

AGRICULTURAL IMPACT ASSESSMENT

Lafarge Canada Inc.
Pit 3 Extension
Town of Caledon, Region of Peel

Date:

February 2024

Prepared for:

Lafarge Canada Inc.

Prepared by:

MacNaughton Hermsen Britton Clarkson Planning Limited (MHBC)

540 Bingemans Centre Drive, Suite 200

Kitchener, Ontario

T: 519.576.3650

F: 519.576.0121

Our File 9526HK

TABLE OF CONTENTS

1.0	INTRODUCTION	1
1.1	Data Collection and Review	1
1.2	Proposed Aggregate Extraction Operation.....	3
1.3	Purpose of the Study	4
2.0	STUDY AREA	5
2.1	Primary Study Area.....	5
2.2	Secondary Study Area	10
2.3	Census of Agriculture 2021.....	10
3.0	FIELD DATA COLLECTION	12
3.1	Soil and CLI Capability	12
3.2	Microclimate for Specialty Crop Production	14
4.0	PLANNING POLICY FRAMEWORK	15
4.1	Provincial Policy Statement	15
4.2	The Greenbelt Plan (2017)	19
4.3	Region of Peel Official Plan.....	21
4.4	Town of Caledon Official Plan.....	22
5.0	ASSESSMENT OF IMPACT	25
5.1	Reduction / Loss of Agricultural Land and Infrastructure	25
5.2	Fragmentation of Agricultural Lands.....	25
5.3	Dust Impact.....	26
5.4	Hydrogeology	27
5.5	Traffic.....	27
5.7	Noise Impacts.....	27
5.8	Summary of Net Impacts	28
6.0	REHABILITATION	34

6.1	Phasing & Progressive Rehabilitation.....	34
6.2	Soil handling and stripping	34
6.3	Create Appropriate Post-Extraction Land Form.....	35
6.4	Soil Compaction	35
6.5	Fertility Analysis and Soil Amendments	35
6.6	Monitoring Program and Annual Report.....	36
7.0	RECOMMENDATIONS	37
8.0	SUMMARY	39
	APPENDIX A Secondary Study Area Review	41
	APPENDIX B Soil Survey and Canada Land Inventory Classification.....	50
	APPENDIX C Curriculum Vitae –.....	51
	Pierre Chauvin, BSc(Agr), MA, MCIP, RPP	51

LIST OF FIGURES

Figure 1 Location Map

Figure 2 Operations Plan

Figure 3 Rehabilitation Plan

Figure 4 Agricultural Land Uses

Figure 5 Canada Land Inventory Soils Map

Figure 6 Detailed Soil Survey

Figure 7 Rehabilitated Lands Calculation

Figure 8 Greenbelt Plan

Figure 9 Region of Peel Official Plan, Schedule D-1: Core Areas of the Greenlands System in Peel

Figure 10 Region of Peel Official Plan, Schedule D-2: High Potential Mineral Aggregate Areas

Figure 11 Town of Caledon Official Plan, Schedule A: Land Use Plan

Figure 12 Town of Caledon Official Plan, Schedule L: CHPMARA Prioritization Plan

Figure 13 Recommended pit floor agricultural rehabilitation sequence

LIST OF TABLES

Table 1 Canada Land Inventory – Pit 3 Extension Lands

Table 2 Agricultural Land to be rehabilitated

Table 3 Summary of Net Impacts

LIST OF APPENDICES

Appendix A Secondary Study Area Review

Appendix B Soil Survey and Canada Land Inventory Classification – DBH Soil Services Inc.

Appendix C Curriculum Vitae – Pierre Chauvin, BSc(Agr), MA, MCIP, RPP

1.0 INTRODUCTION

MacNaughton Hermsen Britton Clarkson Planning Ltd. (MHBC) has been retained by Lafarge Canada Inc. (Lafarge) to complete an Agricultural Impact Assessment for a proposed extension to their existing aggregate extraction operations, on lands located to the east in the Town of Caledon (Part Lot 13, Concession 5). The existing pit (known as Pit 3 - Licence #6525) is owned and operated by Lafarge Canada Inc. (see Figure 1).

The area proposed to be licensed is approximately 25.6 hectares (63.3 acres), with approximately 20.8 hectares (51.4 acres) proposed for extraction. The pit is proposed to operate above the established water table. A majority of the lands are currently used for agriculture (currently cash crop production) while the remaining lands are characterized as scrublands with pools of water (from a former aggregate operation) and a woodlot. The surrounding lands include the licensed pit operated by Lafarge, rural residential uses primarily along Shaws Creek Road, agricultural uses, natural heritage features and the Elora-Cataract Trailway.

Lafarge is submitting an application with the Ministry of Natural Resources and Forestry (MNRF) for a Class 'A' Licence under the Aggregate Resources Act (ARA), and a Zoning By-law Amendment and Official Plan Amendment to permit aggregate extraction on the subject lands.

The provincial standards under the ARA require an AIA, where a provincial plan requires such an assessment for aggregate applications in prime agricultural areas. The Greenbelt Plan (2017) requires an AIA for new aggregate operations located in prime agricultural areas (Section 4.3.2.4):

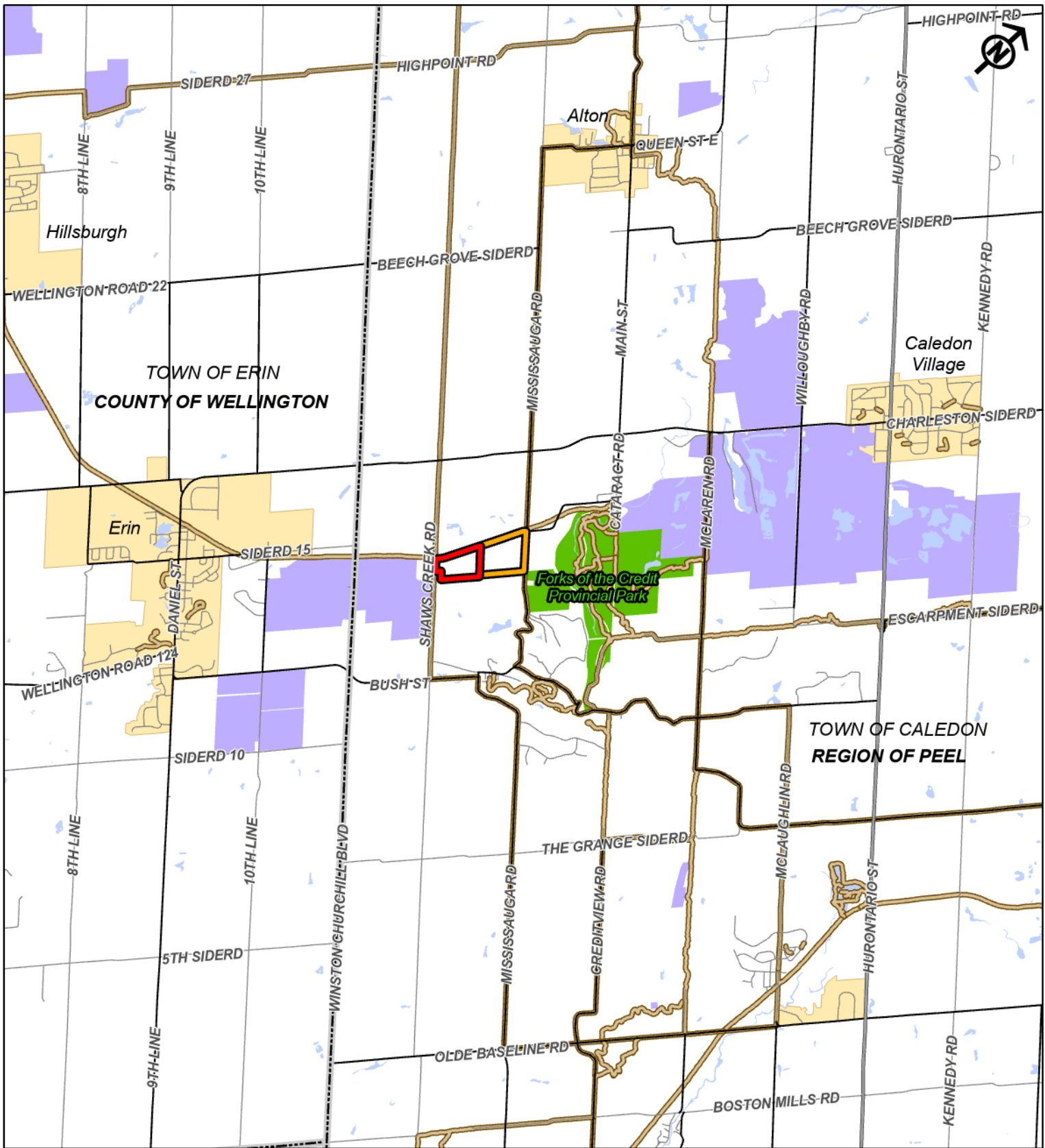
In prime agricultural area, applications for new mineral aggregate operations shall be supported by an agricultural impact assessment and, where possible, shall seek to maintain or improve connectivity of the Agricultural System.

In addition, this report is intended to satisfy the criteria for an Agricultural Impact Assessment as per the section 5.1.1.17 of the Town of Caledon's Official Plan.

This report has been prepared to be consistent with the Province's *Draft Agricultural Impact Assessment Guidelines*, released in March 2018 by the Ministry of Agriculture, Food and Rural Affairs.

1.1 Data Collection and Review

In preparing the report, the following background materials at the provincial, upper tier and municipal levels were reviewed:



**FIGURE 1
LOCATION MAP**

Pit 3 Extension

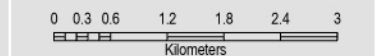
Part of Lot 13, Con 5 WHS
Town of Caledon
Region of Peel

LEGEND

- Proposed Licence Boundary
- Existing Licenced Boundary
- Municipal Boundary
- Existing ARA Licenced Sites
- Provincial Park
- Public Trail
- Settlement Area

DATE February 2024

SOURCES
Contains information licensed under the
Open Government Licence - Ontario



FDD0E50CB-F253-46C2-ADCC-EF6AB54A109A



- Provincial Policy Statement (2020);
- Greenbelt Plan (2017);
- Region of Peel Official Plan (2022);
- Town of Caledon Official Plan (April 2018 consolidation);
- Town of Caledon Zoning By-law 2006-50; and,
- Agricultural Census Data (2021).

