

ALTERNATIVE SITE **ANALYSIS**

PROPOSED UPPER'S QUARRY
City of Niagara Falls

Date:

October 2021 (revised August 2023 & February 5, 2024)

Prepared for:

Walker Aggregates Inc.

Prepared by:

**MacNaughton Hermsen Britton Clarkson Planning
Limited (MHBC)**

7050 Weston Road, Suite 230

Woodbridge ON L4L 8G7

T: 905 761 5588 (x216)

F: 905 761 5589

Our File: 9811V

REVISION TRACKER

No.	Date	Section	Change/Revision
1.	August, 2023	Section 2.1 and 3.0	Wording revised to indicate that the alternative sites are considered “less suitable” than the Uppers site.
2.		Section 2.1 and 2.2	Rationale for excluding additional mineral aggregate resources areas (stone resources) identified in the ROP within the market area from the analysis.
3.		Figures	Figure included in the report showing the mineral aggregate resources areas in the Study Area (Schedule H in the Region’s Official Plan) – New Figure 6.
4.			Figure included showing the CLI mapping in the broader Study Area – New Figure 9.
5.			New figure included to reflect the recently approved ROP (Schedule F – Agricultural Land Base) – New Figure 7a.
6.			Renumber remaining Figures
7.	February 2024	Section 2.2.2 and Conclusions	Wording revised to clarify understanding of lower resource quality in Area 2 compared to proposed Upper site
8.		Figures	Updated Figures to reflect additional lands now owned by Walker in close proximity to the proposed Upper’s Quarry site

FIGURES

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- Figure 2: Surrounding Land Use
- Figure 3: Subject Lands, MNRF Mapping
- Figure 4: Subject Lands, Soil Classification
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EXECUTIVE SUMMARY

MHBC was retained by Walker Aggregates Inc. (Walker) to prepare an Alternative Site Analysis (ASA) in relation to a proposed mineral aggregate operation on lands identified as a bedrock resource area within the City of Niagara Falls. The lands are described as Part of Lots 119, 120, 136 and 137 in the former Township of Stamford, now in the City of Niagara Falls, Region of Niagara.

The proposed amendment lands also include Upper's Lane lying between Thorold Townline Road and Beechwood Road and the unopened road allowance between Township Lots 120 & 136 in the former Township of Stamford, now in the City of Niagara Falls, Region of Niagara lands.

The ASA has been prepared as background to the applications submitted by Walker for a Class 'A' Licence (Category 2 – Quarry Below Water) under the *Aggregate Resources Act* and Amendments to the Niagara Region Official Plan, City of Niagara Falls Official Plan and Zoning By-law under the *Planning Act* in order to permit the proposed aggregate extraction operation on the subject lands.

The main purpose of the ASA is to assess compliance with Policy 2.5.4.1 of the Provincial Policy Statement (PPS). In this case, a substantial amount of bedrock resource is present in this area below the water table, making rehabilitation to an agricultural condition unfeasible. As the subject lands are also considered a prime agricultural areas, on prime agricultural land, it must be demonstrated that other alternatives have been considered by Walker and found to be unsuitable.

In determining the overall study area and potential alternative sites, Walker identified a geographic area to situate a new quarry to replace the depleting nearby Walker Brothers Quarry which is just over 2 kms away ("Market Area"). From this Market Area, lands within Urban Areas and Unique Agricultural Areas have been removed that are not suitable for a quarry when compared to the subject lands. This refines the Market Area into a 'Study Area'.

Within the Study Area, three (3) areas were identified as "Potential Stone Resource Areas", including: (i) the proposed Upper's Quarry site; (ii) Alternative Site Area 1; and (iii) Alternative Site Area 2.

Based on the research and evaluation undertaken, Alternative Site Area 1 and Alternative Site Area 2 were found to be unsuitable in comparison to the proposed site for the reasons identified under section 2.2 and 3.0 of this report. Accordingly, it is concluded that the proposed Upper's Quarry is consistent with Policy 2.5.4.1 of the Provincial Policy Statement.

1.0 INTRODUCTION

Walker Aggregates Inc. (herein “Walker”) is applying for a Class A (Quarry Below Water) licence under the *Aggregate Resources Act (ARA)* on lands assembled by Walker at Thorold Townline Road (Part Lots 119, 120, 136 and 137 in the former Township of Stamford, now in the City of Niagara, Region of Niagara).

Walker is also applying for amendments to the Niagara Region Official Plan, the City of Niagara Falls Official Plan and the City of Niagara Falls Zoning By-law under the *Planning Act* to permit the mineral aggregate quarry operation on the “proposed quarry site” or “subject lands” (shown on Figure 1). The proposed amendment lands include Upper’s Lane lying between Thorold Townline Road and Beechwood Road and the unopened road allowance between Township Lots 120 & 136 in the former Township of Stamford, now in the City of Niagara Falls, Region of Niagara lands.

The primary intent of the proposed Upper’s Quarry is to continue to secure an ongoing supply of high quality bedrock resources within Niagara Region and the City of Niagara Falls for the long term, as the supply of bedrock at the nearby Quarry will be depleted in the not too distant future.

1.1 PURPOSE

The purpose of this Alternative Site Analysis Report is to assess compliance with Policy 2.5.4.1 of the Provincial Policy Statement (PPS) specifically, which states:

2.5.4.1 In *prime agricultural areas*, on *prime agricultural land*, extraction of *mineral aggregate resources* is permitted as an interim use provided that the site will be rehabilitated back to an *agricultural condition*.

Complete rehabilitation to an *agricultural condition* is not required if:

- a) outside of a *specialty crop area*, there is a substantial quantity of *mineral aggregate resources* below the water table warranting extraction, or the depth of planned extraction in a quarry makes restoration of pre-extraction *agricultural capability* unfeasible;**

- b) in a *specialty crop area*, there is a substantial quantity of *high quality mineral aggregate resources* below the water table warranting extraction, and the depth of planned extraction makes restoration of pre-extraction agricultural capability unfeasible;
- c) other alternatives have been considered by the applicant and found unsuitable. The consideration of other alternatives shall include resources in areas of Canada Land Inventory Class 4 through 7 lands, resources on lands identified as *designated growth areas*, and resources on *prime agricultural lands* where rehabilitation is feasible. Where no other alternatives are found, *prime agricultural lands* shall be protected in this order of priority: *specialty crop areas*, Canada Land Inventory Class 1, 2 and 3 lands; and
- d) agricultural rehabilitation in remaining areas is maximized.

The subject lands are situated on prime agricultural lands within a prime agricultural area. The subject lands are not situated within a specialty crop area.

In this instance, there is a substantial quantity of high quality bedrock situated approximately 30 to 40 m below the water table making restoration of pre-extraction agricultural capability unfeasible. The after use for the majority of the proposed quarry will result in the formation of primarily a series of lakes together with naturalized/forested areas on the subject lands and additional compensation plantings on other 'buffer' lands owned by Walker situated outside of the prime agricultural area.

Therefore, to comply with policy 2.5.4.1(c), it must be demonstrated that other alternatives have been considered by Walker and found to be unsuitable.

1.2 DESCRIPTION OF SUBJECT LANDS

The subject lands are situated between Thorold Townline Road and Beechwood Road, south of Beaverdams Road and north of Lundy's Lane in the City of Niagara Falls. The subject lands are just over 2 kms south of the Walker Brothers Quarry, also using Thorold Townline Road as a haul route (see **Figure 1**).

The area proposed to be licenced is 103.6 ha (256 acres) and the proposed extraction area is 89.1 ha (220.2 acres). A portion of Upper's Lane and an unopened road allowance (between Lots 120 and 136) currently bisect the proposed quarry site into three extraction areas.

Walker also purchased 31.6 ha (78.1 acres) of land immediately west of the proposed quarry site within the City of Thorold, which are intended to be used in part for environmental enhancement purposes. These 'buffer' lands are situated along Thorold Townline Road, west of the subject lands, within the City of Thorold Urban Area and are designated 'Employment –

Light Industrial’ and ‘Employment – Prestige Industrial’ in the Rolling Meadows Secondary Plan Area.

The surrounding land uses are illustrated on **Figure 2** and include:

North: Three rural residential dwellings are located to the north of the proposed quarry and south of Beaverdams Road (between Thorold Townline Road and Beechwood Road) with the remainder of the landscape consisting of agricultural lands, a golf course and natural open space. The Trans Canada Pipeline (TCP) is situated north and west of the proposed quarry site, generally running southwest to northeast, with a small portion of the pipeline corridor intercepting the far northwest corner of the quarry site.

South: Directly south of the proposed quarry site is a hydro corridor running between Thorold Townline Road and Beechwood Road (and beyond). Agricultural (including a winery), two rural residential dwellings and a social club (Italo-Canadian Centennial Club) exist south of the hydro corridor and Lundy’s Lane is beyond.

East: Beechwood Road runs along the easterly limit of the quarry with exception of a community church (Bible Baptist Church). The church property is situated immediately east of the site between Beechwood Road and the proposed quarry. It is noted that Walker and owners of the Bible Baptist Church have entered into an agreement with each other wherein the Church acknowledges the proposed quarry and will not object to its approval in the proposed location. Otherwise, uses are primarily agricultural together with rural residential dwellings along Beechwood and a rural office/business to the northeast along Beaverdams Road.

East of Beechwood Road and southeast of the proposed extraction limit is a driving range and the Urban Area boundary of the City of Niagara Falls, including an existing residential subdivision.

West: Directly west of the proposed quarry site is Thorold Townline Road, which demarks the boundary between the City of Niagara Falls and the City of Thorold. Within the City of Thorold, future employment lands within the Rolling Meadows Secondary Plan are planned immediately west of Thorold Townline Road. Lands along Thorold Townline Road are also identified as ‘Aggregate Impact Area’ in the Secondary Plan. Currently, immediately west of the proposed quarry site on the west side of Thorold Townline Road, there is a paintball facility and a cricket club.

The proposed extraction area is primarily agricultural in nature. The site is bisected by an unnamed intermittent tributary to Beaverdams Creek ("existing watercourse"), which runs from south to north crossing under Upper's Lane via a culvert. A woodlot, approximately 2 ha (5 acres) in size, is situated along Thorold Townline Road, south of Upper's Lane. The topography of the subject lands is gently rolling, with the lowest elevation at ± 178 masl in the watercourse valley and the highest elevation at ± 184 masl generally in the southeast corner of the site (see **Figure 3**).

Three (3) dwellings with accessory structures remain situated on the lands to be extracted and will be removed eventually, if the proposed licence is approved.

The subject lands are mainly comprised of Class 3 soils, with other smaller portions comprised of Class 2 and Class 5 (see **Figure 4**).

As confirmed through borehole testing, the subject lands contain high quality bedrock resources with a maximum depth of 45 m (corresponding to the depth of the Gasport dolostone of the Lockport Group formation). These resources will provide decades of high quality aggregate supply for the Niagara Region construction industry.

2.0 ALTERNATIVE SITE ANALYSIS

2.1 IDENTIFICATION OF MARKET AREA AND STUDY AREA

In determining the overall study area and potential alternative sites, Walker identified a geographic area to situate a new quarry to replace the depleting nearby Walker Brothers Quarry which is just over 2 kms away ("Market Area"). The Market Area includes the following lands in the City of Niagara Falls, City of Thorold and City of Welland and is illustrated on **Figure 5**:

- i) south of the Niagara Escarpment Plan and Greenbelt Plan areas;
- ii) west of the Niagara River;
- iii) north of the City of Port Colborne and Town of Fort Erie municipal boundaries; and
- iv) east of the Welland Canal.

Figure 6 shows the mineral aggregate areas (Schedule D1, Niagara Region Official Plan) that are identified within the Market Area.

The following areas were excluded from the Market Area and from further consideration due to the physical, environmental, planning policy constraints and approval process that apply and make them less suitable in comparison to the subject lands:

- Lands designated "Urban Area" in the Niagara Region OP have been excluded; and
- Lands designated "Unique Agricultural Areas" (i.e., Specialty Crop Lands) in the Niagara Region OP have been excluded.

As such, the extent of the resulting "Study Area" for the purposes of this analysis is shown on **Figure 7**.

2.2 IDENTIFICATION / EVALUATION OF ALTERNATIVE SITES WITHIN STUDY AREA

The Study Area was overlaid onto the Schedule D1 (Potential Resource Areas: Stone) of the Niagara Region OP to identify where resource areas for bedrock are situated. As illustrated on **Figure 8**, three (3) potential resource areas (stone) are identified within the northerly portion of the Study Area, including the subject lands and two alternative Site Areas.

As a quarry must locate where quality bedrock resource is present, the remaining analysis focuses on the three (3) potential resources areas, including the Subject Lands, that are identified within the Study Area.

Figure 9 shows the Soil Classifications of lands within the Market Area.

Lands designated “Rural Area” in the Niagara Region OP is the first option to evaluate when considering alternative sites for a future mineral aggregate quarry operation, as these represent lands with poor quality soils with limited to no capability for agricultural uses.

As shown on **Figure 10**, Site Area 1 is designated “Rural Area” and Site Area 2 and the subject lands are designated “Good General Agriculture” as per Schedule A (Regional Structure) of the Niagara Region Official Plan .

