

## **Duntroon License Expansion Agricultural Impact Assessment**



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**DUNTROON LICENSE EXPANSION  
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## 1 INTRODUCTION

Stantec Consulting Ltd. (Stantec) was retained by Georgian Aggregates and Construction Inc. (Georgian Aggregates), a division of Walker Industries Holdings Ltd., to conduct an Agricultural Impact Assessment of a proposed aggregate facility expansion. The area to be licensed is legally described as Lot 25 and Part Lot 26, Concession 12 and Part Lot 25, Concession 11, Township of Clearview (formerly Nottawasaga) County of Simcoe. The proposed area to be licensed consists of 127.02 hectares (313.88 acres) of land. The area now to be licensed contains the area to be extracted, which is 68.92 ha (170.30 acres) in size. This agricultural assessment was completed for the area to be extracted.

The proposed extraction areas are located on the north side of Simcoe Road 91. An existing quarry is located on the south side of Simcoe Road 91. The area to be extracted is identified as Niagara Escarpment Natural Area and Escarpment Rural Area in the County of Simcoe Official Plan. The location of the area to be licensed is shown in Figure 1.

Georgian Aggregates is preparing an application for a Class A, Category 2 license under the Aggregate Resources Act. Class A, Category 2 licenses are for quarry operations with extraction below the established water table.

The purpose of this report is to identify any agricultural impacts that might be associated with the proposed quarry expansion. Specifically, this report addresses:

1. The agricultural capability and use of the soils contained within the area to be extracted.
2. The level of agricultural investment, in the form of farm infrastructure, contained within the proposed area to be extracted.
3. The potential impact of the proposed development on agricultural operations situated in the vicinity of proposed area to be extracted and related mitigation.
4. The context of the proposed extraction area in terms of the pattern of occurrence and continuity of surrounding prime agricultural land, investment, and land use.

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Figure 1. Location of Proposed Area to be Licensed

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## 2 STUDY METHODOLOGY

The study approach consisted of:

1. Background information review;
2. Field data collection, refinement of background information and interpretation of aerial photography;
3. Analysis of interpreted information; and,
4. Preparation of conclusions as to the potential agricultural impact of the proposed changes in land use.

### 2.1 BACKGROUND DATA COLLECTION AND REVIEW

Prior to field data collection, Stantec reviewed background information sources related to the Study Area. This information included:

#### Provincial Policies/Guidelines

- Provincial Policy Statement; Government of Ontario (2005); and,
- Greenbelt Plan; Ministry of Municipal Affairs and Housing (2005).

#### Planning Documents

- County of Simcoe Official Plan;
- Official Plan of the Township of Clearview; and,
- The Niagara Escarpment Plan.

#### Agricultural Resource Information

- Soil Survey of Simcoe County, 1962 (reprinted 1990). Report No. 29 of the Ontario Soil Survey (Hoffman, D.F., Wicklund R.E., and N.R. Richards);
- Chapman and Putnam (1984). Physiography of Southern Ontario;
- 1:50,000 Soil Capability for Agriculture Manuscript Mapping (sheet 41 A/8); and,
- Aerial photography of the Study Area.

### 2.2 FIELD DATA COLLECTION

#### 2.2.1 Soil Investigations

Stantec conducted soil investigations of the proposed area to be extracted to refine existing County-level (1:63,360) soil mapping. These soil investigations included aerial photo interpretation and a detailed in-field soil survey of these lands.

Stereo aerial photography of the proposed extraction area and the surrounding area was used to identify landscape features prior to field investigations. A detailed soil survey was undertaken to confirm slopes identified in the aerial photography and determine the distribution of soil types and soil capabilities within the proposed extraction area through soil profile examination.



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### **2.2.2 Agricultural Land Use Survey**

A reconnaissance-level agricultural land use survey was completed in May 2003. The survey identified land use characteristics including cropping patterns, farm types, level of agricultural investment, retired and abandoned farm infrastructure, rural non-farm residences, and commercial and industrial developments.

The primary purpose of the land use survey was to identify agricultural land use patterns and levels of intensity of agricultural land use and investment within the proposed area to be extracted.