A number of plans and reports were prepared in support of the applications and below is a list of reports that were also reviewed as part of the preparation of this Agricultural Impact Assessment:

- Natural Environment Report (Goodban Ecological Consulting Inc.)
- Hydrogeological Assessment (WSP)
- Noise Impact Assessment for Proposed Lafarge Pit 3 Extension (Howe Gastmeier Chapnik Limited);
- Stage 1 and 2 Archaeological Assessment (Golder Associates)
- Visual Impact Review (MHBC)
- Traffic study (Paradigm Transportation Solutions Ltd.)
- Planning report and ARA Summary Statement (MHBC)
- Air Quality Assessment (Arcadis)
- Dust Management Practices Plan for the Control of Fugitive Dust (Lafarge)
- Cultural Heritage Impact Assessment (MHBC)
- ARA Site Plans (MHBC)
- Soil Survey and Canada Land Inventory Classification (DBH Soil Services Inc.).

In addition to the above noted plans, the following materials were also reviewed:

- Site plans for the existing licensed pit;
- Soil data resource information which should include Ontario Soil Survey reports and mapping, the provincial digital soil resource database, Canada Land Inventory Agricultural Capability mapping, Soil Suitability information and mapping (for specialty crops), and information from on-site investigations;
- Aerial photography (historic and recent) with effective user scale of 1:10,000 or smaller;
- OMAFRA's constructed and agricultural Artificial Drainage Mapping; and
- Parcel mapping/fabric of the area.

A land use survey was also conducted with additional information gathered from Google Satellite Imagery and utilized to gain a better understanding of the agricultural operations and activities in both the primary and secondary study areas. A summary of the land use survey is provided in Section 2.0 of this report. The potential for impacts will vary and mitigation is dependent on the type and sensitivity of the agricultural activities identified in the primary and secondary study areas.

1.2 Proposed Aggregate Extraction Operation

The subject lands are located on the northeast side of Shaws Creek Road, southeast of Charleston Sideroad in the Town of Caledon (Part Lot 13, Concession 5). The proposed Pit 3 Extension lands are located approximately 2.8 kilometres northeast of the Village of Erin and approximately 1.75 kilometres northwest of the Hamlet of Belfountain (**Figure 1**). The subject lands are located immediately adjacent to the existing Pit 3 (Licence #6525) which is owned and operated by Lafarge. The subject lands will act as an extension to Licence #6525.

The subject lands are bounded on the northwest by the Elora Cataract Trailway, woodlots, scrubland, ponds and agricultural uses; on the northeast by the existing Pit 3 operation and rural residential uses; on the southeast by agricultural lands and scrublands and on the southwest by rural residential uses and Shaws Creek Road. The total area proposed for extraction is 20.8 hectares (51.4 acres). Of this total, approximately 17.4 ha (43 ac) are currently in agricultural production.

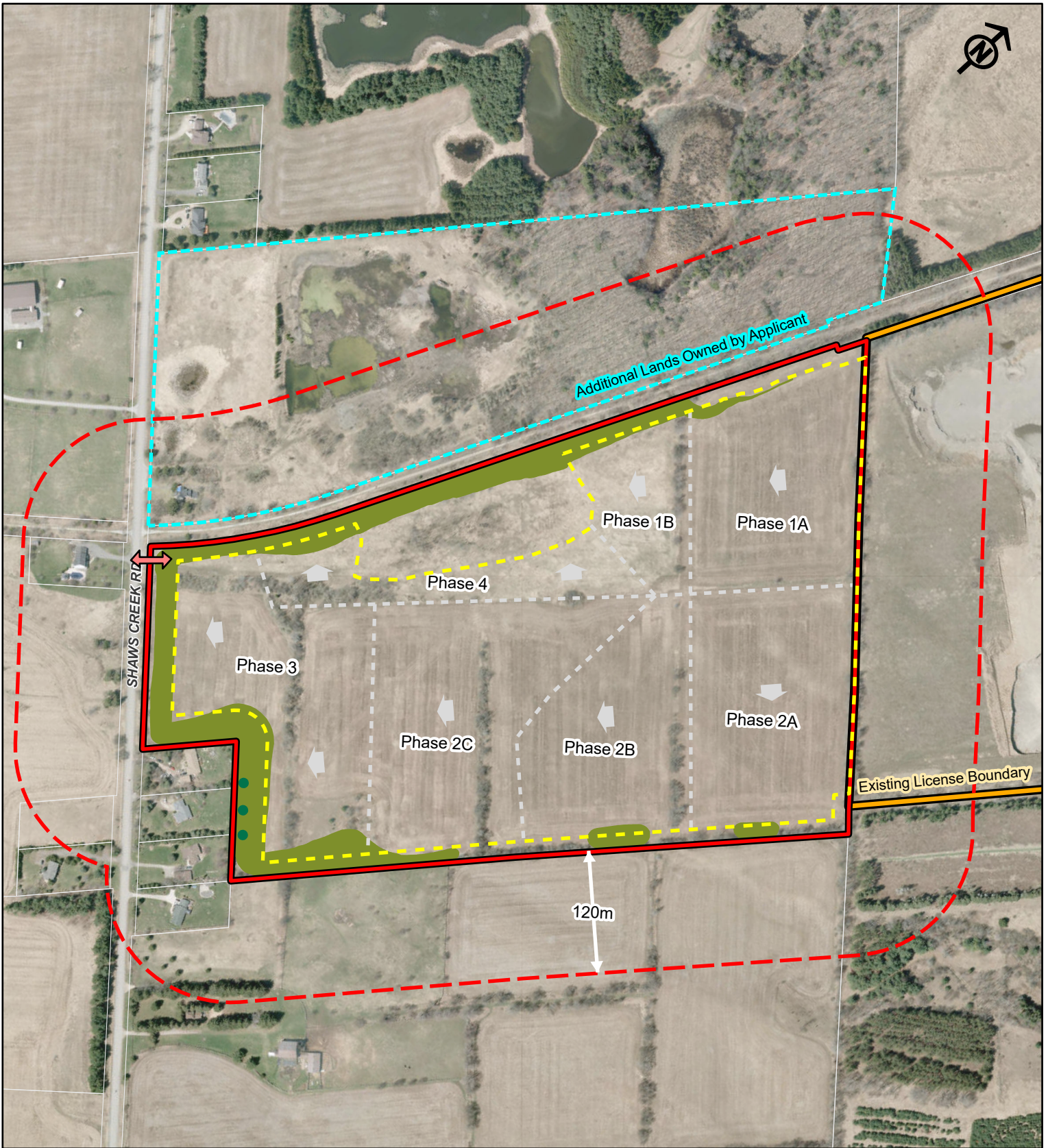
Extraction activities are proposed to be phased (four phases in total) such that extraction will commence in the northeastern portion of the property, and proceed generally from northeast to southwest, toward Shaws Creek Road. Material processing (i.e. crushing and screening) will occur in Phase 1. The existing agricultural operations on the subject properties will continue until such time as they are required for extraction. This will allow the agricultural use of the property to be maintained as long as possible. The operational plan is shown in **Figure 2** of this report.

A portion of the subject lands are actively farmed as cash crops, with smaller areas of treed fencerows, scrubland and a former aggregate pit located adjacent to the Elora Cataract Trails (small pockets of standing water). Data available through OMAFRA's Agricultural System Portal indicates that there is no constructed drainage or tile drainage on the lands.

The topography of the subject lands varies, with steeply sloping areas along the perimeter of the former aggregate pit and a level bottom/floor. The northern portions of the subject lands include gently rolling hills with steeper slopes occurring to the northeast and southeast areas.

The maximum annual tonnage for Pit 3 is unlimited, while the proposed Pit 3 extension is requesting a maximum annual tonnage of 1,000,000 tonnes. The majority of aggregate trucks head to Highway 10 by travelling northwest towards Charleston Sideroad. The existing haul route (along Mississauga Road to Highway 24) is not proposed to change with the proposed extension.

The subject lands do contain some surface water features, including a wetland, which will not be extracted. This area is not actively farmed due to the natural features present.



**FIGURE 2
PHASING PLAN**

Pit 3 Extension

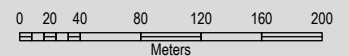
Part of Lot 13, Con 5 WHS
Town of Caledon
Region of Peel

LEGEND

- Proposed Licence Boundary
- Proposed Extraction Limit
- Proposed Phasing Boundary
- Proposed Licence Boundary 120m Offset
- Proposed Acoustic / Visual Berms
- Proposed Tree Plantings

DATE April 2024

SOURCES
Contains information licensed under the
Open Government Licence - Ontario



Lafarge is applying for an Aggregate (ARA) licence for a Class “A” Pit. The application is for a proposed extension to Lafarge’s existing aggregate extraction operations known as Pit 3. The proposed aggregate extraction on the Lafarge properties is proposed to operate in conjunction with the existing pit.

The subject land will be progressively rehabilitated back to an agricultural condition following the aggregate extraction operation. The proposed rehabilitation concept can be found in **Figure 3**.

1.3 Purpose of the Study

The purpose of this Agricultural Impact Assessment is to evaluate potential impacts on agriculture from the proposed aggregate extraction operation extension and identify mitigation measures to abate these impacts to the extent feasible. Furthermore, this report is intended to provide information to support the preparation and implementation of effective progressive rehabilitation plans for agricultural rehabilitation including the provision of baseline pre-extraction documentation.

As part of this AIA, surrounding agricultural land uses, operations and structures on properties within one kilometre of the subject lands have been documented to assess the potential impact from the proposed aggregate extension on the agricultural uses/operations and determine the extent of mitigation that may be required.

Furthermore, a soil survey and Canada Land Inventory (CLI) Evaluation was completed by DBH Soil Services Inc. to document the existing soil conditions and provide a more detailed assessment of the Canada Land Inventory (CLI) classification for the soil resources. Basic information about the soils provides an interpretation of the agricultural capability of the soil to produce various types of crops as well as provide useful information to assess impacts on soil resources and inform the final agricultural rehabilitation.