Figures 11 and 12 illustrate that Site Area 2 and the subject lands have been identified as part of the Provincial ‘Agricultural System’ and a large portion of Site Area 1 has been identified as part of the Provincial Natural Heritage System relative to the Greater Golden Horseshoe Growth Plan.

The following provides further details of each of the two Alternative Sites and a comparison of each Site Area with the subject lands.

2.2.1 Alternative Site Area 1 (“Site Area 1”)

Site Area 1 is approximately 43.93 ha (108.55 ac) in total area and is designated Rural Area. Site 1 is not identified as Prime Agricultural Area, Candidate Area or Specialty Crop Area by the Province, Region or the City. However, a majority of Site Area 1 (northwest and central portion) is identified within the Provincial Natural Heritage System (NHS) (**Figure 12**).

Policy 4.2.8.2 of the Growth Plan poses a significant policy constraint to new mineral aggregate operations in the Provincial NHS. This policy prohibits new mineral aggregate operations that are within the Provincial NHS in the following features:

- significant wetlands;

- habitat of endangered species and threatened species; and
- significant woodlands (unless the woodland is occupied by young plantation or early successional habitat).

Furthermore, as shown on **Figure 13**, the Site Area 1 lands are comprised of a number of rural industrial uses to the south (i.e. lafrate Machine Works, Thorold Auto Parts and Recycling, ready-mix operation, truck terminal, etc.), a wooded area and waterbody in the central portion of the lands, and are generally bounded by Thorold Stone Road to the north, Beaverdams Road to the south, Thorold Townline Road to the east and Davis Road to the west. Thorold Stone Road (i.e. Regional Road 57) also bisects the Site Area 1 lands in an east-west manner.

Land uses generally surrounding Site Area 1 include (but are not limited to) rural industrial operations to the north and east (i.e. Abitibi-Consolidated Inc. (a paper mill), Northland Power, Niagara Fleet Garage, etc.) and the Beechwood Golf and Social House, and agricultural uses to the west and Beaverdams Road / Beaverdams Creek to the south.

As identified by MNRF mapping, portions of Site Area 1 are identified as “Woodland” and “Non-Provincially Significant Wetland Evaluated” (**Figure 14**).

A “Hydro Line, Communication, or Unknown Transition Line” also runs through the middle of these lands (also shown on **Figure 14**).

Site Area 1 contains a range of Class 2 and 3 soils and areas around the waterbody feature are ‘not mapped’ (**Figure 15**).

In summary, the Site Area 1 lands are largely fragmented by the Provincial Natural Heritage System identified in the central portion of the lands, by Thorold Stone Road (Regional Road 57) in the northern section of the lands, as well as a hydro line or other transition line in the middle of Site Area 1. Furthermore, the lands are comprised of a number of existing rural industrial uses (in association with the Welland Canal) in the south that may result in land consolidation challenging if property owners are not willing to sell or lease their lands.

Given the amount of fragmentation and the number of established and active industrial land uses situated within Site 1, the ability to acquire a sizeable mass of land required for a quarry is not feasible.

For these reasons, Site Area 1 is not considered suitable for the development of a quarry when compared to the subject lands.

2.2.2 Alternative Site Area 2 (“Site Area 2”)

Site Area 2 is generally located immediately west of the City of Niagara Falls Urban Area boundary, north of Thorold Stone Road (i.e. Regional Road 57), south of Mountain Road (i.e. Regional Road 101) and east of Taylor Road. Site Area 2 is approximately 209.33 ha (517.25 ac) in total area. This Site Area is generally surrounded by agricultural uses to the north and south, an existing residential subdivision (within an Urban Area) to the east and the existing Walker Brothers Quarry to the west (see **Figure 16**).

Similar to the subject lands, Site Area 2 is designated “Good General Agriculture Area” by the Region and the City and “Prime Agricultural Area” by the Province.

With respect to natural environment, no portion of the Site Area 2 lands is within the Provincial Natural Heritage System.

Although the Site Area 2 lands are located immediately east of the existing Walker Brothers Quarry (WBQ) operation, Walker has not pursued an expansion of the WBQ operation into the Site 2 lands. Walker has experience from decades of extraction in the eastern part of the existing Walker Brothers Quarry. The bedrock quality in the east of the current quarry is well documented and because the rock beds are flat lying, their extent and thickness is predictable. The high shale content severely limits the potential products that can be processed from this rock. In addition, the bedrock resource thins due to the natural erosional surface near the escarpment brow which results in a low resource yield per acre. Therefore, due to the known quality concerns and limited reserves, the aggregate resource situated within the Site Area 2 lands is of lesser quality than resources present within the proposed Upper’s Quarry lands.

Site Area 2 does not have direct access to any Regional Road (**Figure 7**). Lands west of Garner Road may potentially access Taylor Road via the existing WBQ. Otherwise, Garner Road and Kalar Road, both local roads, would need to be used as haul routes. There are several rural residential dwellings/lots that exist along both Garner Road and Kalar Road, within and adjacent to Site Area 2.

There are three (3) distinct areas generally located within the southwest, central and northeast sections of the lands that are identified by the Province as “Non-Provincially Significant Wetlands” and “Woodlands” (see **Figure 17**). This Figure also shows that a “Hydro Line, Communication, or Unknown Transition Line” corridor runs through the Site 2 lands in an east-west fashion, thereby creating further fragmentation of these lands.

Site Area 2 contains both Class 2 and 3 soils and overall has a higher agricultural priority than the other two alternative sites (**Figure 18**).

In summary, when collectively considering all of the factors noted above, Site Area 2 is not considered suitable for the development of a quarry when compared to the subject lands:

- The aggregate resource situated within the Site Area 2 lands is of lesser quality than resources present within the proposed Upper's Quarry lands;
- Site Area 2 does not have direct access to any Regional Road;
- Natural environment features are present on a significant portion of the Site 2 lands both west and east of Garner Road; and,
- The proximity and number of existing rural residential dwellings within the area that would require acquisitions and willingness of multiple landowners to sell.

3.0 CONCLUSIONS

1. Based on this analysis and as per Section 2.5.4.1 of the PPS, Walker has considered other alternative sites within the geographic area that Walker identified to replace the depleting Walker Brothers Quarry which is located just over 2 kms north of the proposed Upper's Quarry.
2. In determining the overall study area and potential alternative sites, Walker identified a geographic area to situate a new quarry to replace the depleting nearby Walker Brothers Quarry which is just over 2 kms away ("Market Area"). The Market Area includes the following lands in the City of Niagara Falls, City of Thorold and City of Welland and is illustrated on **Figure 5**:
 - a. south of the Niagara Escarpment Plan and Greenbelt Plan areas;
 - b. west of the Niagara River;
 - c. north of the City of Port Colborne and Town of Fort Erie municipal boundaries; and
 - d. east of the Welland Canal.
3. The Study Area (**Figure 6**) was determined by excluding the following areas from the Market Area due to the physical, environmental, planning policy constraints and approval process that apply and make them less suitable in comparison to the subject lands:
 - Lands designated "Urban Area" in the Niagara Region OP have been excluded; and
 - Lands designated "Unique Agricultural Areas" (i.e., Specialty Crop Lands) in the Niagara Region OP have been excluded.

4. There are only three (3) areas identified as “Potential Stone Resource Areas” within the Study Area, including: (i) the proposed Upper’s Quarry site; (ii) Alternative Site Area 1; and (iii) Alternative Site Area 2 (**Figure 8**).
5. Alternative Site Area 1 is not considered suitable by the applicant in comparison to the subject lands for the following reasons:
 - a. A large portion of the lands in this area are within the Provincial Natural Heritage System. Policy 4.2.8.2 of the Growth Plan poses a significant policy constraint to new mineral aggregate operations in the Provincial NHS. This policy prohibits new mineral aggregate operations that are within the Provincial NHS in the following features:
 - significant wetlands;
 - habitat of endangered species and threatened species; and
 - significant woodlands (unless the woodland is occupied by young plantation or early successional habitat).
 - b. Furthermore, this area is also largely fragmented by:
 - i. Thorold Stone Road (Regional Road 57) in the northern section of the lands,
 - ii. A hydro line or other transition line that crosses the middle of these lands
 - c. Furthermore, the lands are comprised of a number of existing rural industrial uses (in association with the Welland Canal) in the south that may result in land consolidation challenging if property owners are not willing to sell or lease their lands.
 - d. Given the presence of the Provincial NHS, the amount of fragmentation and the number of established and active industrial land uses situated in Site Area 1, the ability to acquire a sizeable mass of land required for a quarry is not feasible.
6. Alternative Site Area 2 is not considered suitable by the applicant in comparison to the subject lands for the following reasons:
 - a. The aggregate resource situated within the Site Area 2 is of lesser quality than the subject site;
 - b. There is no direct truck access to the aggregate resource area from a Regional Road (unlike the subject lands). Lands west of Garner Road may potentially access Taylor Road via the existing WBQ. Otherwise, Garner Road and Kalar Road (both local roads) would need to be used as haul routes. There are several rural residential dwellings/lots along both Garner Road and Kalar Road within and adjacent to Site Area 2;

- c. The proximity and number of existing rural residential dwellings within the area that would require acquisition and willingness of multiple landowners to sell;
- d. These lands are highly fragmented by not only Garner Road and Kalar Road (in a north-south fashion), but also by a hydro corridor and a TransCanada pipeline;
- e. Site Area 2 contains both Class 2 and 3 soils and overall has a higher agricultural priority than the other two alternative sites.

In conclusion, Walker is proposing the Upper's Quarry to secure a future supply of bedrock resource. Other alternatives have been considered within the market area by the applicant and found other sites to be unsuitable in comparison to the proposed site for the reasons identified above. As a result, it is concluded that the proposed Upper's Quarry is consistent with Policy 2.5.4.1 of the Provincial Policy Statement.

Respectfully submitted,

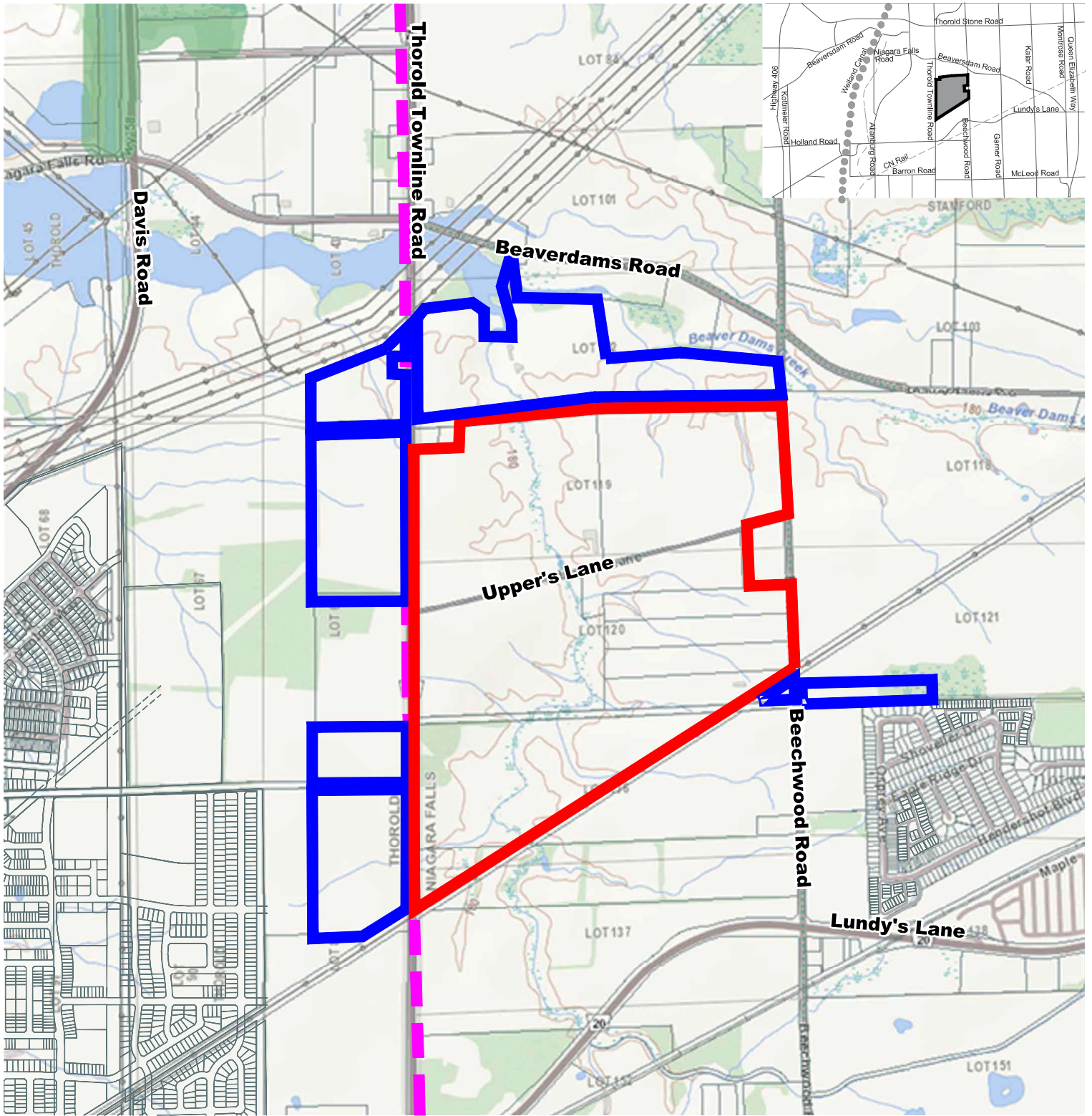
MHBC



Debra Walker, BES, MBA, MCIP, RPP
Partner



Brian Zeman, BES, MCIP, RPP
Partner / President



Data Source: MNRF Natural Heritage Information Centre Mapping & Region of Niagara Open Data- Property Parcels

