt (40 m)
- Meander Belt + 30 m

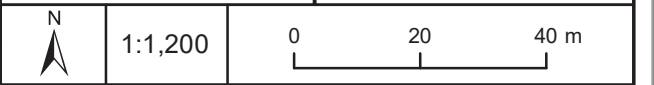
Watercourses

- 1972
- 2002
- 2019



BEACON ENVIRONMENTAL Project: 220196
 Last Revised: February,

Client: Nishan Transport Prepared by: DU
 Checked by: SG



Contains information licensed under the Open Government License—
 Ontario Orthoimagery Baselayer: FBS Peel 2019

6. Policy Conformance

It is our opinion that the findings of this report are in conformance with the Provincial Policy Statement (2020), Regional Municipality of Peel Official Plan (2018), Town of Caledon Official Plan (2018), Ontario Regulation 166/06, the TRCA (2004) *Belt Width Delineation Procedures* document and Ontario Regulation 242/08.

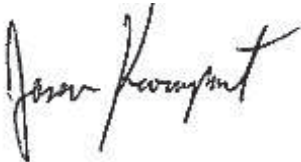
7. Conclusions

Beacon Environmental Limited (Beacon) was retained by Nishan Transport Inc. to undertake a geomorphic assessment for lands located at 12434 Dixie Road in the Town of Caledon. The following points summarize the findings of this study:

- Reach SC-1 of Salt Creek was characterized as an intermittently defined channel situated within a confined valley setting;
- A review of historical and recent aerial imagery indicated that Salt Creek had been channelized in the vicinity of Airport Road prior to 1972;
- Rapid geomorphic assessment results characterized Reach SC-1 within the subject property as stable, with minor evidence of aggradation and planform adjustment;
- The RSAT assessment indicated that Reach SC-1 displayed a fair degree of overall ecological health, with riparian habitat and instream habitat conditions noted as the primary factors limiting overall stream health;
- Following TRCA (2004) procedures, the meander belt for Reach SC-1 was delineated based on the lateral extent of the outermost meander bends along the reach over the available historical record, resulting in a recommended dimension of 40 m; and
- In conformity with Ontario Regulation 242/08, lands within 30 m of the meander belt have been identified.

Should you have any questions or require any additional information please contact the undersigned.

Report prepared by:
Beacon Environmental



Jason Krompart, M.Sc., G.I.T., CAN-CISEC
River Scientist

Report reviewed by:
Beacon Environmental



Shelley Gorenc, M.Sc., P.Geo.
Senior Geomorphologist

8. References

- Beacon Environmental Limited. 2021.
Natural Heritage Evaluation 12541 & 12577 Airport Road, Town of Caledon, Regional Municipality of Peel.
- Chapman and Putnam. 1984.
Physiography of Southern Ontario, 3rd Edition. Ontario Geological Survey, Special Vol. 2.
- Downs, P.W. 1995.
Estimating the probability of river channel adjustment. *Earth Surface Processes and Landforms*. 20: 687-705.
- Environment Canada. 2020.
Canadian Climate Normals 1981-2010 http://climate.weatheroffice.gc.ca/climate_normals/index_e.html.
- Galli, J. 1996.
Rapid stream assessment technique, field methods. Metropolitan Washington Council of Governments. 36pp.
- Montgomery, D.R and J.M. Buffington. 1997.
Channel-reach morphology in mountain drainage basins. *Geological Society of America Bulletin*, 109 (5): 596-611.
- Ontario Ministry of Municipal Affairs and Housing. 2020.
Provincial Policy Statement (Policy 3.1: Natural Hazards).
- Ontario Ministry of Municipal Affairs and Housing. 2017.
Greenbelt Plan.
- Ontario Ministry of Natural Resources. 2002.
Technical Guide: River and Stream Systems: Erosion Hazard Limit.
- Ontario Ministry of Natural Resources. 2017.
Endangered Species Act (S.O. 2007, Chapter 6).
- Ontario Ministry of Natural Resources and Toronto and Region Conservation Authority. 2005.
Humber River Fisheries Management Plan. Published by the Ontario Ministry of Natural Resources and the Toronto and Region Conservation Authority. Queens Printer for Ontario.
- Richards C., Haro R.J., Johnson L.B., Host G.E. 1997.
Catchment- and reach-scale properties as indicators of macroinvertebrate species traits. *Freshw. Biol.* 37:219–30.
- Region of Peel. 2018.
Peel Region Official Plan – December 2018 Consolidation.

- Toronto and Region Conservation Authority. 2004.
Belt Width Delineation Procedures. Prepared by PARISH Geomorphic Ltd.
- Toronto and Region Conservation Authority. 2006.
Development, Interference with Wetlands and Alterations to Shorelines and Watercourses.
Ontario Regulation 166/06. Published on e-laws May 8, 2006.
- Toronto and Region Conservation Authority. 2008.
Humber River State of the Watershed Report.
- Toronto and Region Conservation Authority. 2014.
The Living City Policies for Planning and Development in the Watersheds of the Toronto and
Region Conservation Authority. November 28, 2014
- Town of Caledon. 2018.
Town of Caledon Official Plan. April 2018 Consolidation.

Appendix A

Historical Aerial Imagery

Mar 18, 2022



Legend

 Subject Property

Historical Aerial Imagery

1972

12434 Dixie Road Road &
 12451 & 12577 Airport Road EIS



Project: 220196
 Last Revised: September, 2020

Client: Nishan Transport

Prepared by: DU
 Checked by: SG



1:4,000

0 50 100 m

Contains information licensed under the Open Government License—
 Ontario Orthoimagery Baselayar: Northway/Photomap/Remote Sensing Ltd.



Legend

 Subject Property

Historical Aerial Imagery

2019

12434 Dixie Road Road &
 12451 & 12577 Airport Road EIS



Project: 220196
 Last Revised: September, 2020

Client: Nishan Transport

Prepared by: DU
 Checked by: SG



1:4,000

0 50 100 m

Contains information licensed under the Open Government License—
 Ontario Orthoimagery Baselayer: FBS Peel 2019

Appendix B

Photographic Record



Photograph 1. (Photo Location 1)
Downstream view general conditions. Note: degree of
vegetation encroachment in channel.



Photograph 2. (Photo Location 1)
Upstream view of general conditions looking towards
Airport Road Crossing.



Photograph 3. (Photo Location 2)
Downstream view of channel and dense vegetation
encroachment.



Photograph 4. (Photo Location 3)
Downstream view of general conditions. Note:
standing water condition at time of assessment.



Photograph 5. (Photo Location 4)
Downstream view of general conditions from Airport
Road crossing.



Photograph 6. (Photo Location 4)
Upstream view under Airport Road crossing.