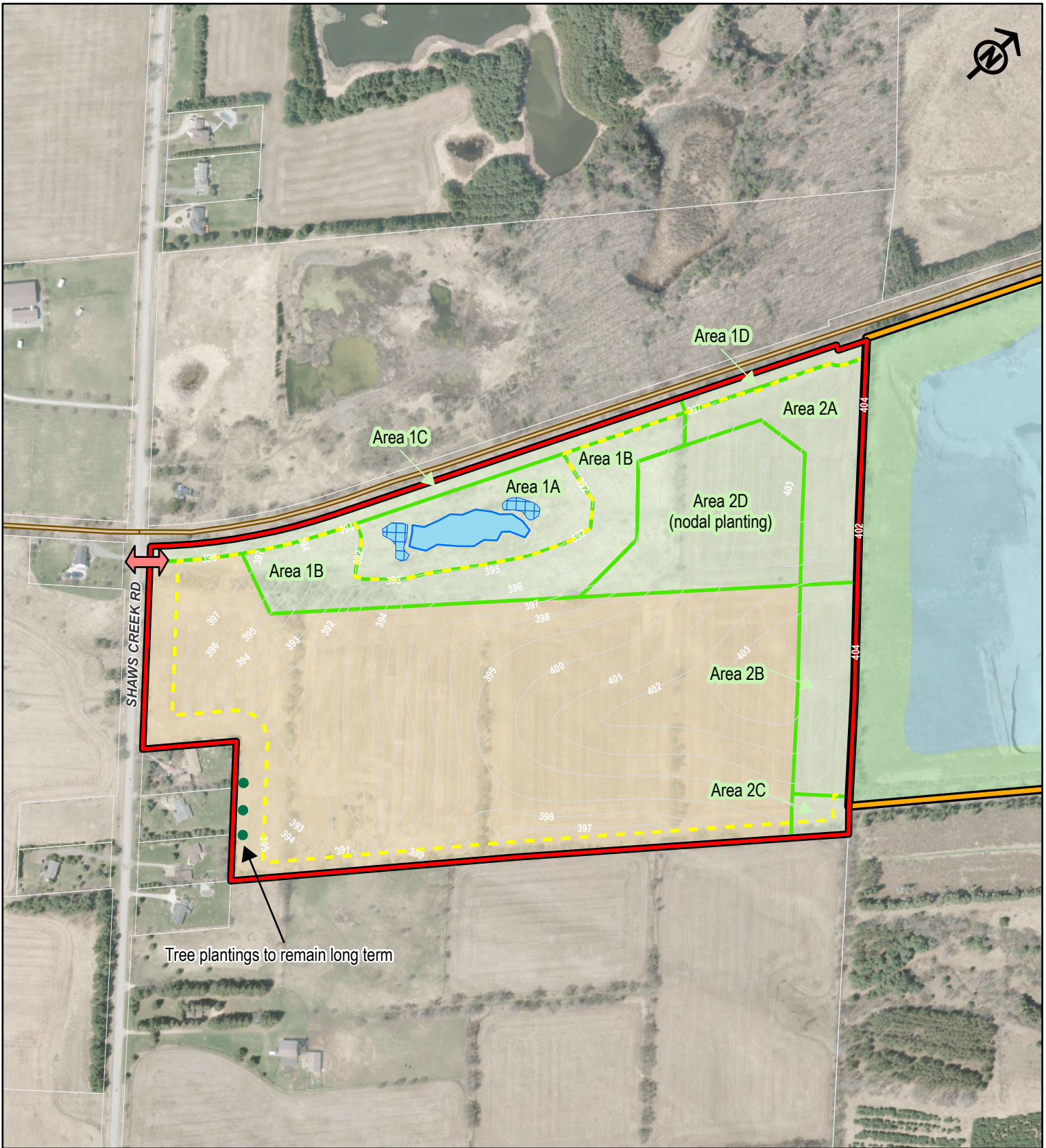


FIGURE 3 REHABILITATION PLAN

Pit 3 Extension

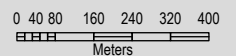
Part of Lot 13, Con 5 WHS
Town of Caledon Region of Peel

LEGEND

- Proposed Licence Boundary
- Existing Licence Boundary
- Proposed Extraction Limit
- Public Trail
- Reforestation Areas
- Agricultural Land
- Amphibian Breeding Pool
- Wetland
- Lake
- Woodland
- Vegetated Shoreline

DATE April 2024

SOURCES
Contains information licensed under the Open Government Licence - Ontario
Service Layer Credits: World Imagery; Dufferin County; Peel Region; Maxar



2.0 STUDY AREA

The agricultural land use assessment completed as part of this AIA was based on a study area comprised of a 'Primary Study Area' and 'Secondary Study Area'. The Primary Study Area is the area immediately adjacent to the subject lands that has the potential to be directly impacted by the aggregate extraction operation. The Primary Study Area encompasses a radius of 120 metres from the subject lands.

The Secondary Study Area includes the potential area that may be affected by indirect impacts of the proposed operations. For the purposes of this assessment, we have assigned a very conservative Secondary Study Area of one kilometre from the subject lands.

A plan identifying the adjacent properties, existing crops and existing barns and residential structures within the study area is included as **Figure 4** of this report. This plan was prepared based on site visit of the site and surrounding area and review of air photography. A review of 2021 Census of Agriculture data was also undertaken to confirm if the Study Areas are representative of agricultural production patterns and livestock types in the broader region.

2.1 Primary Study Area

As shown in **Figure 4**, the predominant land use within 120 metres of the proposed extension lands is agricultural (field crops), the licensed pit and some rural residential properties. Surrounding crops at the time of the site visits predominantly included wheat and soybeans. The subject lands are located east of Charleston Sideroad, and located northwest of the Village of Belfountain. The area is primarily characterized by agricultural operations and rural residences, with a number of hobby and non-hobby sized equestrian operations.

Agricultural uses within the Primary Study Area (120m)/abutting the property included:

North – Existing licence no. 6525 and naturalized lands (previously rehabilitated);

South – Equestrian facility (Stonehedge Stables) at 17950 Shaws Creek Road which includes an equestrian arena/barn, horse run-in shelters and pasture lands; A rural residential dwelling at 17902 Shaws Creek Road; agricultural lands (soy production,);

West – Fallow and wooded lands (owned by the applicant); original Pinkney Farmstead (discussed in further detail below); The Elora Cataract trail;

East – Cash crop production (wheat).

**Figure 4:
Agricultural Land Uses**

Pit #3 Extension
Pt Lt 13, Con 5 WHS
Town of Caledon
Region of Peel

Legend

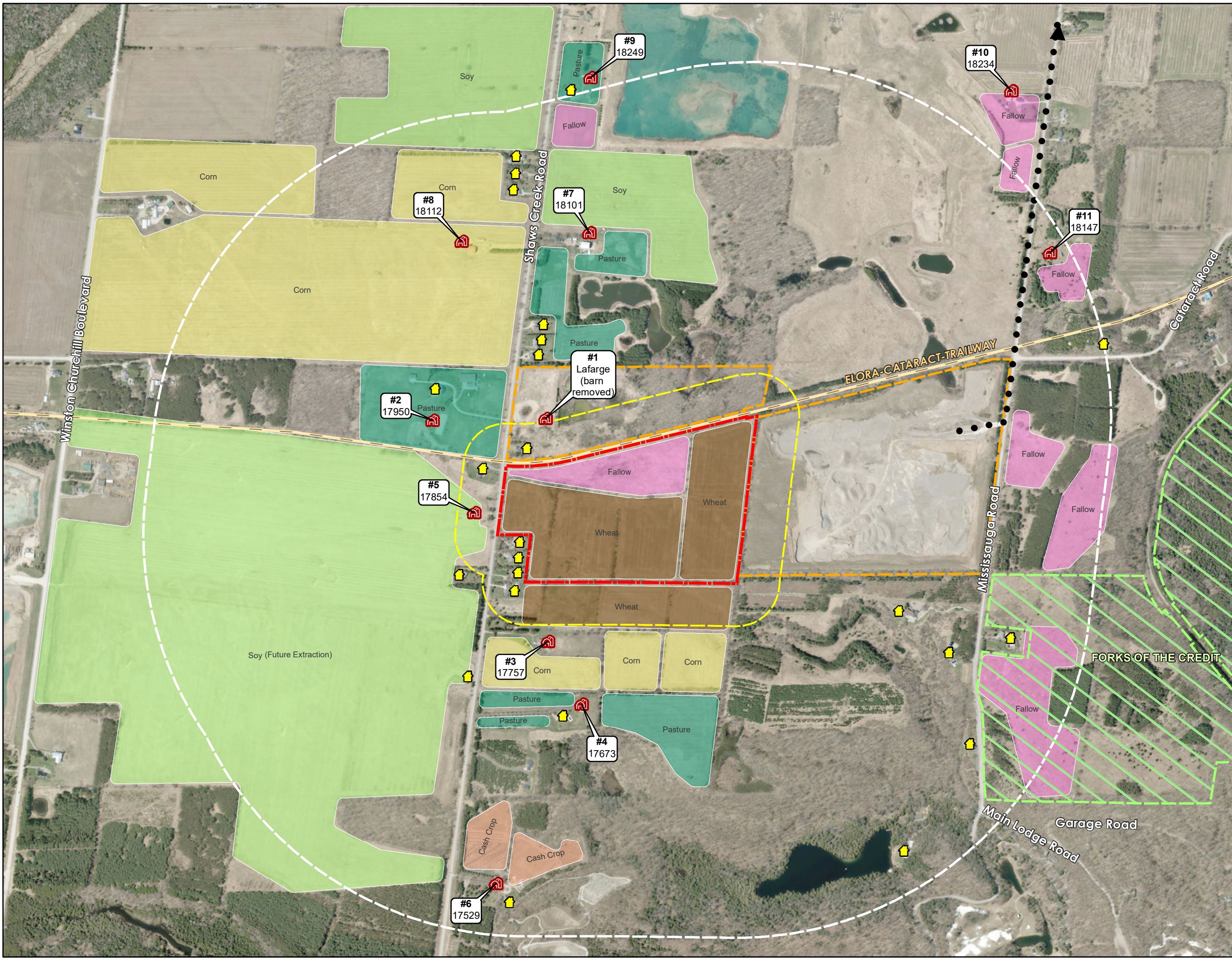
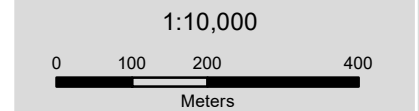
- Subject Lands
 - Additional Lands Owned by Applicant
 - Primary Study Area (120m)
 - Secondary Study Area (1km)
 - Elora-Cataract Trailway
 - 🏠 Rural Residence
 - 🏠 Farm/ Barn
 - ▶ Haul Route
 - Forks of the Credit Provincial Park
- Agricultural Land Use**
- Corn
 - Fallow
 - Horses/ Pasture
 - Soy
 - Wheat
 - Cash Crop (not visible from road)

NOTES:

- Land use information based on July 5, 2019 field visit
- Forks of the Credit Boundary- LIO open data

Date: February, 2024 File: 9526HK

Document Path: K:\9526HK Lafarge Pinkney Pit\RPT\11x17 Agricultural Land Base2.mxd Drawn: GC



Lafarge owns and operates Pit 3, which is located on the southwestern side of Mississauga Road, north of the subject lands (Licence #6525).¹ The subject lands are located on the north side of Shaws Creek Road. The current entrance to the subject lands is off Shaws Creek Road, through the agricultural field gate. The existing pit (licensed area) is approximately 37.5 hectares (93 acres) in size, with an access located on the southern side of Mississauga Road.

Agricultural uses within the primary study area of the subject lands consists of typical cash crops as well as fallow lands along both sides of the Elora Cataract Trail. Current agricultural production includes wheat, assumedly in a corn-wheat-soy crop rotation. There are currently no agricultural structures within the primary study area of the subject lands and no visible signs of extensive agricultural improvements to the lands or structures (e.g. new fencing, tile drainage). The cash crop fields are gently sloped and subdivided by treelines and hedgerows.