Figure 1

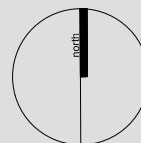
Location Map

LEGEND

- Proposed Upper's Quarry Site ($\pm 106.3\text{ha}$)
- Adjacent Lands Owned by Walker Aggregates ($\pm 58.9\text{ha}$)
- Municipal Boundary
- Property Line

DATE: January 25, 2024

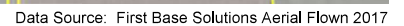
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Upper's Quarry,
City of Niagara Falls,
Region of Niagara, Ontario

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& LANDSCAPE
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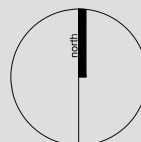
**Upper's Quarry,
City of Niagara Falls,
Region of Niagara, Ontario**

- Proposed Upper's Quarry Site
- Other Lands Owned By Walker
- 500 m Radius Buffer
- City of Thorold Urban Area

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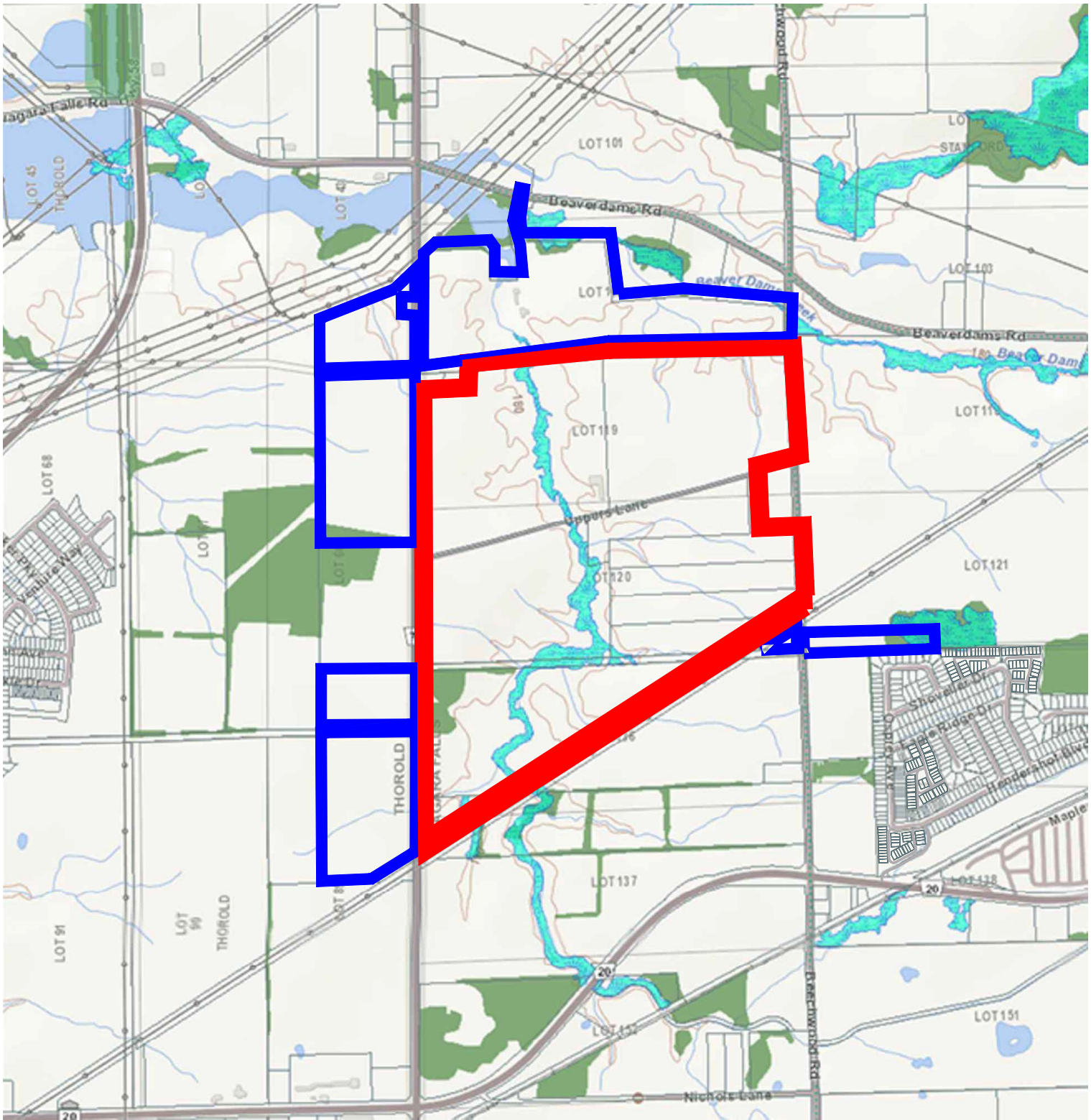
-  Rolling Meadows Secondary Plan Area
-  Existing (Residential) Dwelling within 500m Radius (Outside Urban Area)
-  Existing (Non- Residential) Rural Use within 500m Radius (Outside Urban Area)
-  City of Niagara Falls Urban Area

-  TransCanada Pipeline
-  Fernwood Subdivision
-  CN Railway
-  Aggregate Impact Area
(Rolling Meadows
Secondary Plan)



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Data Source: MNRF Natural Heritage Information Centre Mapping

Figure 3

Proposed Upper's Quarry

MNRF Natural Heritage Information Centre Mapping

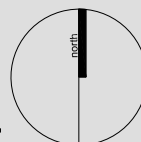
Upper's Quarry,
City of Niagara Falls,
Region of Niagara, Ontario

LEGEND

- | | | |
|--|--|--|
| Proposed Upper's Quarry Site (±106.3ha) | Index Contour | Non-Provincially Significant Wetland Evaluated |
| Adjacent Lands Owned by Walker Aggregates (±58.9 ha) | Waterbody | Natural Heritage System |
| Woodland | Hydro Line, Communication, or Unknown Transition Line | Minor Road |
| | | Major Road |

DATE: January 29, 2024

SCALE 1:15000



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Data Source: Agricultural Impact Assessment for Uppers Quarry, prepared by Colville Consulting Inc.

Figure 4 Subject Lands

Soil Classification

Upper's Quarry,
City of Niagara Falls,
Region of Niagara, Ontario

LEGEND

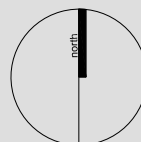
- Proposed Upper's Quarry Site (±106.3ha)
- CLI Class 1
- CLI Class 2

- CLI Class 3
- CLI Class 4
- CLI Class 5
- Not Mapped

- Study Area
- Drift Thickness
- Lockport Formation
- Guelph Formation

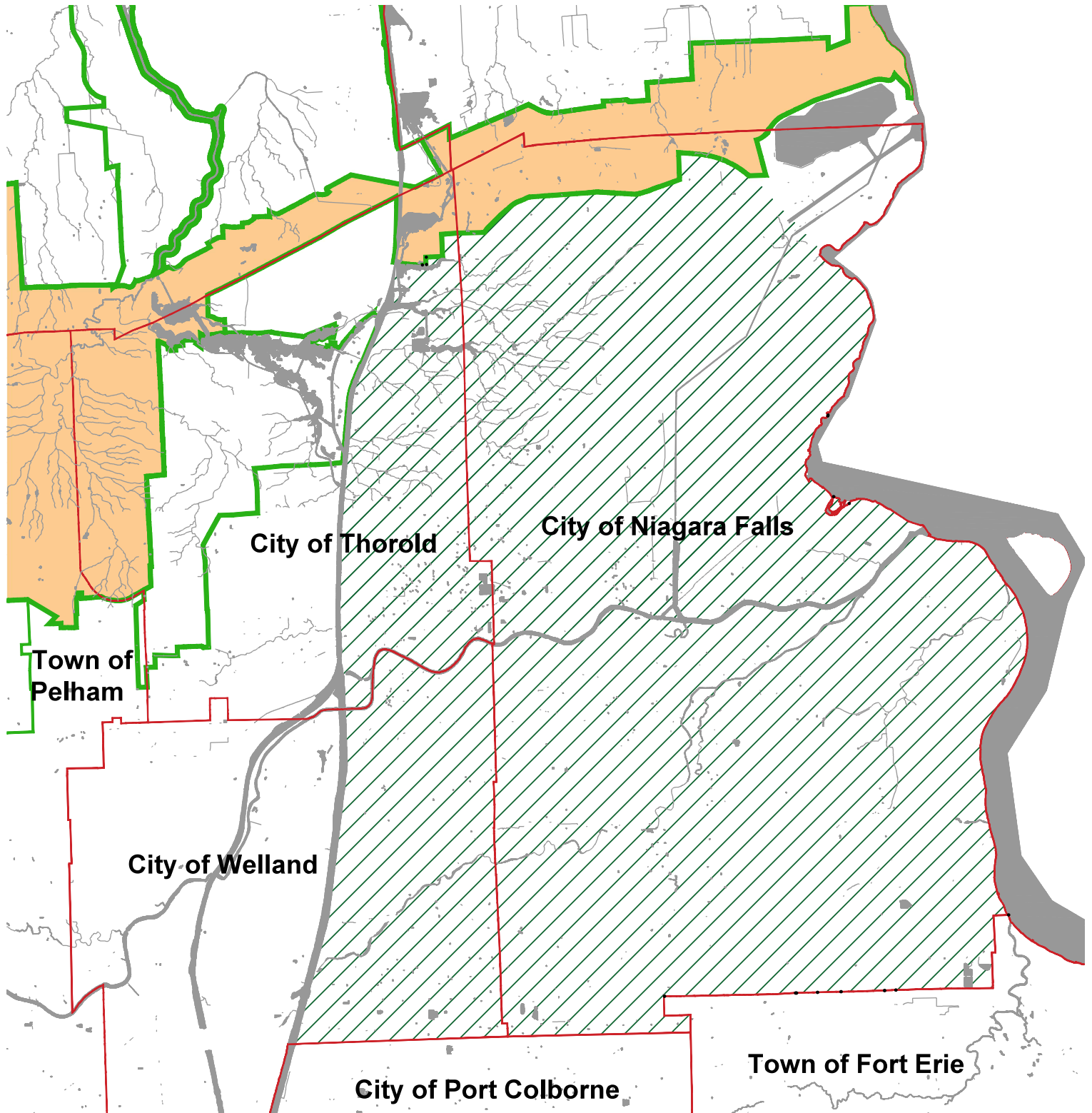
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Data Source: First Base Solutions Aerial Flown 2016

Figure 5

Alternative Site Analysis

Market Area

**Upper's Quarry,
City of Niagara Falls,
Region of Niagara, Ontario**

LEGEND

Market Area

Municipal Boundary

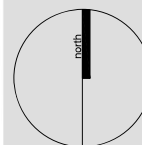
Greenbelt Plan Boundary

Niagara Escarpment Plan Area

Waterbody

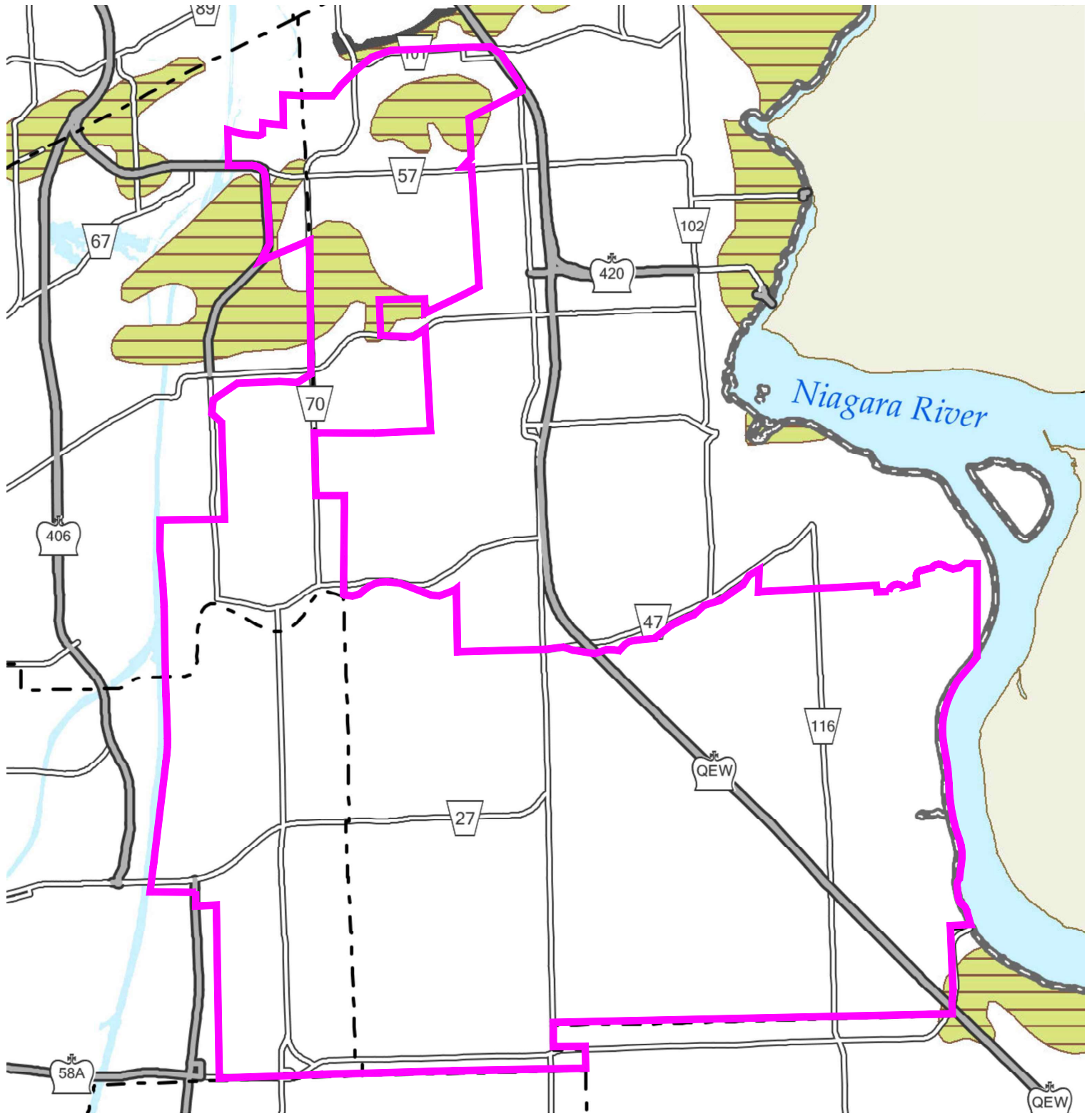
DATE: February 3, 2023

SCALE 1:125 000



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Data Source: Niagara Region Official Plan- Schedule D1 Potential Resource Areas (2015)