### **2.2.3 Minimum Distance Separation (MDS) Data Collection**

Minimum Distance Separation (MDS) is a planning tool used to mitigate potential land use conflicts between livestock operations and non-agricultural land uses. MDS Formula I (MDS I) is used to determine minimum distance separation for new development from existing livestock facilities. The objective is to prevent land use conflicts and minimize nuisance complaints from odour. Accordingly, MDS I is intended to provide a suitable separation distance between existing livestock facilities and non-farm land uses that may represent sensitive receptors for odour.

The proposed aggregate facility expansion does not represent a sensitive receptor for odour from nearby agricultural operations, and does not represent a potential source for nuisance complaints associated with livestock odour. The Ontario Ministry of Agriculture and Food does not apply MDS I to proposed aggregate extraction facilities. Consequently, MDS I analyses were not conducted for the proposed aggregate facility expansion.

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## 3 BACKGROUND INFORMATION REVIEW

### 3.1 POLICY/GUIDELINES

#### 3.1.1 Provincial Policy Statement (2005)

The Agricultural Policies contained in the PPS (Section 2.3) state that *Prime agricultural areas* shall be protected for long-term use for agriculture. *Prime agricultural areas* are areas where *prime agricultural* lands predominate. *Specialty crop* areas shall be given the highest priority for protection, followed by Classes 1, 2, and 3 soils, in this order of priority.

In *prime agricultural* areas, permitted uses and activities are: *agricultural uses*; *secondary uses*; and *agriculture-related uses*.

Section 2.3.5 of the PPS states that planning authorities may only exclude land from *prime agricultural areas* for:

- a) Expansions of or identification of *settlement areas* in accordance with policy 1.1.3.9;
- b) Extraction of *minerals*, *petroleum resources* and *mineral aggregate resources*, in accordance with policies 2.4 and 2.5; and
- c) Limited non-residential uses, provided that:
  1. the land does not comprise a *specialty crop area*;
  2. There is a demonstrated need within the planning horizon provided for in policy 1.1.2 for additional land to be designated to accommodate the proposed use;
  3. There are no reasonable alternative locations which avoid *prime agricultural areas*;
  4. There are no reasonable alternative locations in *prime agricultural areas* with lower priority agricultural lands

Section 2.4.4.1 of the PPS states that extraction of *minerals* and *petroleum resources* is permitted in *prime agricultural areas*, provided that the site is rehabilitated back to agriculture. If rehabilitation back to agriculture is not feasible extraction is still permitted subject to a series of tests (Section 2.5.4.1)

#### 3.1.2 Niagara Escarpment Plan

The proposed area to be extracted is designated Niagara Escarpment Rural Area according to the Niagara Escarpment Plan. The Escarpment Rural Area designation has an objective to provide for new licensed pits or quarries, subject to amendment of the Niagara Escarpment Plan from Escarpment Rural Area to Mineral Extraction Area. The Niagara Escarpment Plan requires that quarries and haul routes not conflict with several criteria, including:

- The maintenance of agricultural areas, in accordance with the Agricultural Policies of the PPS; and
- The minimization of the adverse impact of extractive and accessory operations on existing agricultural or residential development.

#### 3.1.3 Greenbelt Plan

Due to inclusion in the Niagara Escarpment Area, the proposed area to be extracted is also located within the Greenbelt Plan Area. As described in Section 2.2 of the Greenbelt Plan, the requirements of the Niagara Escarpment Plan, established under the *Niagara Escarpment Planning and Development Act*, continue to apply and the Protected Countryside policies do not apply, with the exception of policies related to Parkland, Open Space and Trails.



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## 4 PHYSIOGRAPHY, SOIL AND LAND USE CHARACTERISTICS

Background information sources were used to obtain a general characterization of the physical properties of the proposed area to be extracted and the surrounding Study Area.