Cash crop production on subject lands: wheat production (2018)

¹ For the purposes of this report, Shaws Creek Road is assumed to be on the south side of the extension lands with the existing pit on the north side.

Four rural residential lots are located within the primary study area, south of the subject lands. A portion of pasture lands from a horse farm (located at #17950, Shaws Creek Road) are located within the primary study area as well (see images below).



Horse Farm located at #17590, Shaws Creek Road



Pasture lands, Horse Farm located at #17590 Shaws Creek Road

The lands located west of the Elora Cataract Trail (17923 Shaws Creek Road) are also owned by Lafarge Canada but are not included in the application. These lands contain natural heritage features and are not in agricultural use (see images below).



Aerial photo of existing farmhouse and natural heritage features (Source: Google Earth)



Fallow lands, located behind existing farmhouse (Photo taken from Cataract Trail, looking northwest)

As mentioned, Pit 3 (Licence # 6525) is located directly north of the subject lands.

A portion of the farm located at #17757 Shaws Creek Road is located within the primary study area. The barn is visible from the Elora Cataract Trail, looking southeast (away from the subject lands). The lands surrounding this farm were in wheat and corn production, with some fallow lands. No livestock were visible from the trail or road, however fencing and the adjacent pasture lands (located at #17673 Shaws Creek Road) indicate that the property may be used for horses. The original bank barn may be vacant, as the roof of the silo has been removed.



Bank barn, located at #17757, Shaws Creek Road (Photo taken from Elora Cataract Trail)



Barn and shed located at #17757 Shaws Creek Road (Source: Google Earth)

The predominant land use within the primary study area consists of an active licensed pit, cash crop production and fallow lands in the area where a former pit used to operate. There is no significant agricultural infrastructure/investment on the subject lands, and the adjacent lands are predominantly rural residential, with portions of farms located at #17590 and #17757 Shaws Creek Road within the

primary study area. The fallow lands along the western side of the Elora Cataract Trail appear to be too sloped for agricultural production.

2.2 Secondary Study Area

The Secondary Study Area includes an area with a radius of one kilometre around the subject lands. In addition to the existing aggregate extraction operations within the Study Area, there are some active agricultural operations within the Secondary Study Area. **Appendix A** includes a summary of the agricultural uses and structures within the Secondary Study Area that existed on the day of the field observations (note: the farm numbers below correspond with the 'barn' numbers identified on **Figure 4** of this report). Comments on the physical characteristics of existing farm structures is based solely on roadside observations and not supported by any formal structural assessment. When roadside visibility was limited due to trees, aerial photography has been used.

Based on the site visits, the agricultural lands within the Primary and Secondary Study Areas reflect typical agricultural cropping practices that are predominant throughout southern and central Ontario (soybean, corn, wheat rotation and forage production). No extensive farm investment such as tile drainage, irrigation or other specialized cropping practices or equipment were observed or are documented within the Primary or Secondary Study Areas.

There is some livestock production, but not at a large scale and all existing livestock operations (including equestrian) within the study area are well set back and separated from the subject lands. Due to the number of equestrian operations in the area, there appears to be substantial investment into fencing and other typical equestrian related infrastructure.

The surrounding area also includes several aggregate operations that are licensed under the Aggregate Resources Act. The secondary study area also includes existing gravel pits that have been rehabilitated and are no longer licensed under the Aggregate Resources Act.

In addition to the farm operations referenced in **Figure 4** and **Appendix A**, there are a number of rural residential lots within the Secondary Study Area. A number of these lots were likely created through rural residential severances.

Overall, the Secondary Study Area is representative of normal livestock and cropping practices for this area.

2.3 Census of Agriculture 2021

A review of the 2021 Census of Agriculture for the Town of Caledon was undertaken in order to provide an overview of agricultural production patterns and parcel size. This helps to confirm if current farming practices within the Study Areas are characteristic of the broader agricultural area.

The total number of farms in the Town of Caledon is 308, which has declined by 10.7% since 2016². A majority of farming in Caledon consists of oil and grain farming (30.2%), followed by other animal production (17.8%) which primarily includes equine operations (20% of 'other animal' production) and animal combination farming, such as smaller farms (3.8% of other animal production). The large amount of oil and grain farming is illustrative of agricultural patterns throughout the Region of Peel and southern Ontario more broadly.

In terms of parcel size, a majority of farms (31.5%) are within the 10 - 69 acre farm size, followed by 19% of farms falling in the 70 – 129 acre range³. This is further indicative of traditional farm parcel size that is characteristic for this region.

The amount of lands in crop production has increased since 2016 from 63,239 acres to 73,460 acres representing an increase in cropland of 16.6%⁴ since 2016.

Based on the site visits, the agricultural activities within both the Primary and Secondary study area are indicative of broader agricultural trends in the Town of Caledon and southern Ontario. There appears to be a cluster of equine related operations on smaller acreage within the immediate and surrounding area. Other surrounding uses are mostly cash crop and woodland.

Overall, both the Primary and Secondary Study Area are representative of normal agricultural production for this area and do not consist of specialized farming practices or specialty crops. The proposed rehabilitation approach, discussed in further detail below, will return the lands to an agricultural condition that is consistent with the average parcel size and agricultural production found in the Town of Caledon and the Region of Peel.

² [Census of Agriculture, 2021. Farms classified by farm type: https://data.ontario.ca/dataset/ontario-farm-data-by-county/resource/8ce68f33-8d54-4c25-9353-bcfd27962d22](https://data.ontario.ca/dataset/ontario-farm-data-by-county/resource/8ce68f33-8d54-4c25-9353-bcfd27962d22)

³ [Census of Agriculture, 2021. Farms classified by total farm area: https://data.ontario.ca/dataset/ontario-farm-data-by-county/resource/8ce68f33-8d54-4c25-9353-bcfd27962d22](https://data.ontario.ca/dataset/ontario-farm-data-by-county/resource/8ce68f33-8d54-4c25-9353-bcfd27962d22)

⁴ [Census of Agriculture, 2021. Farms classified by land use: https://data.ontario.ca/dataset/ontario-farm-data-by-county/resource/8ce68f33-8d54-4c25-9353-bcfd27962d22](https://data.ontario.ca/dataset/ontario-farm-data-by-county/resource/8ce68f33-8d54-4c25-9353-bcfd27962d22)

3.0 FIELD DATA COLLECTION

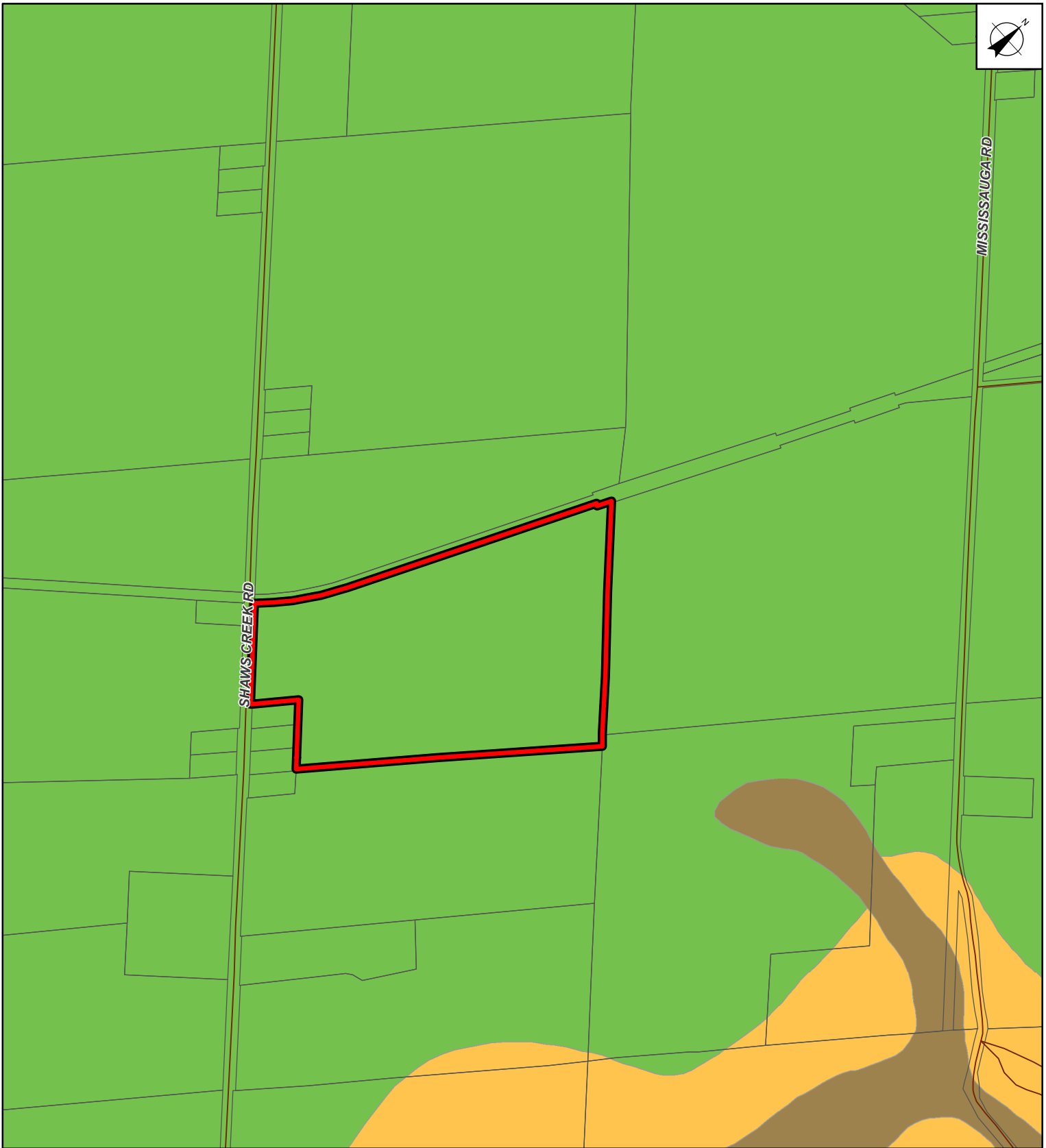
3.1 Soil and CLI Capability

The Canada Land Inventory (CLI) system uses soil attributes to create a seven-class system of land use capabilities. Class 1, 2 and 3 soils are capable of sustained common field crop production. Class 4 soils are limited for sustained agriculture while Class 5 is capable for use of permanent pasture and hay. The sixth class is best utilized for wild pasture and Class 7 is for soils or landforms that are not capable for use for arable culture or permanent pasture. According to the Canada Land Inventory Soils Map produced by the province, (see **Figure 5**), the subject lands are comprised of Class 2 soils. The existing aggregate operations were also Class 2 soils as is most of the land within the primary and secondary study areas. Both of the soil types are considered prime agricultural soils (see Section 4.1 of this report for further discussion on this matter).