Figure 6

Potential Resource Areas Within Study Area

Niagara Region Official Plan
Schedule D1- Potential
Resource Areas: Stone

**Upper's Quarry,
City of Niagara Falls,
Region of Niagara, Ontario**

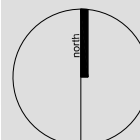
LEGEND

- Alternative Site Analysis Study Area
- General Good Agriculture Area (In Study Area)
- Potential Resource Areas- Stone
- Outcrop- Stone within 3' of Surface

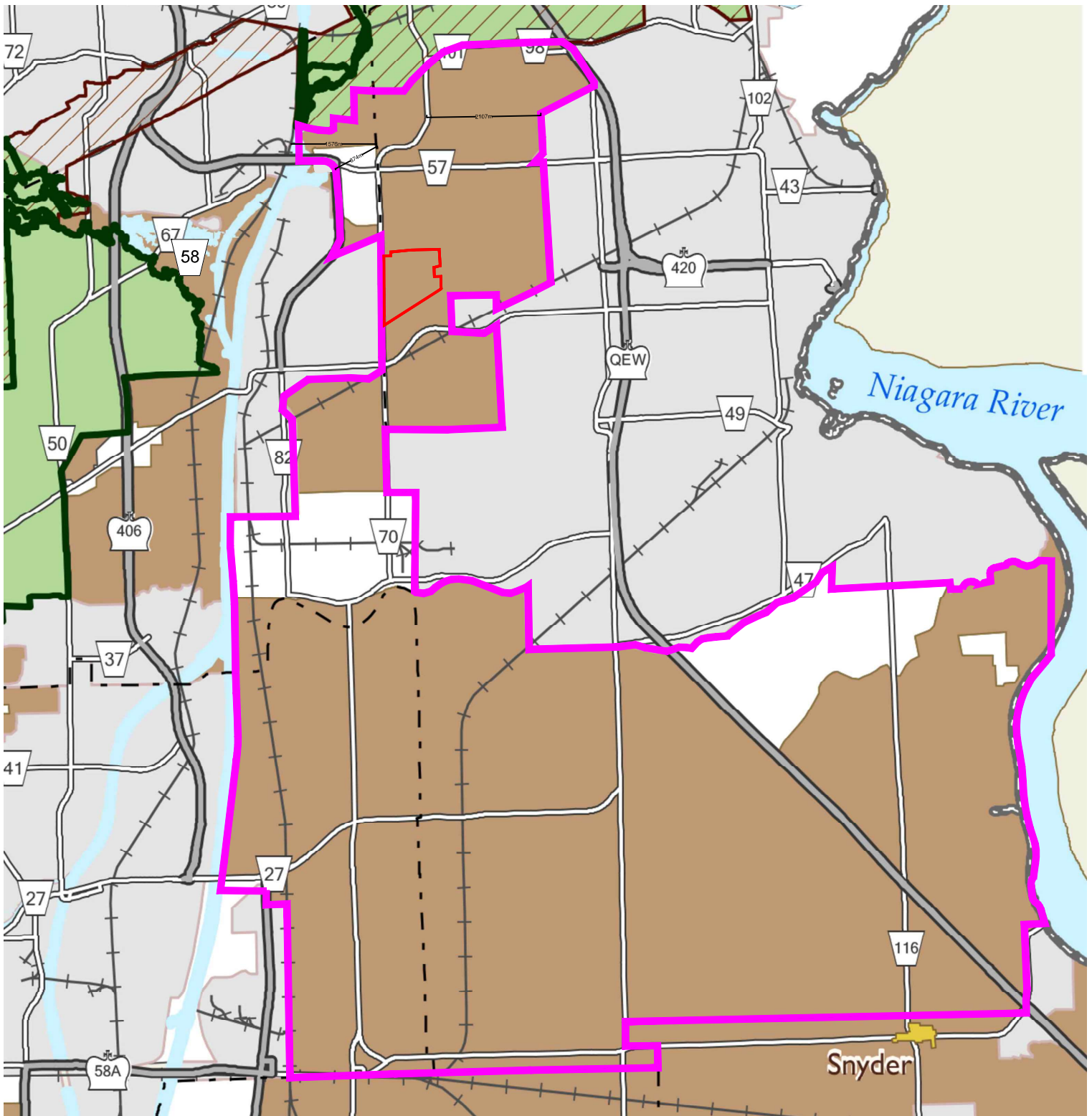
- Niagara Region
- Municipal Boundary
- Provincial Road
- Regional Road

DATE: February 6, 2023

SCALE 1:100 000



N:\9811\1 - South Niagara Quarry\Technical Reports\Drawings\Alternative Site Analysis\Upper's Quarry\Figures\CAD\9811\1- Figure Mapping- 03 February 2023.dwg



Data Source: Niagara Region Official Plan- Schedule D1 Potential Resource Areas: Stone (2015); Niagara Region Navigator Interactive Mapping (Accessed March 3, 2020)

Figure 7 Alternative Site Analysis Study Area

Schedule B
Agricultural Land Base
Niagara Region
Official Plan

Upper's Quarry,
City of Niagara Falls,
Region of Niagara, Ontario

LEGEND

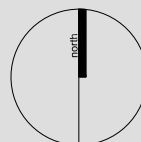
- Proposed Upper's Quarry Site (±106.3ha)
- Study Area
- Rural Area
- Urban Area

- Unique Agriculture Area
- Niagara Escarpment Plan (NEP) Area
- Greenbelt Plan Area

- Good General Agriculture Area
- Regional Road
- Niagara Region
- Municipal Boundary
- Provincial Road
- Railway

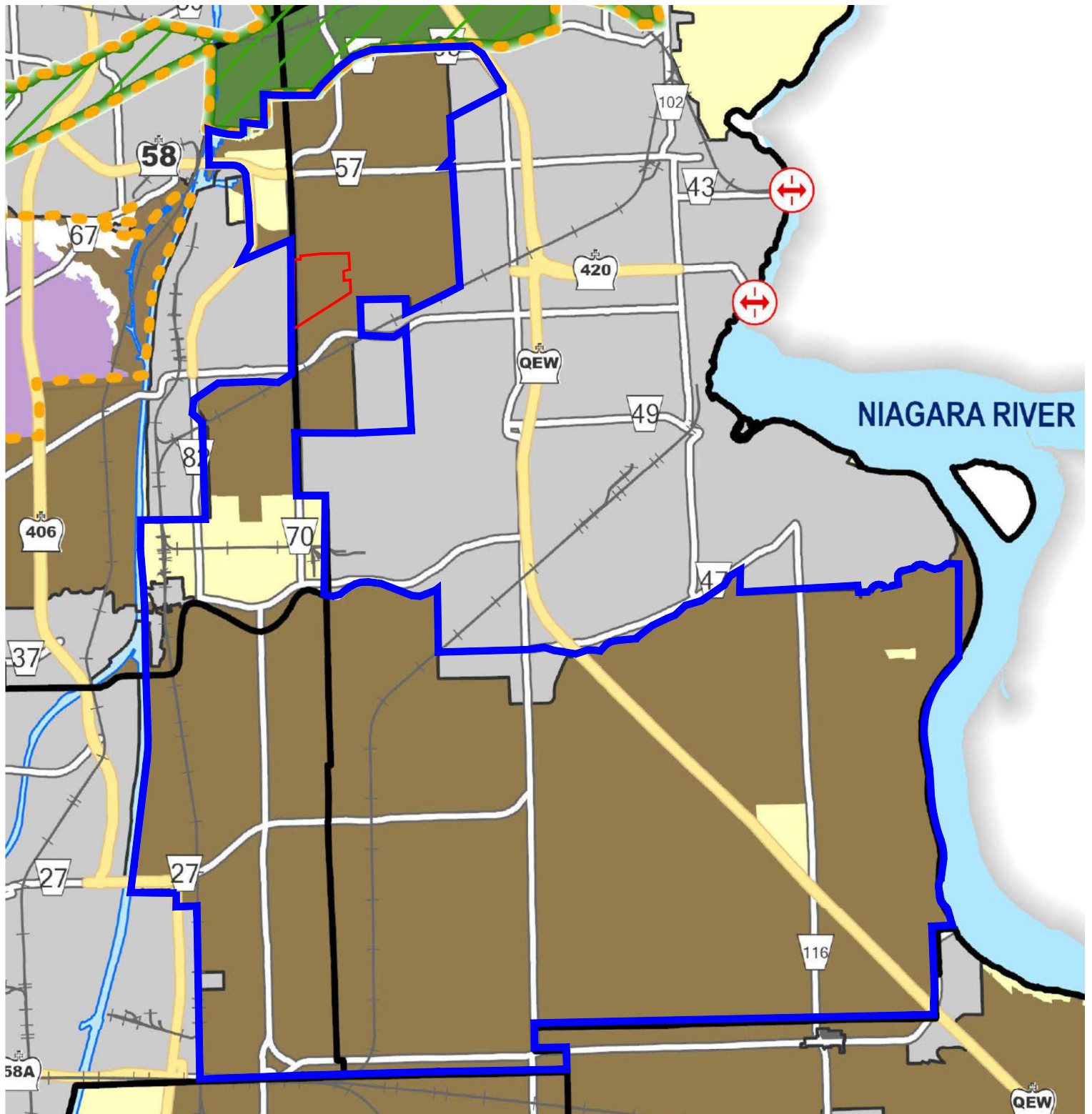
DATE: January 7, 2020

SCALE 1:100 000



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Data Source: Niagara Region Official Plan- Schedule F- Agricultural Land Base (June 2022)

Figure 7a

Alternative Site Analysis Study Area

Niagara Region Official Plan
Schedule F- Agricultural
Land Base (Updated 2022)

Upper's Quarry,
City of Niagara Falls,
Region of Niagara, Ontario

LEGEND

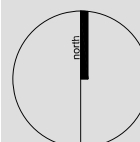
- Proposed Upper's Quarry Site (± 106.3 ha)
- Study Area
- Greenbelt Area Boundaries
- Specialty Crop Area

- Niagara Escarpment Plan Area
- Prime Agricultural Area
- Rural Lands
- Urban Areas
- Provincial Road

- Regional Road
- Railway
- Municipal Boundaries
- Welland Canal
- Niagara Escarpment Plan Area
- ↔ International Crossing