### 4.1 AREA PHYSIOGRAPHY

The proposed area to be extracted is located within the Niagara Escarpment physiographic region (Chapman and Putnam, 1984). The Niagara Escarpment physiographic region is one of the most prominent physiographic formations in Southern Ontario. The escarpment represents the edge of the Amabel and Lockport geologic formations and is characterized by vertical cliffs and exposed bedrock that has been stripped of overlying soil materials. The Niagara Escarpment extends from the Niagara Peninsula, around Lake Ontario, and north to Georgian Bay. The characteristics of the Escarpment are variable along its length, with some sections being completely covered by morainal materials. In the vicinity of the proposed area to be extracted, the physiographic formations include limestone plains and till moraines. The soils of the region are generally not of high agricultural capability due to shallowness to bedrock, topography, and fertility and moisture limitations.

### 4.2 SOILS AND SOIL CAPABILITY FOR AGRICULTURE

A soil survey of the proposed area to be extracted was completed to refine the existing county-level soil capability mapping. Table 1 shows the distribution of soil capability within the proposed area to be extracted. Figure 2 shows the soil polygons and soil types identified.

The soil survey identified 5 soil types within the proposed area to be extracted, they include Otonabee Loam, Otonabee Shallow Phase, Lyons Loam, Farmington Loam and Muck. The predominant soil within the proposed area to be extracted is Otonabee Loam. Otonabee Loam soils are well drained and are developed from loam to sandy loam till parent material containing a moderate amount of stone. Within the site, Otonabee soils are identified on variable topography, with slopes ranging from 2-30%.

Otonabee soils located on 2-5% slopes were identified in the southern portions of the site. These soils are fragmented by inclusions of Farmington soils as well as Otonabee shallow phase soils. Otonabee loam soils on 2-5% slopes were classified 2t within the site, indicating moderate limitations to agriculture associated with undesirable topography. The central portions of the site are dominated by Otonabee soils located on slopes ranging from 10-30%. These soils are classified 4tp and 5tp, indicating severe (Class 4) or very severe (Class 5) limitations to agriculture associated with undesirable topography and stoniness.

Otonabee shallow phase soils were identified within the site. These soils possess bedrock at depths between 30 and 50cm. Otonabee shallow phase soils were identified in the southwestern portions of the site in association with Farmington soils. The Otonabee shallow phase soils are classified 5rp within the site indicating very severe limitations to agriculture associated with shallowness to bedrock and stoniness that represents a serious handicap to cultivation.

Lyons loam soils were identified within the site. Lyons loam soils are developed from sandy loam or loam till parent materials and are poorly drained. Lyons loam soils were identified in several locations within the proposed area to be extracted, on topography ranging from 0.5-5%. The Lyons loam soils are generally low-lying and are classified 3w indicating moderately severe limitations to agriculture associated with wetness.

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Figure 2. Soils and Soil Capability

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Farmington loam soils were identified in several locations within the proposed area to be extracted. Farmington soils are developed on shallow loam till over limestone bedrock. Farmington soils possess bedrock at depths less than 30 centimeters and are well drained. Within the proposed area to be extracted, Farmington soils were identified in seven distinct areas located in the central, southwestern, and southeastern portions of the property. Farmington soils are classified 6r indicating suitability only for perennial forage crops due to shallowness to bedrock.

Muck soils were identified in two locations within the proposed area to be extracted. These soils were identified in association with low-lying forested areas along the northern and northeastern boundary of the proposed area to be extracted. Muck soils are organic, and are not classified under the Canada Land Inventory soil capability classification for agriculture. Muck soils are excessively wet and are not suitable for agricultural production.

<b>Table 1. Soil Capability Distribution within Proposed Area to be Extracted</b>		
<b>CLI Classes (subclasses)</b>	<b>Area (ha)</b>	<b>Percent (%)</b>
Class 2 (t)	13.23	19.2
Class 3 (t,w,p)	8.75	12.7
Class 4 (r,p)	34.46	50.0
Class 5 (r,p,t)	6.62	9.6
Class 6 (r)	5.24	7.6
Muck	0.62	0.9
<b>Total</b>	<b>68.92</b>	<b>100.0</b>
<b>Prime Agricultural Lands (CLI Class 1-3)</b>	<b>21.98</b>	<b>31.9</b>

Prime agricultural lands (CLI class 1-3) occupy only 21.98 ha (31.9%) of the proposed area to be extracted. These prime agricultural lands are not located in one continuous area within the site, but rather are fragmented by lower quality soils. The largest area of class 1-3 soils is located along the southern boundary of the proposed area to be extracted. Smaller inclusions of prime lands are located along the western, northern and eastern boundaries of the site, and are commonly forested. The central portions of the site are dominated by CLI class 4 and 5 soils.