In order to confirm the soil type and classification and to help inform the rehabilitation plans, a Soil Survey and Canada Land Inventory Classification was prepared by DBH Soil Services Inc. (DBH). A copy of the Soil Survey is included as **Appendix B** of this report. The on-site soil survey was conducted on May 9, 2018 to more accurately map and classify the soil resources of the soil materials on the subject lands. The soil survey included a number of tasks including:

- Completion of a review of published soil information (Soil Survey of Wellington County, Report No. 35 of the Ontario Soil Survey (Hoffman, D.W., B.C. Matthews and R.E. Wicklund, 1963));
- Review of published Canada Land Inventory (CLI) ratings for the soils in the area surrounding the subject lands;
- Review of aerial photography and interpretation of the soil polygons, disturbed soil areas and miscellaneous landscape units (i.e. streams, boulder pavement, wayside pits);
- On-site soil survey; and
- Mapping to illustrate the location of the subject lands, the occurrence of soil polygons and appropriate CLI capability ratings.

Twenty-nine (29) soil inspection sites on the subject lands were examined and the information was then correlated with soil descriptions in order to produce the soils map. A soil map identifying the soil series present on the subject lands is shown on **Figure 6**.



CLI - Soils Capability for Agriculture

Figure 5

Pit #3 Extension
 Pt Lt 13, Con 5 WHS
 Town of Caledon
 Region of Peel

Legend

 Proposed Licensed Boundary

CLI - Class

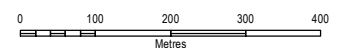
 2

 6

 5

DATE February 2019

SOURCES
 Contains information licensed under the Open Government Licence - Ontario
 Service Layer Credits:



Document Path: N:\Brian\9526CO Lafarge - Pit 3 Extension\Drawings\Report Figures\GIS\CLI_Overlay.mxd

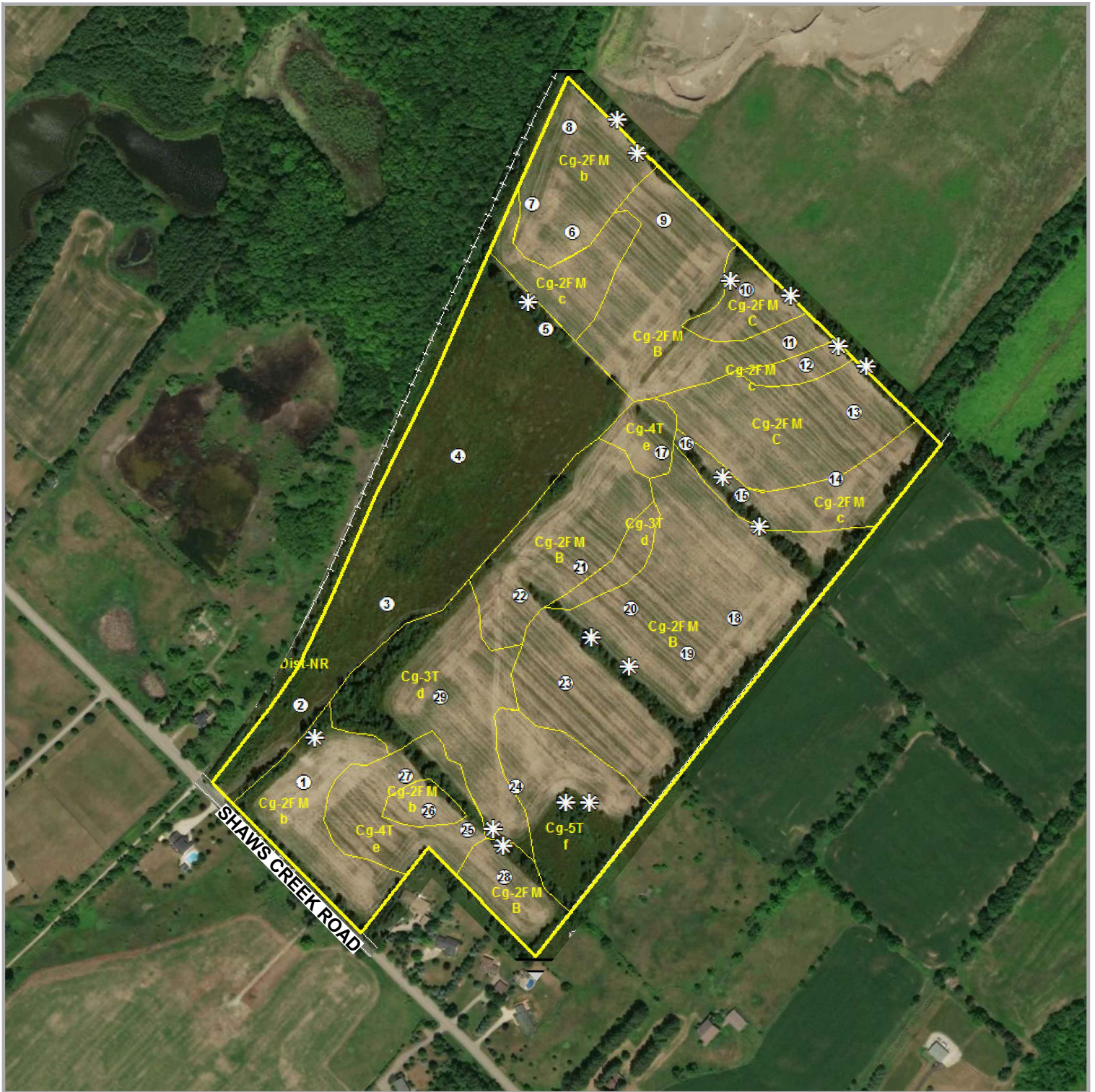


Figure 6:
Detailed Soil Survey

LEGEND

Proposed Licensed Boundary

- Soil Inspection Locations
- Stone Pile
- Rail Trail (Elora Cataract Trailway)
- Roads (MNR)
- Lot Lines (MNR)
- Soil Polygon Boundary
- Subject Lands (approximate)

Soil Code
 Cg = Caledon Loam
 Dist = Disturbed Area

Slope Class
 Aa = 0.0 - 0.5%
 Bb = 0.5 - 2.0%
 Cc = 2.0 - 5.0%
 Dd = 5.0 - 9.0%
 Ee = 9.0 - 15.0%
 Ff = 15.0 - 30.0%

Slope length < 50 m
 Slope length > 50 m

Soil Code → **CLI Class**
 Cg - 2FM → B
 Slope Code → CLI Subclass

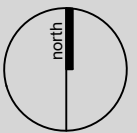
CLI Subclass Limitation
 F = Fertility Limitation
 M = Moisture Limitation
 T = Topography Limitation

DATE: October 4, 2019

SCALE: 1:500

FILE: 9526HK

DRAWN: GC



K:\9526HK LAFARGE PINKNEY PITRPT\SOIL SURVEY.DWG

Pit #3 Extension
 Pt Lt 13, Con 5 WHS
 Town of Caledon
 Region of Peel

Source: DBH Soil Services Inc. June 19,2018

The following tables summarize the relative percent area occupied by each capability class for the subject lands.

Table 1: Canada Land Inventory - Pit 3 Extension Lands

Canada Land Inventory Class (CLI)	Area (ha/acres)	Percent Occurrence (%)
Class 1	-	
Class 2	15.5/38.5	60.8
Class 3	2.2/5.5	8.7
Class 4	1.4/3.4	5.4
Class 5	1.4/3.4	5.4
Class 6	-	-
Class 7	-	-
Disturbed Soil Areas	5.1/12.5	19.8
Totals	25.6/63.3	100.0

According to the Soil Survey and Canada Land Inventory (CLI) Evaluation the subject lands are comprised mainly of Canada Land Inventory (CLI) Class 2 soils (60.8%).

The DBH analysis confirms that a large portion of the subject lands is comprised of Class 2 soils. The presence of the Class 2, 3 and 4 soils mean that the subject lands are considered prime agricultural lands.

The Hoffman Productivity Index (HPI) is a tool that is used to relate the productivity of lands to the CLI soil capability. The value is derived from the sum of the percent occurrence of each CLI Soil Capability Class on the parcel. Based on the findings from the Soil Survey prepared by DBH Soil Services Inc., the calculated Soil Productivity Rating for the subject lands is 0.59 or a CLI class 3 equivalent.

The DBH analysis confirms that a large portion of the subject lands is comprised of Class 2 soils. The presence of the Class 2 and 3 soils mean that the subject lands are considered prime agricultural lands. The Soil Productivity Rating of 0.59 demonstrates the land's average productivity is a Class 3 equivalent. Although the CLI mapping classifies the lands as Class 2, the detailed soils analysis completed by DBH concludes the soils on the lands are considered Class 3 equivalent.

3.2 Microclimate for Specialty Crop Production

Climate data was obtained from the OMAFRA document titled "Agronomy Guide for Field Crops – Publication 811 (June 2009)". The subject lands are located within the 2600-2700 average accumulated Crop Heat Units (CH-MI) available for corn production in Ontario. The Crop Heat Units (CHU) index was originally developed for field corn and has been in use in Ontario for 30 years. The CHU ratings are based on the total accumulated crop heat units for the frost-free growing season in each area of the province. CHU averages range between less than 2700 East of Parry Sound to over 3500 near Windsor. The higher the CHU value, the longer the growing season and greater are the opportunities for growing value crops. According to DBH, the properties are located within the 2900-3100 average accumulated Crop Heat Units (CH-MI) and as such, the agricultural lands are not subject to special climatic conditions. Given the typical climatic conditions, there are limited opportunities for growing speciality crops, and therefore, the properties have not been identified as a specialty crop area in the Town of Caledon Official Plan and do not meet the criteria as identified by the Province.

4.0 PLANNING POLICY FRAMEWORK

A number of key documents were reviewed as part of this Agricultural Impact Assessment in order to provide a comprehensive assessment of the policy framework from an agricultural perspective regarding the proposed extension of the existing aggregate extraction operation. The following is a review of the land use policy framework related to the subject lands.

4.1 Provincial Policy Statement

The PPS establishes the policy foundation for regulating the development and use of land in the province and provides policy direction on matters of provincial interest related to land use planning and development. It provides a vision for land use planning in Ontario that encourages an efficient use of land, resources and public investment in infrastructure. The PPS strongly encourages development that will provide long term prosperity, environmental health and social wellbeing. The 2020 PPS applies to planning decisions made on or after the effective date and applies to the consideration of the proposed Official Plan and Zoning By-law Amendment applications.