DATE: February 6, 2023

SCALE 1:100 000

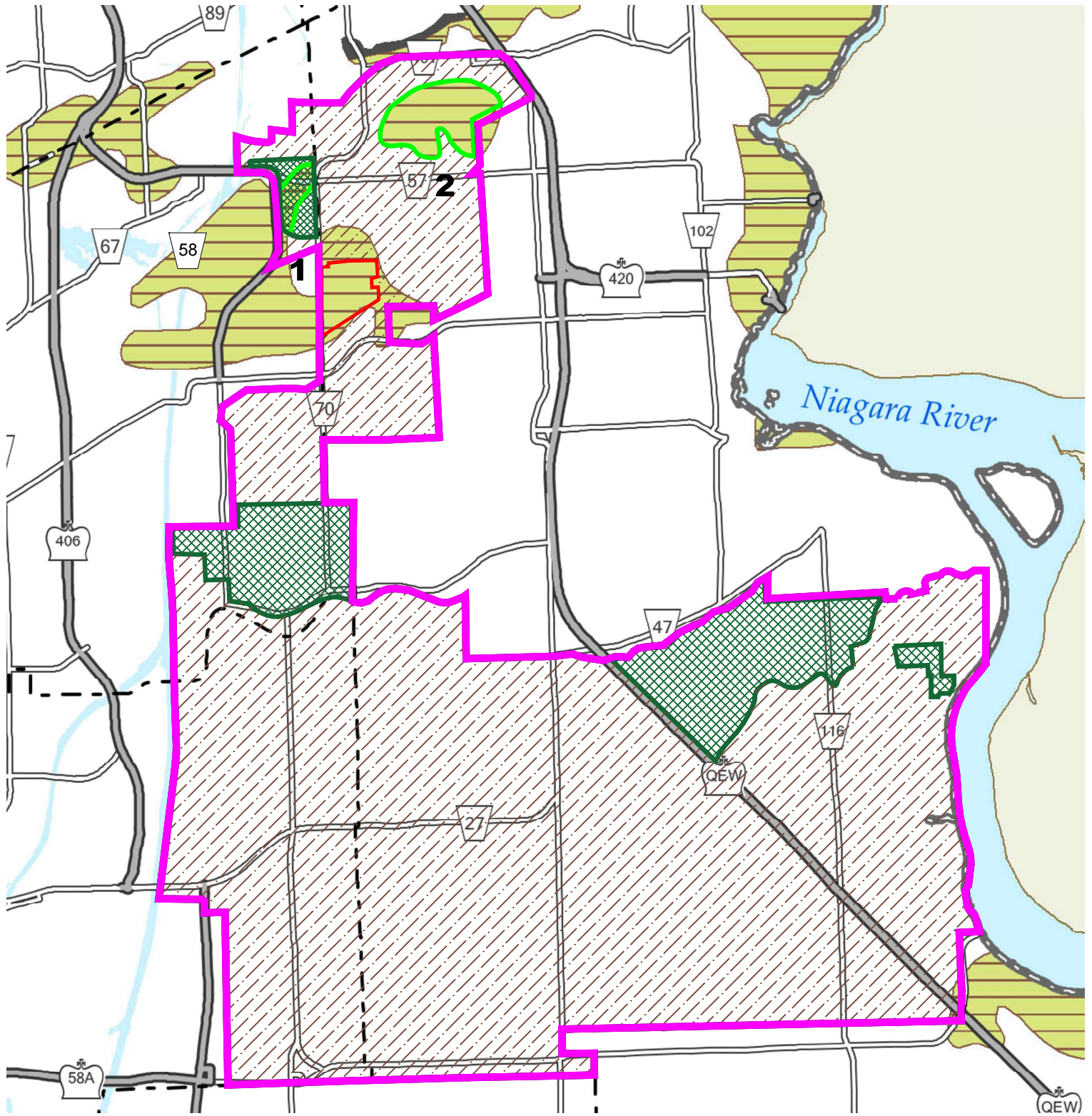


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Data Source: Niagara Region Official Plan- Schedule D1 Potential Resource Areas (2015)

Figure 8

Potential Resource Areas Within Study Area

LEGEND

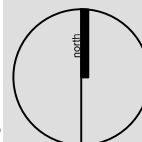
- Proposed Upper's Quarry Site ($\pm 106.3\text{ha}$)
- Alternative Site Analysis Study Area
- 1 Alternative Site Area

- Rural Area (In Study Area)
- General Good Agriculture Area (In Study Area)
- Potential Resource Areas-Stone
- Niagara Region

- Municipal Boundary
- Provincial Road
- Regional Road

DATE: February 3, 2023

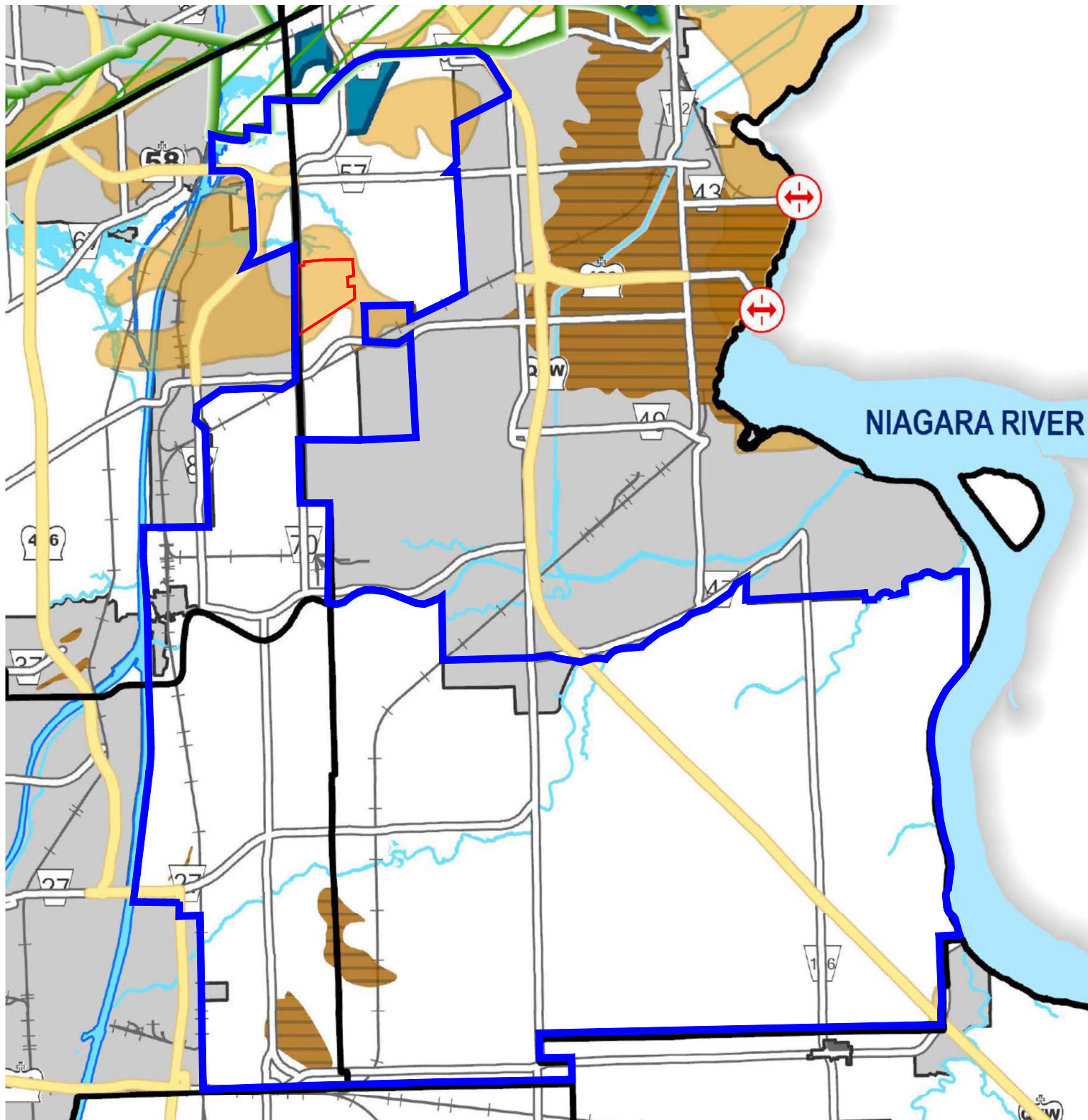
SCALE 1:100 000



Upper's Quarry,
City of Niagara Falls,
Region of Niagara, Ontario

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Data Source: Niagara Region Official Plan- Schedule H- Known Deposits of Mineral Aggregate Resources and Mineral Aggregate Operations (June 2022)

Figure 8a Potential Resource Areas Within Study Area

Schedule H- Known Deposits
of Mineral Aggregate
Resources and Mineral
Aggregate Operations
(Updated 2022)

Upper's Quarry,
City of Niagara Falls,
Region of Niagara, Ontario

LEGEND

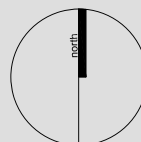
- Proposed Upper's Quarry Site (±106.3ha)
- Alternative Site Analysis Study Area
- Licensed Aggregate Operations
- Stone Resource

- Sand and Gravel-Significance- Tertiary
- Urban Areas
- Major Watercourses
- Provincial Road
- Regional Road
- Railway

- Municipal Boundaries
- Welland Canal
- Niagara Escarpment Plan Area
- ↔ International Crossing

DATE: February 7, 2023

SCALE 1:100 000



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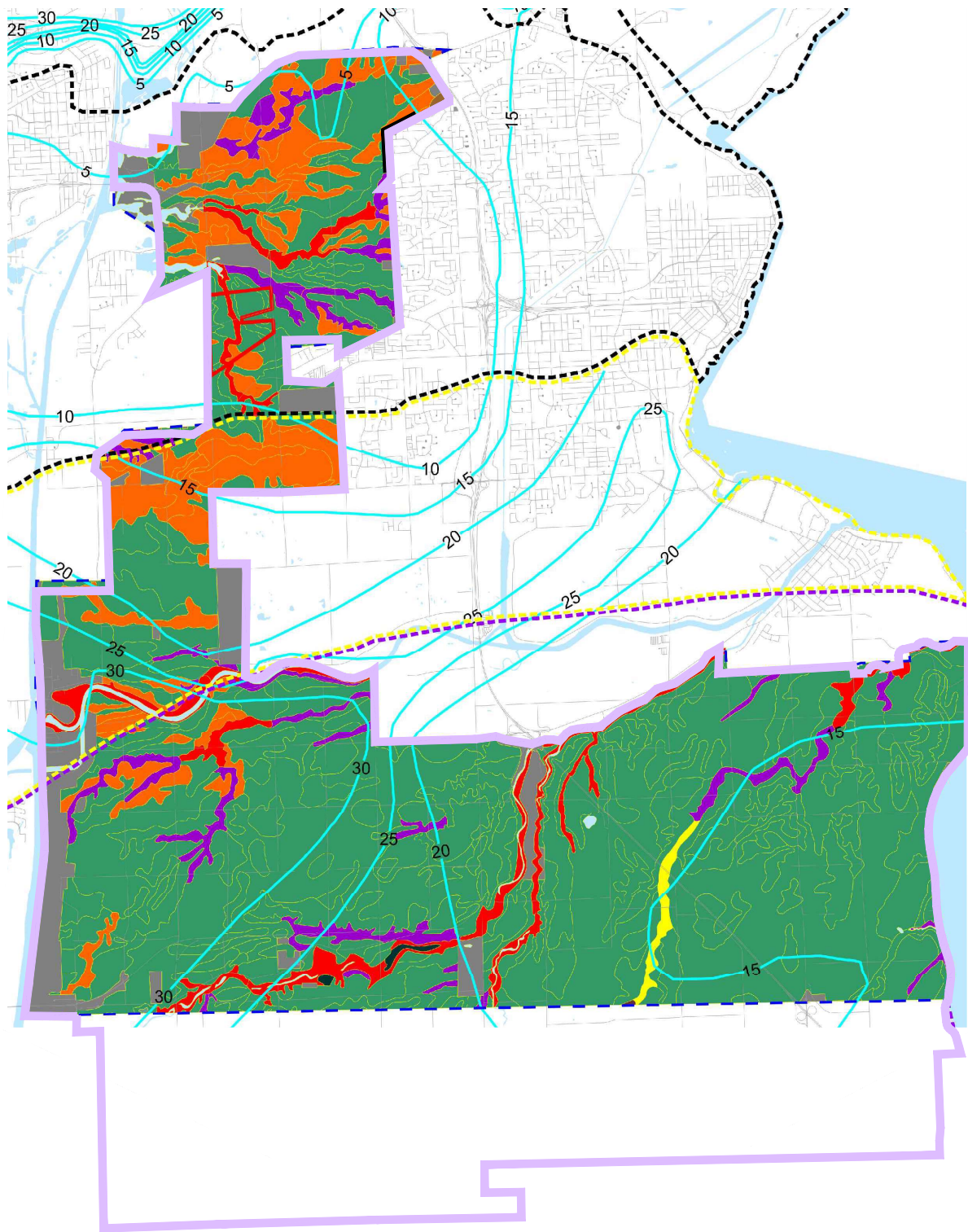


Figure 9
Study Area

Soil Classification

**Upper's Quarry,
City of Niagara Falls,
Region of Niagara, Ontario**

LEGEND

- Study Area
- CLI Class 1
- CLI Class 2
- CLI Class 3

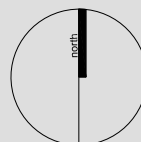
Data Source: Agricultural Impact Assessment for Uppers Quarry, prepared by Colville Consulting Inc.