**4.3 LAND USE**

A reconnaissance land use survey was completed in May 2003. A two-person team conducted a roadside evaluation of land uses within the Study Area. The Study Area includes an area sufficient in size to permit the identification of land use trends and potential agricultural impacts. Figure 3 shows the results of the land use survey. The land use survey identified some broad patterns of agricultural and non-agricultural land uses within the Study Area. Agricultural operations identified as retired may have some ability to house a few animals or store equipment.

The Study Area consists of a mix of agricultural production lands, forested lands, idle and scrub lands, and developed areas. Agricultural production lands are scattered throughout the Study Area. Non-farm residential development occurs throughout the Study Area in the form of single severances and rural residential development.



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Figure 3. Land Use

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The area including and immediately surrounding the proposed area to be extracted is generally a mix of agricultural and non-agricultural (forested and extractive) land uses. There is little indication of significant investment in agriculture. The dominant agricultural production system is livestock based, including some dairy, beef, and horse facilities. Most of the lands in the immediate vicinity of the proposed area to be extracted are forested with interspersed areas of idle, scrub, forage, and pasture lands. The existing aggregate extraction area is located immediately south of the site.

More substantial livestock facilities were identified south of the westerly portions of the site, along Grey Road 31. These facilities are part of Carmarthen Farms, and include beef and horse facilities. The agricultural infrastructure within the proposed area to be extracted is limited to an existing beef production facility consisting of a bank barn and associated pasture and forage production lands.

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### 5 ANALYSIS

#### 5.1 AGRICULTURAL RESOURCES

The proposed extraction will not result in the consumption of large acreages of prime agricultural land. The soils within the proposed extraction area possess limitations to agricultural production that reduce the agricultural priority of the site. The majority of the soils within the site are CLI Class 4 due to stoniness and undesirable topography.

Only 31.9% of the proposed area to be extracted is prime agricultural land. The CLI class 2 and 3 soils identified within the proposed extraction area are fragmented by inclusions of lower capability soils, including CLI class 5 and 6 lands. A significant portion of the CLI class 2 and 3 lands in the western and northern portions of the proposed area to be extracted is also forested, therefore decreasing their viability for agricultural production. Based on the characteristics of the proposed extraction area and the surrounding study area, this area is not consistent with a prime agricultural area.

Agricultural investment and infrastructure within the proposed extraction area is limited to one older bank barn and associated fencing. No recent large investment in agricultural production was identified within the site.

The proposed extraction area is located in an area of reduced agricultural production. It is surrounded by idle, forested, and scrub lands. An active quarry facility is located immediately south of the proposed extraction area. The level of agricultural investment and intensity of farming taking place within the Study Area is low, generally consisting of small livestock facilities as well as forage and pasture lands. Row-crop production was not common within the Study Area. One large livestock facility (Carmarthen Farms) was identified southwest of the site. No agricultural impact on this facility is anticipated.

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### 6 CONCLUSIONS

Stantec completed agricultural investigations related to the proposed area to be extracted. Background information reviews and on-site field investigations were conducted. Following data analysis, the following conclusions were reached:

1. The proposed area to be extracted does not possess significant areas of prime (CLI class 1-3) agricultural lands. Only 31.9% (21.98 ha) of the proposed area to be extracted is CLI class 2 or 3. No class 1 soils were identified. The prime agricultural lands within the site are fragmented by areas of lower capability, and do not exist as one contiguous area well suited to field crop production. The proposed extraction will therefore result in a minimal loss of prime agricultural land.
2. The development of the proposed area to be extracted will not result in the retirement of significant agricultural infrastructure or investment. No irrigation, drainage, or other forms of agricultural investment were identified within the proposed area to be extracted. Agricultural infrastructure is limited to one wooden bank barn.
3. Due to the reduced interface with agriculture, and the non-residential nature of the proposed use of the proposed area to be extracted, there is limited potential for agricultural impact as a result of trespass or vandalism associated with the development of the proposed area to be extracted.
4. The proposed extraction will not result in any significant interruption in farmland continuity in the area. Forested and idle lands currently fragment the Study Area. The development of the proposed extraction area will not increase the level of fragmentation within the Study Area.
5. Due to their lower agricultural capability, existing non-agricultural land uses, and the lack of significant agricultural production in the immediate vicinity, the proposed area to be extracted is an appropriate location for the proposed quarry development.
6. The area to be extracted is not a prime agricultural area and conversion to the proposed quarry does not conflict with Provincial Policy as set out in the Provincial Policy Statement.

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Scott Hossie, Project Manager



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### 8 GLOSSARY

**Agricultural Uses:** - means the growing of crops, including nursery and horticultural crops; raising of livestock and other animals for food, or fur, including poultry and fish; aquaculture; agro-forestry; maple syrup production; and associated on-farm buildings and structures.

**Catena:** - the group of soils that occur together on the same parent material to form a land pattern.

**Cultivated:** - means lands that have recently been under active agricultural production, however, the crop type could not be determined during the land use survey or through aerial photographic interpretation.

**Drumlins\*\*:** - oval hills of glacial till with smooth convex contours.

**Esker\*\*:** - ridge of coarse gravel and sand deposited by glacial meltwaters.

**Forage/Pasture:** - means a crop that consists of either pasturelands, including rough grazing, or hay crops including silage and haylage.

**Gleyed:** – means soils that are poorly drained and exhibit greyish colours in the profile indicating that they have developed in a reduced environment (i.e., oxygen depleted) due to high water tables throughout the year.

**Idle/Scrubland/Forested:** - means lands that:

- have not been used for agricultural production for at least five years (estimated)
- are no longer farmed and woody species (young trees and shrubs) have begun regenerating, and
- are forested including new plantations and areas along creeks that contain mature and immature trees

**Kame\*\*:** - irregularly stratified sand and gravel deposited by glacial meltwaters and characterized by irregular topography.

**Lacustrine\*\*:** - materials composed of clay, silt and other fine textured sediments deposited by glacial lakes.

**Non-farm Residential:** - means residential buildings and lots not associated with a farm operation but can include farm retirement lots/severances and/or other residences that are not the primary farm residence.

**Outwash\*:** - sand and gravel materials deposited by glacial meltwaters.

**Prime Agricultural Areas\*:** - means an area where *prime agricultural land* predominates. Prime agricultural areas may also be identified through an alternative agricultural land evaluation system approved by the Province.

**Prime Agricultural Land\*:** - means land that includes *specialty crop lands* and/or Canada Land Inventory Class 1, 2 and 3 soils, in this order of priority for protection.

**Provincial Policy Statement\*:** - the Provincial Policy Statement (PPS) was issued under the Section 3 of the Planning Act and came into effect in May of 1996 and subsequently updated in 1997. The PPS provides policy direction on matters of provincial interest related to land use planning and development.

**Retired Farm:** - means a farm that appears to be no longer active in commercial production of agricultural goods. Facilities identified as retired may have the ability to house a few animal units and/or to be used to store machinery.

**Row Crops:** - means crops such as corn, soybeans, and cereal grains such as winter wheat.

**Specialty Crops** – means crops such as tender fruits (peaches, cherries, plums), grapes, other fruit crops, vegetable crops, greenhouse crops and crops from agriculturally developed organic soil lands



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**Specialty Crop Lands\***: - means areas where specialty crops are predominantly grown, usually resulting from:

- soils that have suitability to produce specialty crops, or lands that are subject to special climatic conditions, or a combination of both; and/or
- a combination of farmers skilled in the production of specialty crops, and of capital investment in related facilities and services to produce, store or process specialty crops.

**Till\*\***: - material deposited by glacial ice and unsorted by water, comprised of a mixture of clay silt, and sand sized particles.

\* Definition derived from Provincial Policy Statement

\*\* Definition derived from Chapman and Putnam (1984).