The PPS defines “Prime agricultural areas” as:

“areas where prime agricultural lands predominate. This includes areas of prime agricultural lands in associated Canada Land Inventory Class 4 through 7 Lands, and additional areas where there is a local concentration of farms which exhibit characteristics of ongoing agriculture. Prime agricultural areas may be identified by the Ontario Ministry of Agriculture and Food using guidelines developed by the Province as amended from time to time. A prime agricultural area may also be identified through an alternative agricultural land evaluation system approved by the Province.”

Further, the PPS defines Prime agricultural land as:

“specialty crop areas and / or Canada Land Inventory Class 1, 2 and 3 lands, as amended from time to time, in this order of priority for protection.”

As previously noted, based on the soil survey completed by DBH Soil Services Inc., the average productivity of the subject lands is a Class 3 equivalent, and therefore, the subject lands are considered “prime agricultural lands”. Furthermore, based on the CLI mapping of the surrounding area, the surrounding lands also consists of predominantly Class 2 soils and thus the area is considered a “prime

agricultural area". The Province's Agricultural Systems Mapping also identifies the lands as prime agricultural lands⁵.

It is noted that this mapping is not in effect and is used for reference only until a Municipal Comprehensive Review (MCR) is undertaken to implement the mapping. Peel Region has recently completed their MCR, and Schedule D-1 of their Official Plan identifies the subject lands as within a Prime Agricultural Area.

The PPS defines specialty crop areas as:

"areas designated using guidelines developed by the province, as amended from time to time. In these areas, specialty crops are the predominantly grown, such as tender fruits (peaches, cherries, and plums), grapes, other fruit crops, vegetable crops, greenhouse crops, and crops from agriculturally developed organic soil, usually resulting from:

- a) Soils that have suitability to produce specialty crops, or lands that are subject to special climatic conditions, or a combination of both;*
- b) Farmers skilled in the production of specialty crops; and*
- c) A long-term investment of capital in areas such as crops, drainage, infrastructure and related facilities and services to produce, store, or process specialty crops."*

The lands and surrounding areas have not been identified or designated as a specialty crop area by the province or the municipality and neither do the lands exhibit characteristics of a specialty crop production as defined by the PPS. Accordingly, the subject lands are not within a specialty crop area.

In prime agricultural areas, the PPS permits agriculture uses, agriculture-related uses and on-farm diversified uses. In accordance with the Provincial Policy all types, sizes and intensities of agricultural uses and normal farming practices are promoted and protected in prime agricultural areas.

Limited non-agricultural uses such as the extraction of mineral aggregate resources are permitted in prime agricultural areas in accordance with Policy 2.3.6 and 2.5.4. of the PPS.

Policy 2.3.6.1(a) provides that extraction of mineral aggregate resources is permitted in prime agricultural areas. Furthermore, policy 2.3.6.2 provides that *"impacts from any new or expanding non-agricultural uses on surrounding agricultural operations and lands are to be mitigated to the extent feasible"*. Anticipated impacts on the surrounding agricultural activities are discussed and addressed in Section 5 of this report.

Policy 2.5 of the PPS deals specifically with mineral aggregate resources and Policy 2.5.1 provides that mineral aggregate resources shall be protected for long term use. Therefore, although the PPS

⁵ [Province of Ontario, Agricultural System Portal.](#)

recognizes the importance of prime agricultural lands, it also recognizes the importance to sustain mineral resources for long term use.

Policy 2.5.2.2 of the PPS requires that *"extraction shall be undertaken in a manner which minimizes social, economic and environmental impacts."* The impacts of the operations on the surrounding agricultural land uses are discussed later in this report.

With respect to extraction in Prime Agricultural land, section 2.5.4.1 notes that extraction of mineral aggregate resources is permitted as an interim use "in prime agricultural areas, on prime agricultural land."

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 proposed pit is not located within lands identified or characteristic of specialty crop lands. The proposed licence does not include any extraction below the established water table. An assessment of alternative sites is not required under Section 2.5.4.1(c) as this is only required when extraction is proposed below the water table in Prime Agricultural Areas on Prime Agricultural Lands where rehabilitation to an agricultural condition is not feasible.

With respect to prime agricultural lands outside of specialty crop areas, the PPS defines "agricultural condition" as:

"A condition in which substantially the same areas and same average soil capability for agriculture are restored."

The application proposes that as aggregate extraction proceed on-site the property will be progressively rehabilitated and returned to agriculture. Approximately 17.4 hectares (43 acres) of land on the subject property is currently in agricultural production. The following table and **Figure 7** show how much land be will rehabilitated.

Table 2: Agricultural Land to be Rehabilitated

a) Total area to be licensed	25.6 ha
b) Total area to be extracted	20.8 ha
c) Total existing agricultural land to be removed for extraction	17.4 ha
d) Total land to be rehabilitated	25.1 ha
e) Area to be rehabilitated to agricultural condition (returned to grade)	15.1 ha
f) Area rehabilitated to naturalized condition	10.0 ha
g) Percentage of total site to be rehabilitated back to agricultural condition	59%

20.8 hectares of land designated agricultural is to be extracted, however, as previously discussed, only 17.4 hectares is currently in agricultural production (due to natural features). Of the 17.4 hectares currently in agricultural production, 15.1 hectares (**87%**) will be rehabilitated to an agricultural condition, in which substantially the same area and same average soil capability for agriculture are restored. As the lands are being returned to the existing grade pre-extraction, no agricultural lands will be lost to side slopes. As discussed in the following section, the remaining lands are being rehabilitated to woodland, in order to provide a central wildlife corridor through the site and meet the minimum 35% reforestation rehabilitation requirement under the Greenbelt Plan. This reforestation is a requirement prior to the maximization of the lands for agricultural rehabilitation (see Section 4.2 below)

The rehabilitation plan (Section 6.0) prescribes a process / methodology to rehabilitate and restore the licensed area. Rehabilitation will satisfy the intent of PPS Policy 2.5.4.1, returning a majority of the lands to an agricultural condition. Agricultural rehabilitation will be maximized to the extent possible while meeting the requirements of the Greenbelt Plan for reforestation.

Based on the proposed rehabilitation plan, approximately 59 % of the subject lands will be returned to an agricultural condition. Of the lands currently in agricultural production, approximately 87% will be rehabilitated back to an agricultural condition. Based on the Soil Survey results, rehabilitation will be required to return the lands to an average of Class 3 soil capabilities.

Given the foregoing, it is our opinion that the associated rehabilitation plan for the proposed pit extension is consistent with the PPS.

4.2 The Greenbelt Plan (2017)

The Greenbelt Plan was prepared and approved under the *Greenbelt Act, 2005* which took effect on December 16, 2004. The Plan was updated in 2017 through an amendment, which came into effect on July 1, 2017.

The Greenbelt Plan identifies where urbanization should not occur in order to provide permanent protection to the agricultural land base and the ecological features and functions occurring on this landscape. While providing permanent agricultural and environmental protection, the Greenbelt also contains important natural resources and supports a wide range of recreational and tourism uses, areas and opportunities together with a vibrant and evolving agricultural and rural economy. The agricultural land base is an important component of the Agricultural System.

Section 3.1.1 of the Greenbelt Plan (2017) provides the following description of an agricultural system:

3.1.1 *"The Protected Countryside contains an Agricultural System that provides a continuous, productive and permanent agricultural land base and a complementary agri-food network that together enable the agri-food sector to thrive."*

This systems approach recognizes the importance of protecting prime agricultural lands, specialty crop areas and rural lands as well as the agri-food network (infrastructure, services and assets) to ensure the viability of the agri-food sector.

The subject lands are located within the Natural Heritage System of the Protected Countryside (**Figure 8**). The lands are also part of the Agricultural Land Base (Places to Grow), and therefore must be considered under the Greenbelt Plans Agricultural System policies. Aggregate extraction is permitted in the Agricultural System subject to the policies in Section 4.3.2 of the Plan.

The Greenbelt Plan also provides policies on rehabilitation of mineral aggregate operations in the Protected Countryside in Section 4.3.5 and 4.3.6:

4.3.5 *New and existing mineral aggregate operations and wayside pits and quarries within the protected countryside shall ensure that:*

- a) *The rehabilitated area will be maximized and disturbed area minimized on an ongoing basis during the life cycle of an operation;*
- b) *Progressive and final rehabilitation efforts will contribute to the goals of the Greenbelt Plan;*
- c) *Any excess disturbed area above the maximum allowable disturbed area, as determined by the Ministry of Natural Resources and Forestry, will be rehabilitated. For new operations, the*

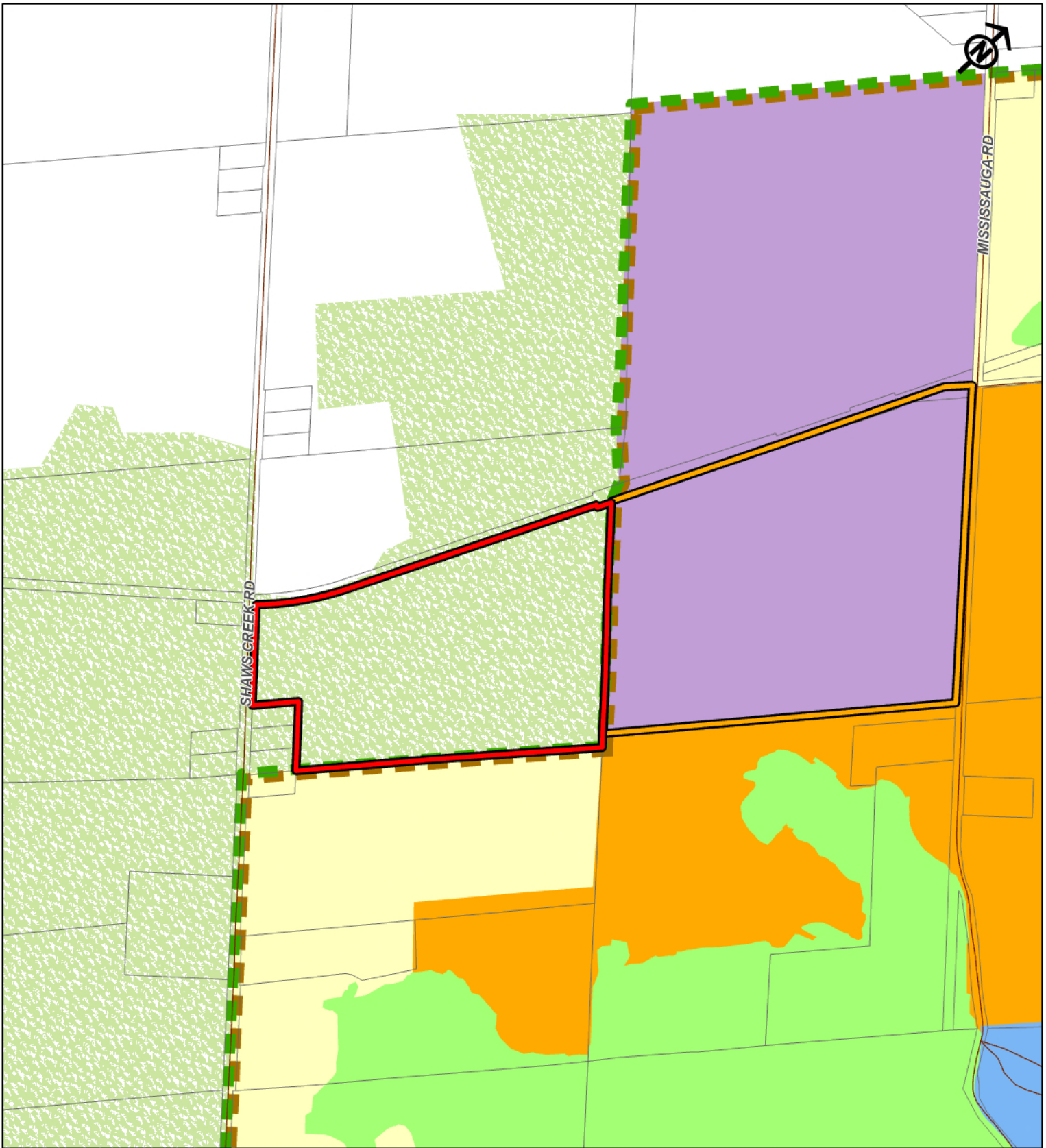


FIGURE 8
GREENBELT PLAN,
NIAGARA ESCARPMENT
PLAN (2017)