- CLI Class 4
- CLI Class 5
- CLI Class 6
- CLI Class 7
- Organic
- Not Mapped

- Drift Thickness
- Study Area
- Subject Lands
- Lockport Formation
- Salina Formation
- Guelph Formation
- Water

DATE: February 7, 2023

SCALE 1:100 000

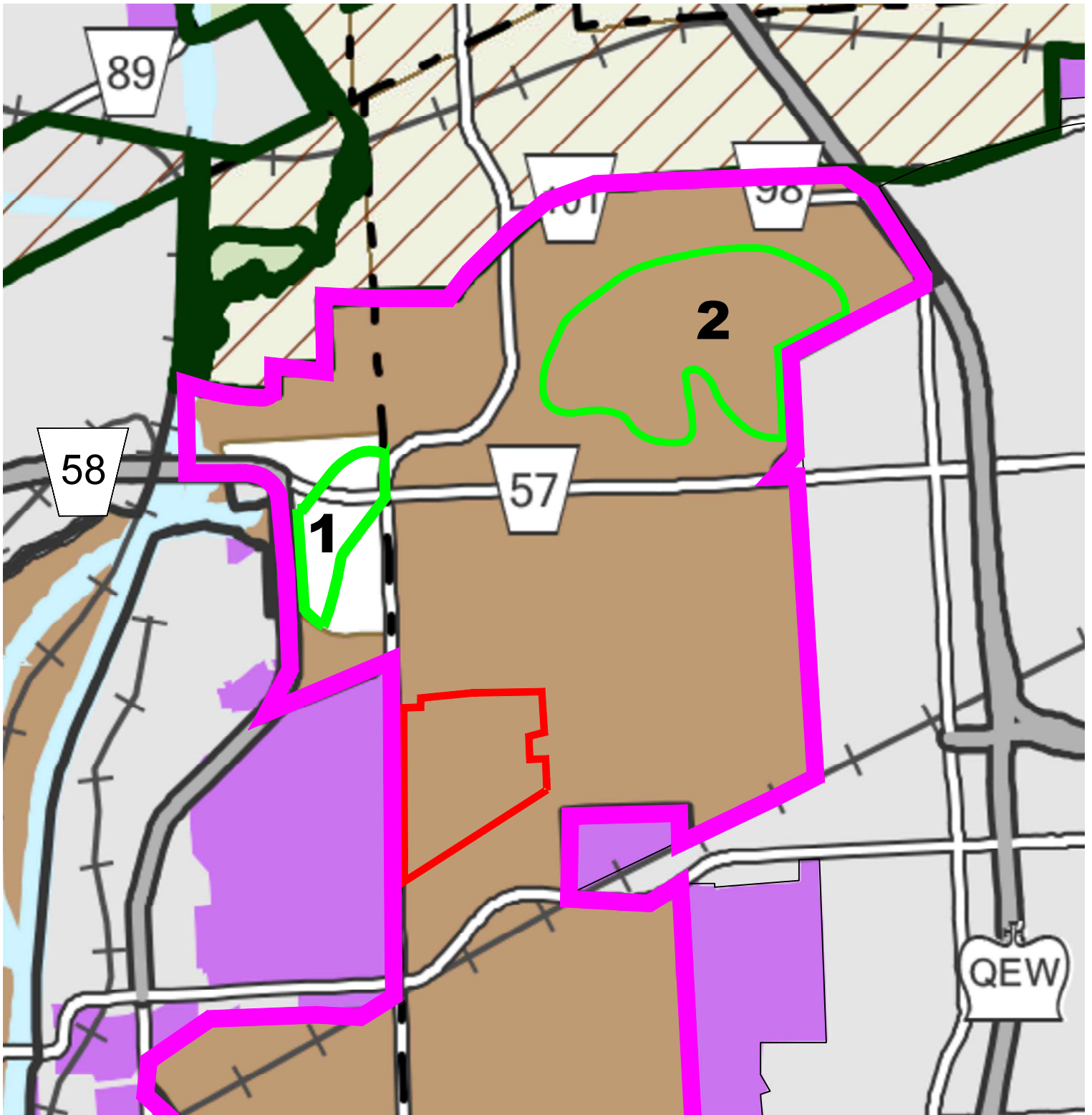


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Data Source: Niagara Region Official Plan- Schedule A- Regional Structure (2015); Niagara Region Navigator Interactive Mapping (Accessed March 3, 2020)

Figure 10 Alternative Site Areas

Schedule A
Regional Structure
Niagara Region
Official Plan

Upper's Quarry,
City of Niagara Falls,
Region of Niagara, Ontario

LEGEND

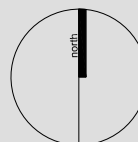
- Proposed Upper's Quarry Site (±106.3ha)
- Alternative Site Analysis Study Area
- 1 Alternative Site Area

- Rural Area
- Urban Area Boundary
- Designated Greenfield Area
- Niagara Escarpment Plan (NEP) Area

- Greenbelt Plan Area
- Good General Agriculture Area
- Niagara Region
- Municipal Boundary
- Provincial Road
- Regional Road
- Railway

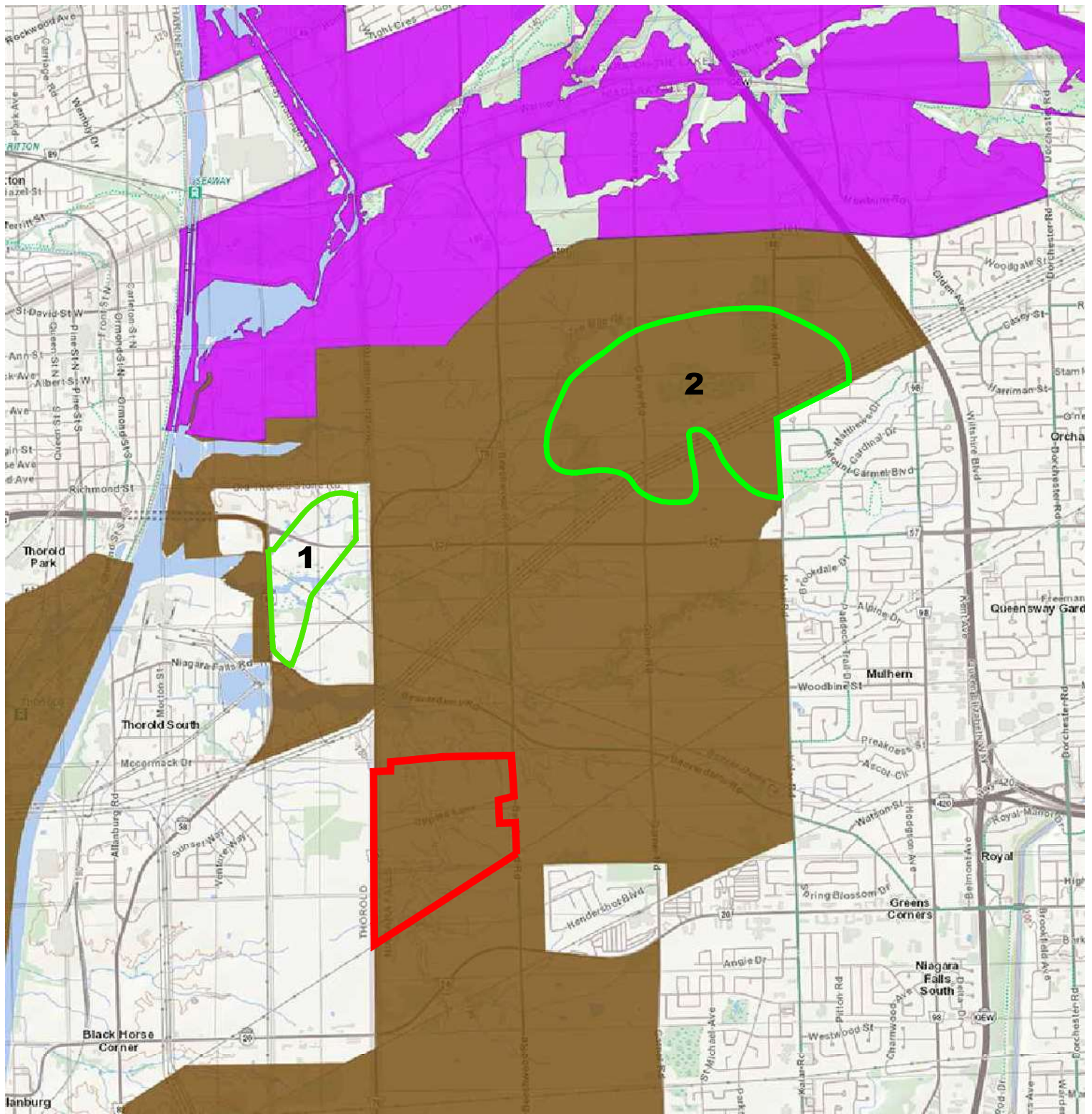
DATE: February 3, 2023

SCALE 1:40 000



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Data Source: Provincial Agricultural System Mapping- Agricultural Land Base for the Greater Golden Horseshoe (Accessed December 19, 2019)

Figure 11

Provincial Agricultural System Mapping

Agricultural Land Base for the Greater Golden Horseshoe

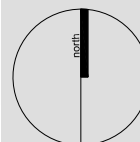
Upper's Quarry,
City of Niagara Falls,
Region of Niagara, Ontario

LEGEND

- Proposed Upper's Quarry Site (±106.3ha)
- Alternative Site Area
- Prime Agriculture Area
- Specialty Crop Area

DATE: February 3, 2023

SCALE 1:40 000

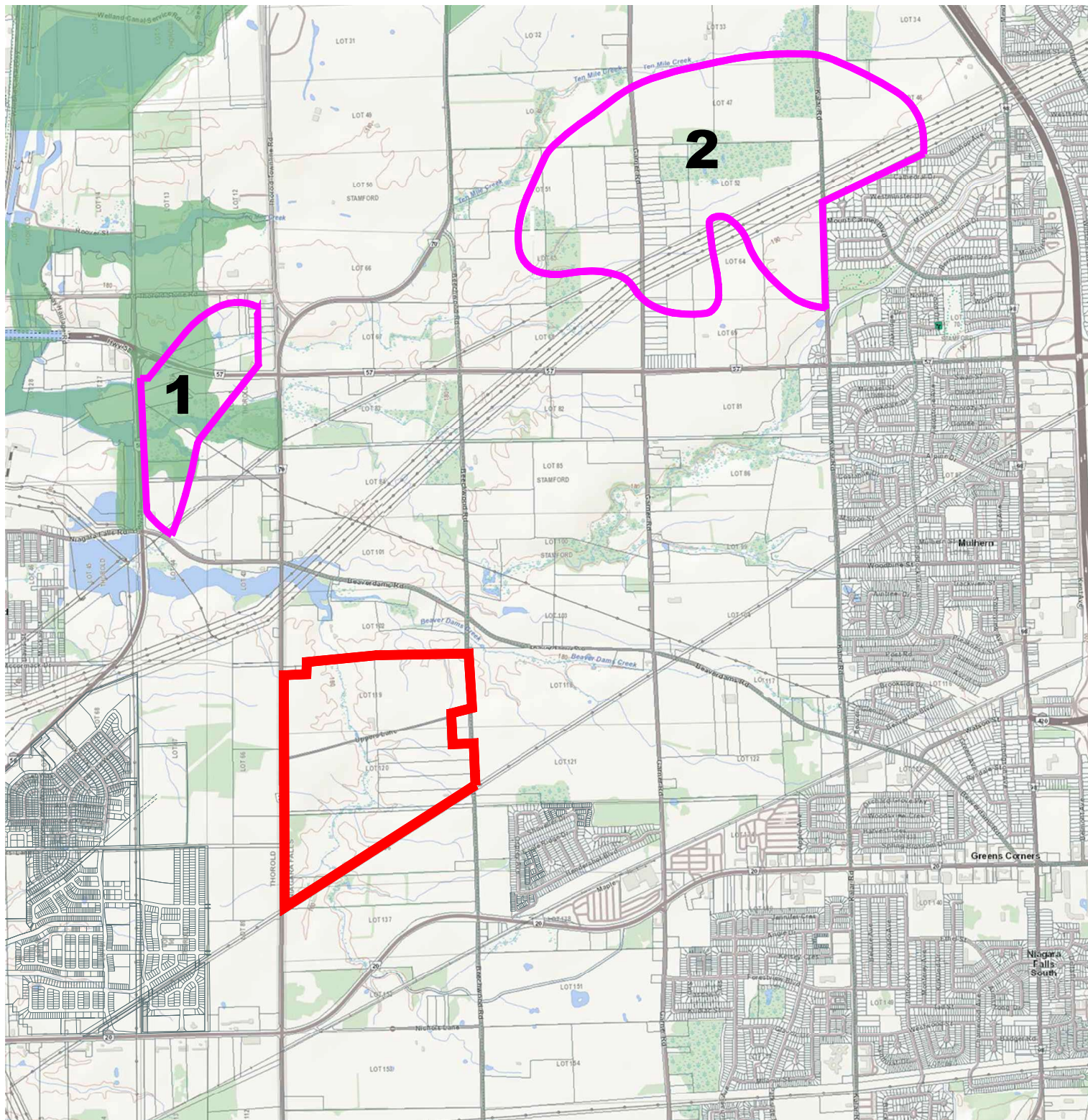


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Data Source: MNRF Natural Heritage Information Centre Mapping

Figure 12

Provincial Natural Heritage System Mapping

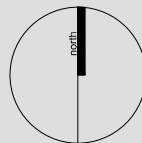
Upper's Quarry,
City of Niagara Falls,
Region of Niagara, Ontario

LEGEND

- Proposed Upper's Quarry Site (±106.3 ha)
- Alternative Site Area
- Natural Heritage System
- Index Contour
- Waterbody
- Wetland
- Hydro Line, Communication, or Unknown Transition Line
- Major Road
- Minor Road

DATE: August 25, 2023

SCALE 1:30000

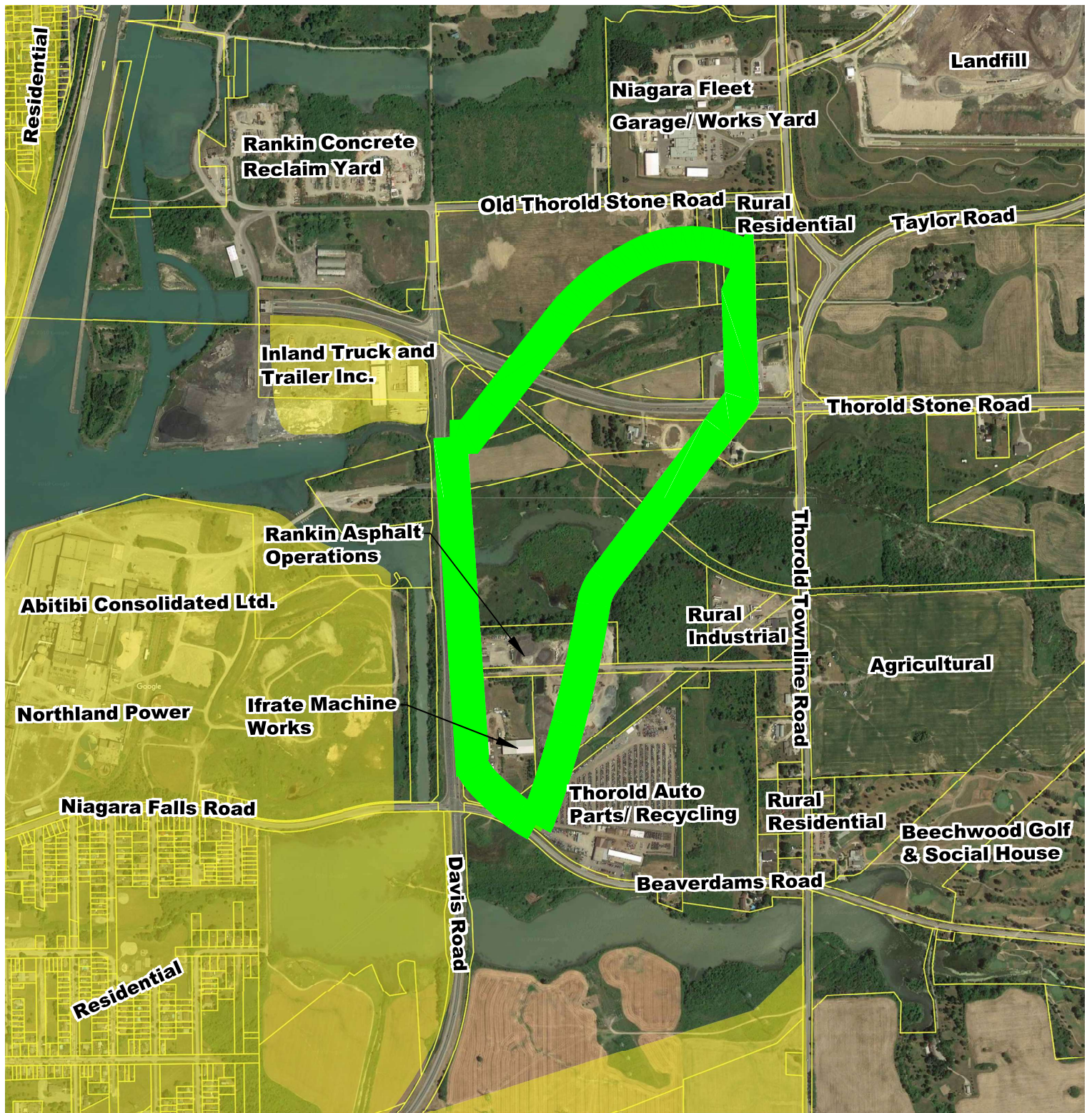


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Data Source: Google Maps Imagery 2019; Niagara Region Navigator Interactive Mapping (Accessed March 3, 2020)

Figure 13

Location Map Alternative Site Area 1

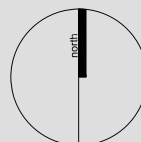
Upper's Quarry,
City of Niagara Falls,
Region of Niagara, Ontario

LEGEND

- Alternative Site Area (±43.93ha)
- Urban Area

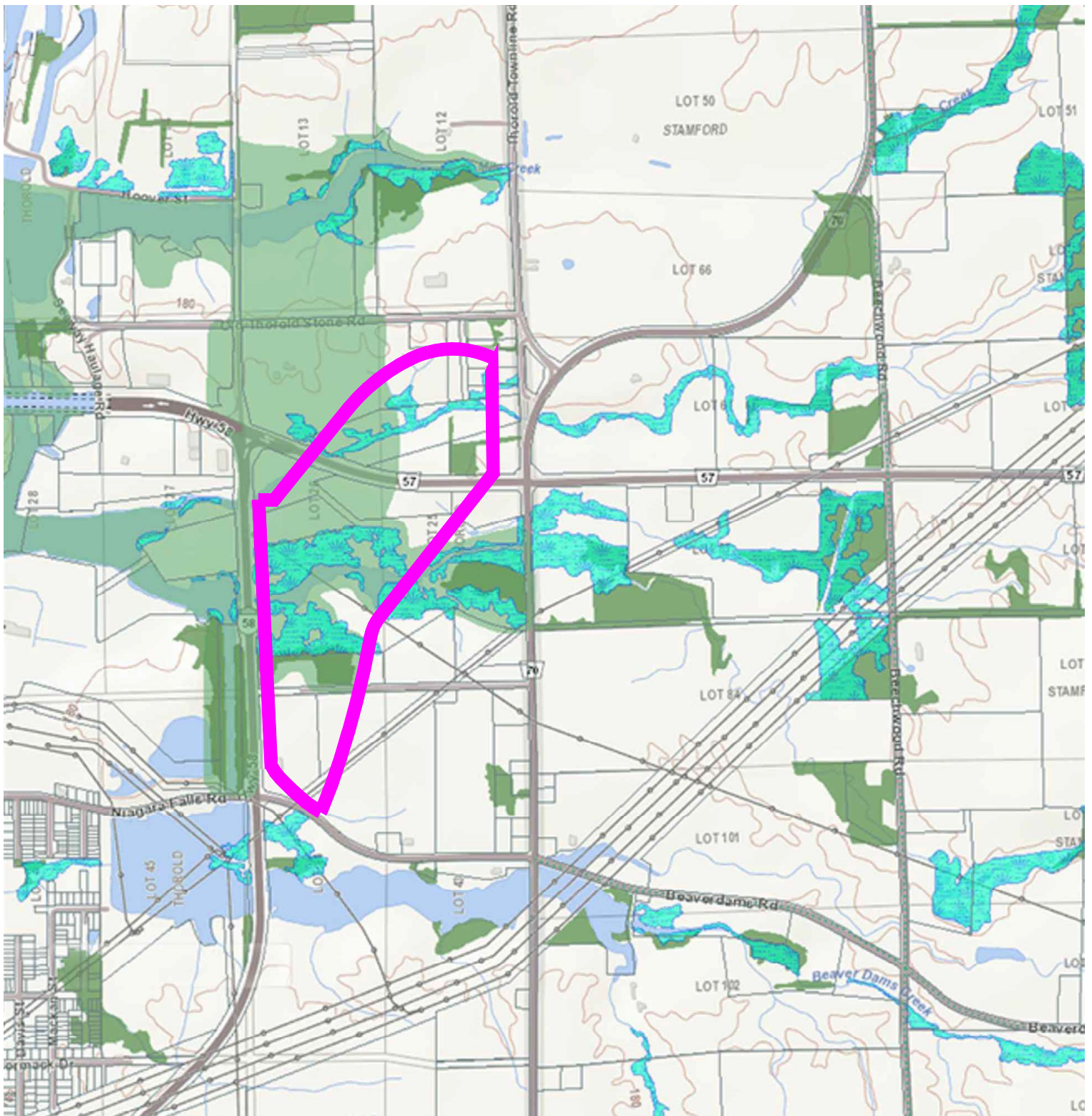
DATE: February 3, 2023

SCALE 1:12 000



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Data Source: MNRF Natural Heritage Information Centre Mapping

Figure 14

Alternative Site Area 1

MNRF Natural Heritage Information Centre Mapping

Upper's Quarry,
City of Niagara Falls,
Region of Niagara, Ontario

LEGEND

- Alternative Site Area (±43.93ha)
- Wooded Area
- Index Contour
- Waterbody



Hydro Line, Communication, or Unknown Transition Line



Major Road



Minor Road



Natural Heritage System



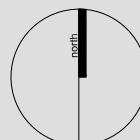
Trail Head/ Trail



Non-Provincially Significant Wetland Evaluated

DATE: February 3, 2023

SCALE 1:15000

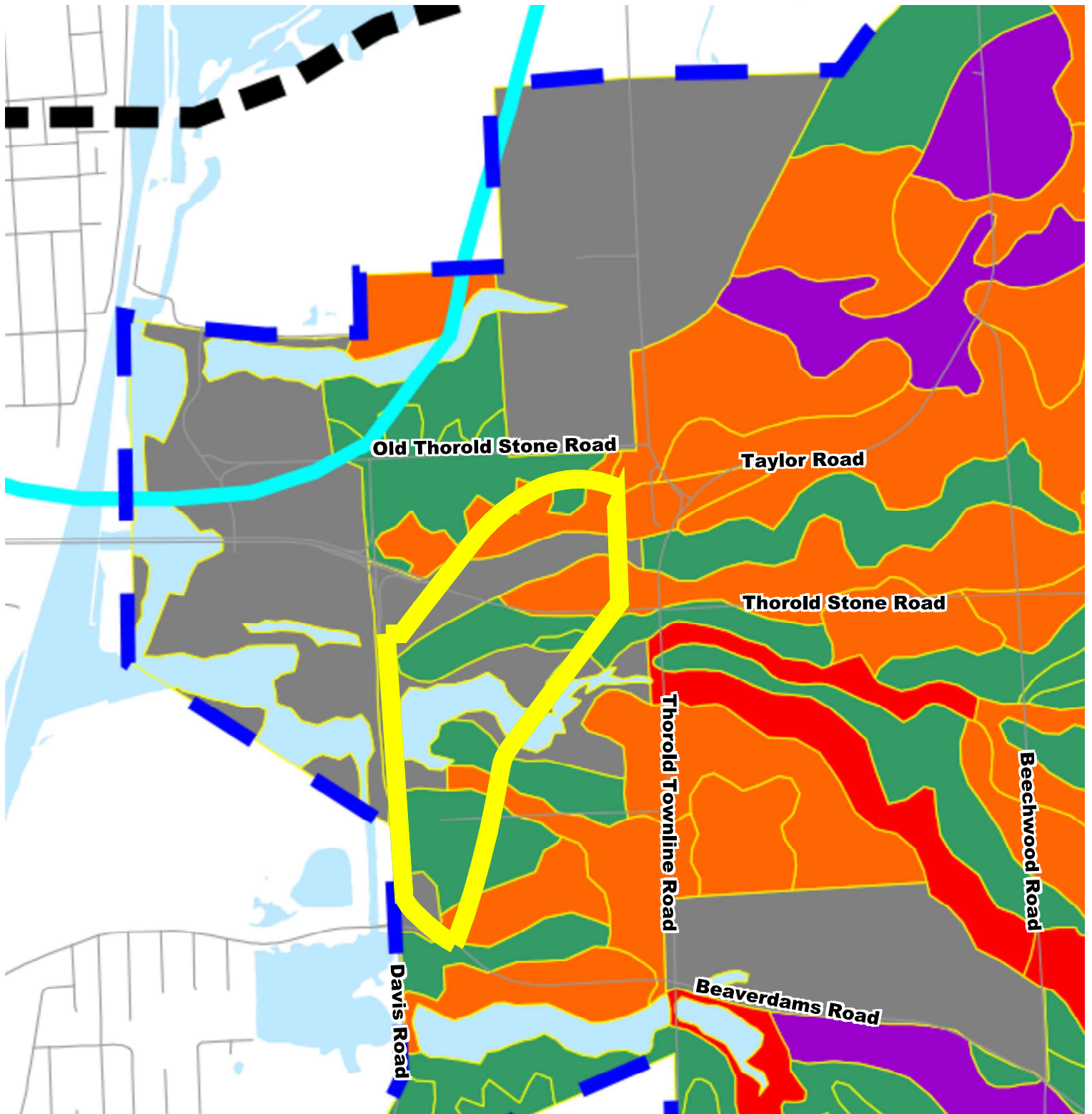


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Data Source: Agricultural Impact Assessment for Uppers Quarry, prepared by Colville Consulting Inc.