Pit 3 Extension

Part of Lot 13, Con 5 WHS
 Town of Caledon
 Region of Peel

LEGEND

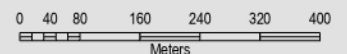
- Proposed Licence Boundary
- Existing Licenced Boundary
- Niagara Escarpment Plan (NEP)
- Greenbelt Plan - Protected Countryside
- Natural Heritage System within Protected Countryside

NEP Land Use Designation

- Escarpment Natural Area
- Escarpment Protection Area
- Escarpment Rural Area
- Mineral Resource Extraction Area
- Escarpment Recreation Area

DATE February 2024

SOURCES
 Contains information licensed under the
 Open Government Licence - Ontario



FDD0E5CB-F253-46C2-ADCD-EF6AB54A109A

- total disturbed area shall not exceed an established and maximum allowable disturbed area;
and*
- d) The applicant demonstrates that the quantity and quality of groundwater and surface water will be maintained as per Provincial Standards under the Aggregate Resources Act.*

4.3.6 For rehabilitation of new mineral aggregate operation sites in the Protected Countryside, the following policies apply:

- a) The disturbed area of a site shall be rehabilitated to a state of equal or greater ecological value and, for the entire site, long-term ecological integrity shall be maintained or enhanced...*
- d) Outside the Natural Heritage System, and except as provided in section 4.3.2.6 (a), (b) and (c), final rehabilitation shall appropriately reflect the long-term land use of the general area, taking into account applicable policies of this Plan and, to the extent permitted under this Plan, existing municipal and provincial policies. In prime agricultural areas, the site shall be rehabilitated in accordance with section 2.5.4 of the PPS.*

4.3.7. Final rehabilitation for new mineral aggregate operations in the Natural Heritage System shall meet these additional policies:

- a) Where there is no extraction below the water table, an amount of land equal to that under natural vegetated cover prior to extraction, and no less than 35 per cent of the land subject to each license in the Natural Heritage System, is to be rehabilitated to forest cover, which shall be representative of the natural ecosystem in that particular setting or ecodistrict. If the site is also in a prime agricultural area, the remainder of the land subject to the license is to be rehabilitated back to an agricultural condition;*
- b) Where there is extraction below the water table, no less than 35 per cent of the non-aquatic portion of the land subject to each license in the Natural Heritage System is to be rehabilitated to forest cover, which shall be representative of the natural ecosystem in that particular setting or ecodistrict. If the site is also in a prime agricultural area, the remainder of the land subject to the license is to be rehabilitated in accordance with section 2.5.4 of the PPS; and*
- c) Rehabilitation shall be implemented so that the connectivity of the key natural heritage features and the key hydrologic features on the site and on adjacent lands shall be maintained or enhanced.*

The proposed ARA site plans prescribe an approach for progressive rehabilitation that ensures the amount of disturbed area is minimized. Furthermore, there is no extraction proposed below the established water table and no ground water being taken in the extraction process. As per policy 4.3.2.7(a), a minimum of 35 per cent of the licensed area is required to be rehabilitated to forest cover,

as can be seen on **Figure 7**. Remaining lands not used to satisfy this policy will be rehabilitated back to an agricultural condition.

Given the foregoing, it is our opinion that proposed agricultural rehabilitation plan for the proposed pit extension conforms with the policies of the Greenbelt Plan.

4.3 Region of Peel Official Plan

The Region of Peel Official Plan provides a long term policy framework for decision-making for growth and development within the Region to 2051. The Regional Official Plan identifies the subject lands as “Prime Agricultural Area” on the Rural System Schedule D-1 (see **Figure 9**). An amendment is not required to the Region’s Official Plan to permit aggregate extraction on the subject lands.

The Region of Peel Official Plan recognizes the mineral aggregate resource industry as an important component to the Region’s economic development and employment opportunities. The Official Plan states that mineral aggregate resource areas are to be appropriately identified and protected through the establishment of policies that protect aggregate resources for possible extraction. The subject lands are located within the High Potential Mineral Aggregate Resource Area (HPMARA) identified on Schedule D-2 of the Regional Official Plan (see **Figure 10**). The HPMARA shown on Schedule D-2 is not a land use designation.

Aggregate operations inside of the area identified High Potential Mineral Aggregate Resource Areas are to be permitted in accordance with *area municipal official plan* and the Niagara Escarpment Plan, Greenbelt Plan, and the Provincial Policy Statement. The subject lands are located adjacent to the Niagara Escarpment Plan area, and are not subject to the Niagara Escarpment Plan.

Section 3.4.12 of the Region of Peel Official Plan includes a statement with respect to rehabilitation of aggregate operations:

Promote progressive rehabilitation of licensed mineral aggregate extraction sites in a manner that conforms with the applicable policies in this Plan, the local municipal official plan, the Niagara Escarpment Plan, the Oak Ridges Moraine Conservation Plan, Greenbelt Plan, Provincial Policy Statement, and the Aggregate Resources Act.

In accordance with the above-mentioned policy, the proposed extension will progressively rehabilitate the subject lands to an agricultural condition as required by the Greenbelt Plan, PPS and Town of Caledon Official Plan.

The subject lands are designated as Prime Agricultural Area, and as per section 3.3.15 of the Official Plan, an agricultural impact assessment in accordance with Provincial and municipal guidelines is required where new or expanding non-agricultural uses are proposed in the Prime Agricultural Area.

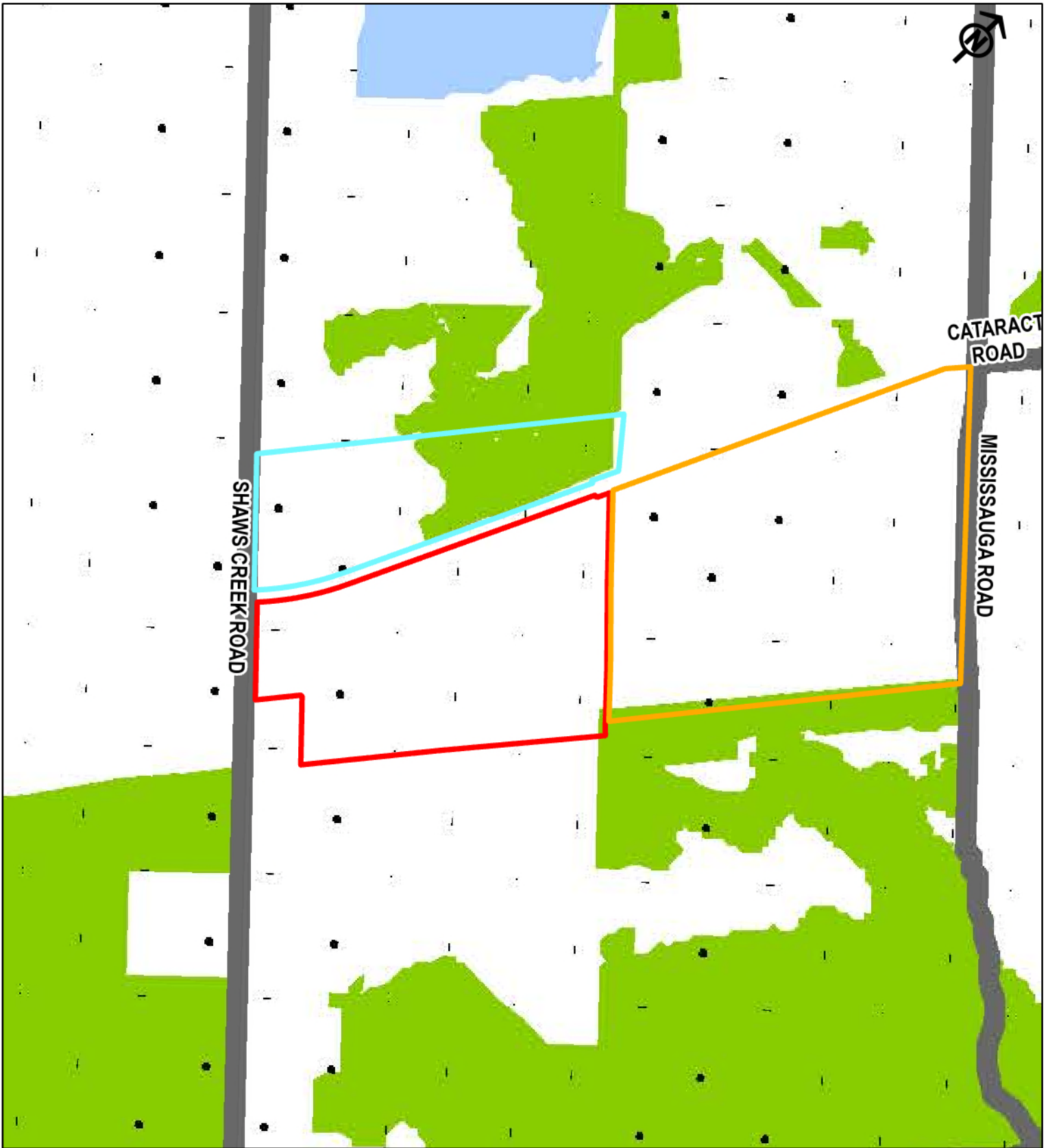


FIGURE 9
CORE AREAS OF THE GREENLANDS SYSTEM IN PEEL

Region of Peel
 Official Plan Schedule C-2

Pit 3 Extension

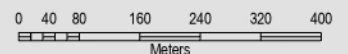
Part of Lot 13, Con 5 WHS
 Town of Caledon
 Region of Peel