Figure 15

Alternative Site Area 1

Soil Classification

Upper's Quarry,
City of Niagara Falls,
Region of Niagara, Ontario

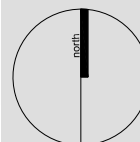
LEGEND

- Alternative Site Area (± 43.93 ha)
- CLI Class 2
- CLI Class 3

- CLI Class 4
- CLI Class 5
- Not Mapped
- Study Area
- Drift Thickness
- Lockport Formation
- Water

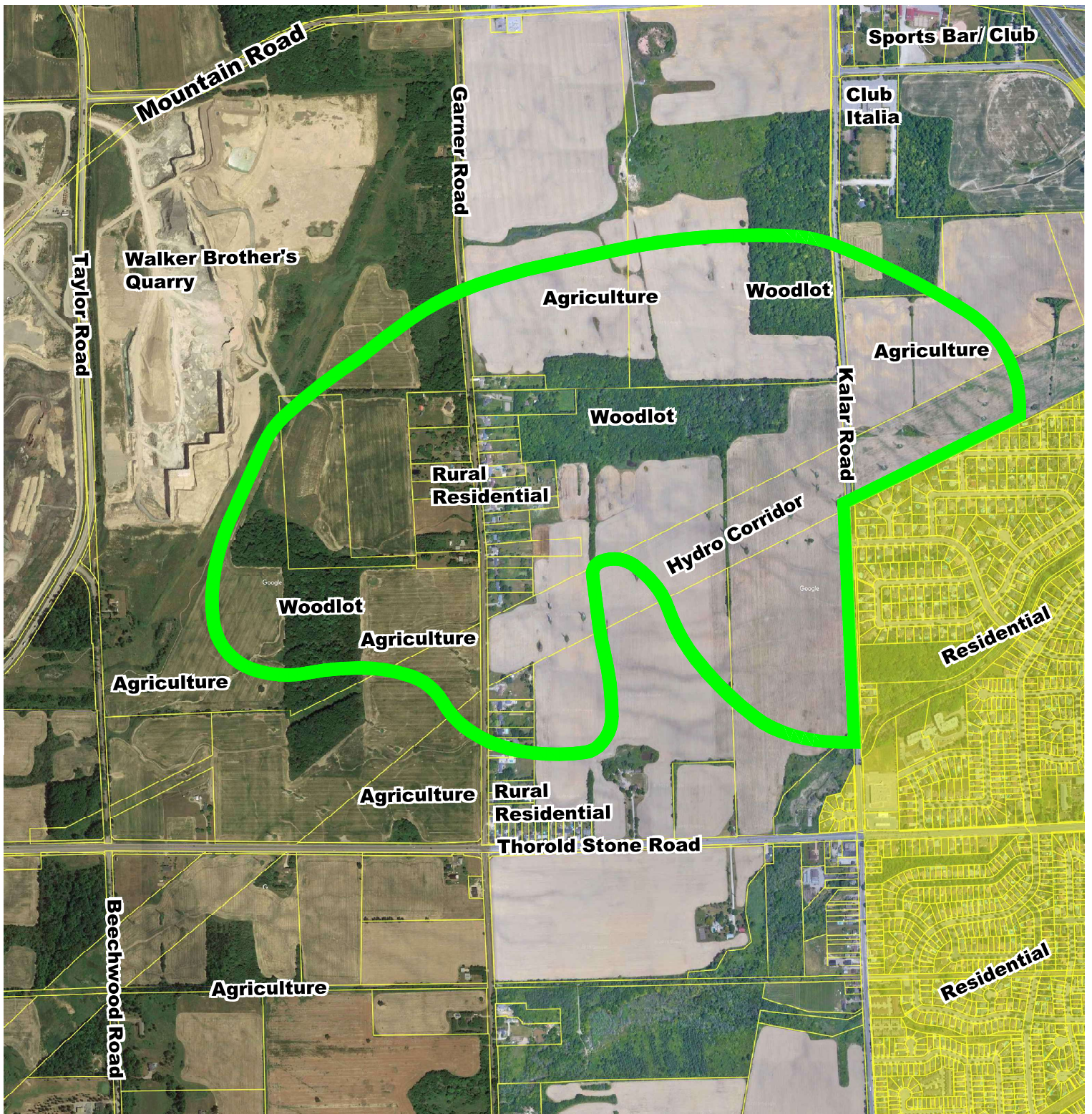
DATE: February 3, 2023

SCALE 1:15000



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Data Source: First Base Solutions Aerial Flown 2016; Niagara Region Navigator Interactive Mapping (Accessed March 3, 2020)

Figure 16

Location Map Alternative Site Area 2

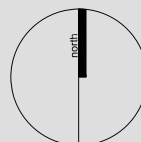
Upper's Quarry,
City of Niagara Falls,
Region of Niagara, Ontario

LEGEND

- Alternative Site Area (± 209.33 ha)
- Urban Area (City of Niagara Falls)

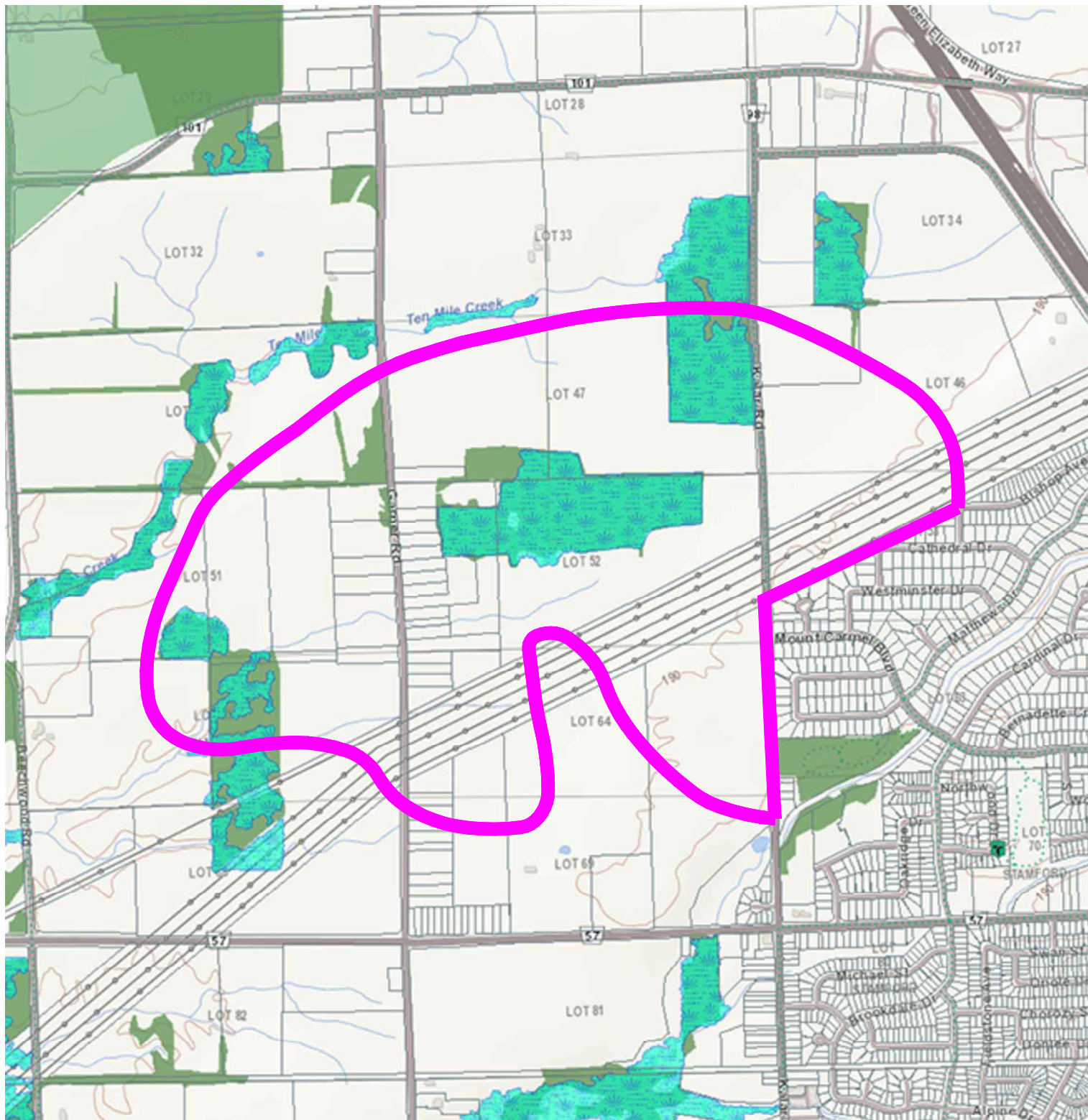
DATE: February 3, 2023

SCALE 1:15000



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Data Source: MNRF Natural Heritage Information Centre Mapping

Figure 17
Alternative Site 2

MNRF Natural Heritage
Information Centre Mapping

**Upper's Quarry,
City of Niagara Falls,
Region of Niagara, Ontario**

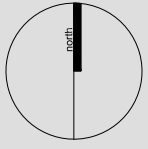
LEGEND

- Alternative Site Area (±209.33ha)
- Woodland
- Index Contour
- Waterbody
- Hydro Line, Communication, or Unknown Transition Line
- Major Road
- Minor Road
- Natural Heritage System

- Trail Head/ Trail
- Non-Provincially Significant Wetland Evaluated

DATE: February 3, 2023

SCALE: 1:15000

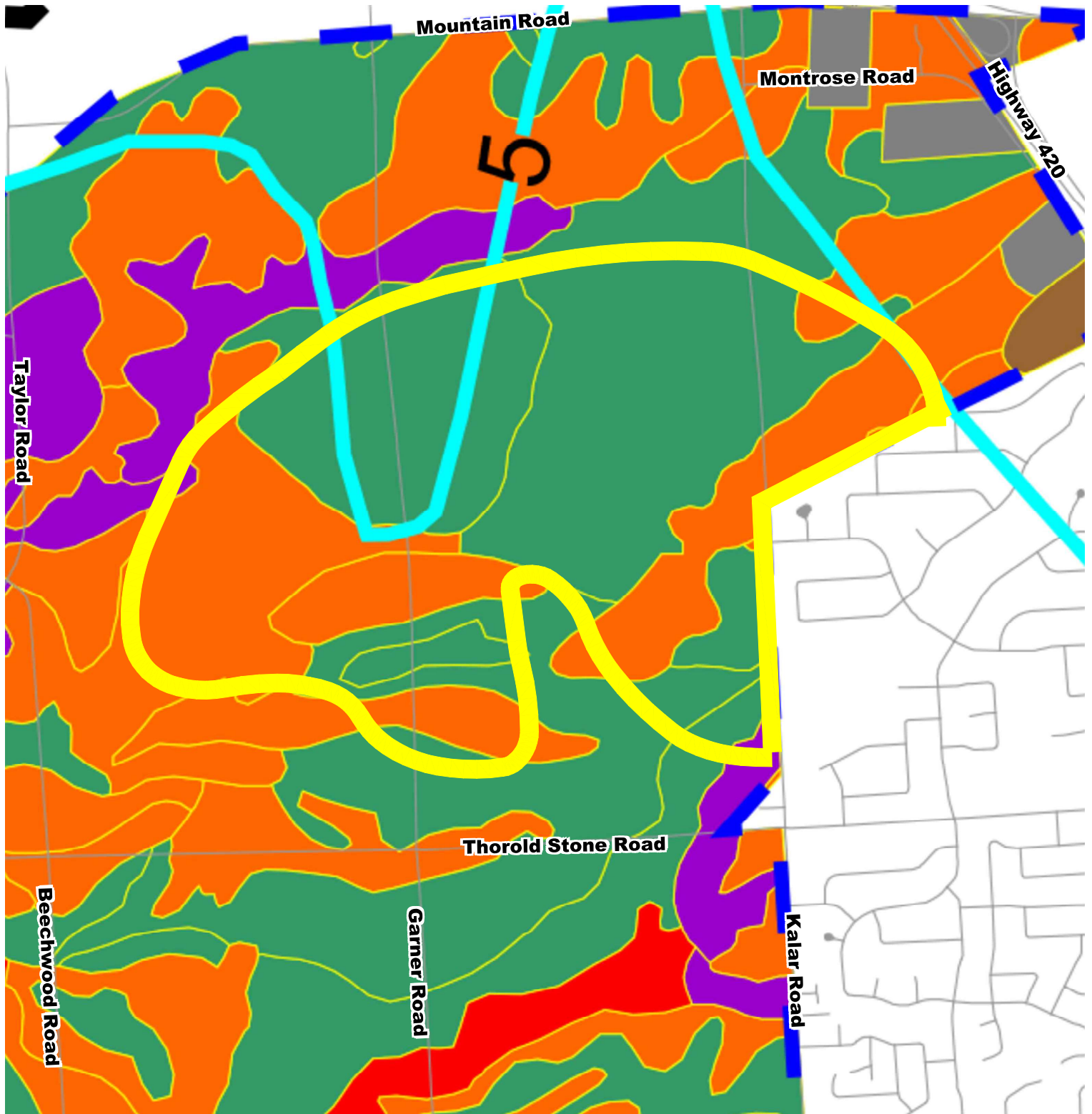


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Data Source: Agricultural Impact Assessment for Uppers Quarry, prepared by Colville Consulting Inc.

Figure 18

Alternative Site Area 2

Soil Classification

Upper's Quarry,
City of Niagara Falls,
Region of Niagara, Ontario

LEGEND

- Alternative Site Area (±209.33ha)
- CLI Class 1
- CLI Class 2

- CLI Class 3
- CLI Class 4
- CLI Class 5

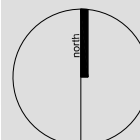
Not Mapped

Study Area

Drift Thickness

DATE: February 3, 2023

SCALE 1:15000



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