LEGEND

- Proposed Licence Boundary
- Existing Licenced Boundary
- Additional Lands Owned by Applicant
- Core Areas of the Greenlands System
- Areas Subject to Provincial Plans

DATE February 2024

SOURCES Region of Peel



FDD0E50B-F253-46C2-ADCD-EF6AB54A109A

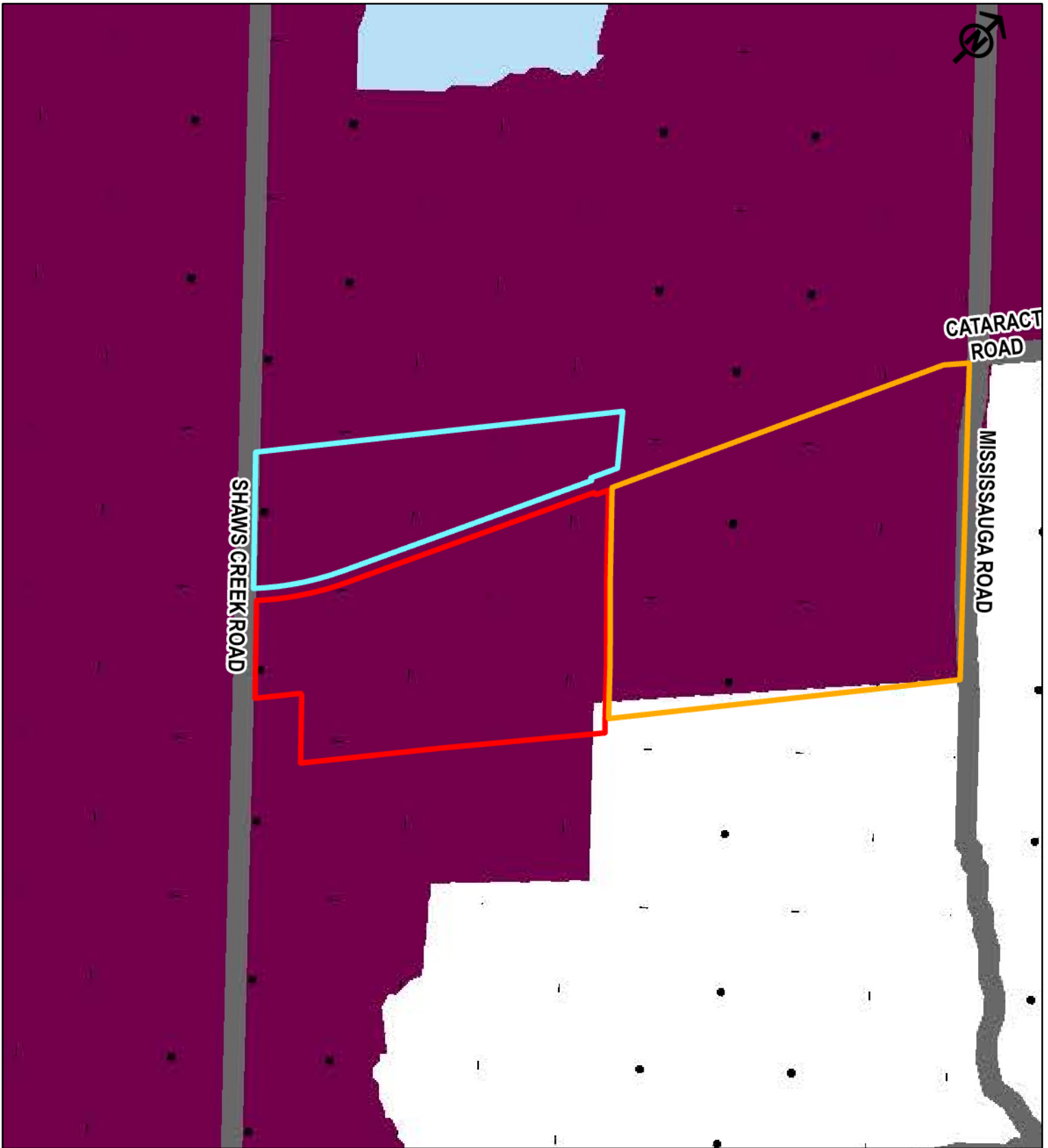







FIGURE 10
HIGH POTENTIAL MINERAL
AGGREGATE AREAS

Region of Peel
 Official Plan Schedule D-2

Pit 3 Extension

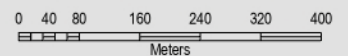
Part of Lot 13, Con 5 WHS
 Town of Caledon
 Region of Peel

LEGEND

-  Proposed Licence Boundary
-  Existing Licenced Boundary
-  Additional Lands Owned by Applicant
-  High Potential Mineral Aggregate Areas
-  Areas Subject to Provincial Plans

DATE February 2024

SOURCES
 Region of Peel



FDD0E5CB-F253-46C2-ADCD-EF6AB54A109A

Further, the policy requires that *“adverse impacts on agricultural operations shall be avoided or, if avoidance is not possible, shall be minimized and mitigated. Where mitigation is required, the mitigation measures should be incorporated as part of the non-agricultural uses, as appropriate, within the area being developed.”* This AIA is intended to satisfy this policy and an assessment of impacts and recommended mitigation measures have been addressed in Sections 5 and 7 of this report, respectively.

The subject lands were selected in order to provide a logical extension to the existing aggregate operations in the area. The proposed aggregate extraction operations are an interim use and the lands will be rehabilitated back to an agricultural condition. The proposed rehabilitation plan, including the recommendations found in Section 7 of this report, prescribes a progressive rehabilitation approach that will ensure the subject lands are rehabilitated to the same average soil quality. Therefore, the proposed agricultural rehabilitation and proposed extraction conforms to the policies of the Region of Peel’s Official Plan.

4.4 Town of Caledon Official Plan

The subject lands are designated as General Agricultural Area on Schedule A, Land Use Plan Map (**Figure 11**). Farming and farm-related activities (on-farm diversified uses, agri-tourism, farm related residential development and related non-residential uses) are permitted in the General Agricultural Area, in addition to all other permitted uses in lands designated Prime Agricultural Area. Aggregate operations are permitted in Prime Agricultural Areas, if they meet the requirements of the Mineral Resource policies of the Town’s Official Plan (Section 5.11). These policies and a detailed analysis of how the proposed application meets the Town’s requirements is provided in the Planning Justification Report, prepared by MHBC (2023).

The primary goal of the General Agricultural Area is to protect the high capability agricultural lands by encouraging the continuation of the business of agriculture by providing for innovation and diversification within agriculture, providing additional economic opportunities through on-farm diversified uses and by limiting non-agricultural uses and non-agricultural severances.

Section 5.1.2 provides that General Agricultural Areas have similar high capability for agriculture as the Prime Agricultural designation, but are more limited in area and more isolated than the Prime Agricultural Area. In General Agricultural Areas, there may be increased opportunities to allow rural economic development uses.

Similar to the Region of Peel Official Plan, the subject lands are identified as Caledon High Potential Mineral Aggregate Resource Areas (CHPMARA) on Schedule L (**Figure 12**) of the Town of Caledon Official Plan. The Town of Caledon’s aggregate resource policies refine the identified Regional HRMARA for protection at the local level and allow mineral aggregate resources to be made available for use.



FIGURE 11
TOWN LAND USE PLAN

Town of Caledon
 Official Plan Schedule A

Pit 3 Extension

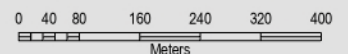
Part of Lot 13, Con 5 WHS
 Town of Caledon
 Region of Peel

LEGEND

- Proposed Licence Boundary
- Existing Licenced Boundary
- Additional Lands Owned by Applicant
- Open Space Policy Area
- Refer to OPA #122
- Niagara Escarpment Plan Area
- General Agricultural Area
- Rural Lands
- Extractive Industrial Area

DATE February 2024

SOURCES Town of Caledon



FDD0E5CB-F253-46C2-ADCC-EF6AB54A109A





FIGURE 12
CHPMARA
PRIORITIZATION PLAN

Town of Caledon
 Official Plan Schedule L

Pit 3 Extension

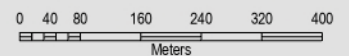
Part of Lot 13, Con 5 WHS
 Town of Caledon
 Region of Peel

LEGEND

- Proposed Licence Boundary
- Existing Licenced Boundary
- Additional Lands Owned by Applicant
- CHPMARA (Sand & Gravel)
- CHPMARA Aggregate Resource Lands
- Licenced Pit/Quarry

DATE February 2024

SOURCES
 Town of Caledon



FDD0E5CB-F253-46C2-ADCD-EF6AB54A109A



PLANNING
 URBAN DESIGN
 & LANDSCAPE
 ARCHITECTURE

Lands identified in the CHPMARA consist of earth materials, including sand, gravel, shale, dolostone, and sandstone. The subject lands are specifically identified as CHPMARA (Sand and Gravel). Areas identified as CHPMARA are prioritized as Aggregate Resource lands that are suitable for aggregate extraction.

Section 5.1.1.17 provides for the requirements of Agricultural Impact Assessments (AIAs) in the Town of Caledon. AIAs are required for proposals in the Prime Agricultural Area that have the potential to negatively impact agricultural uses. While the lands are designated as General Agricultural Area, an AIA has been prepared in accordance with the requirements of section 5.1.1.17.2.

Section 5.11.2 provides for the Town-Wide Aggregate Management Policies relating to the extraction of aggregate resources. Aggregate operations are permitted after consideration and evaluation of the items outlined in Section 5.11.2. Relevant to this AIA, the following is noted:

Policy 5.11.2.2.9 "Mineral aggregate extraction may be permitted as an interim use in prime agricultural areas on prime agricultural land as defined in the Region of Peel Official Plan and/or the Town of Caledon Official Plan, subject to the policies of this Plan, and provided that rehabilitation of the site will be carried out whereby substantially the same areas and same average soil quality for agriculture are restored"

In response to the policy above, the lands are proposed to be rehabilitated to an agricultural condition. Through a progressive rehabilitation process, approximately 15.1 hectares of the subject lands will be returned to the same average soil capability, which meets Policy 5.11.2.2.9 above. It is noted that the lands are not designated as Prime Agricultural Lands in the Town's Official Plan. However, section 5.11.2.2.9 continues:

"On these prime agricultural lands, complete agricultural rehabilitation is not required if:

a) There is a substantial quantity of mineral aggregate below the water table warranting extraction; or

b) The depth of planned extraction in a quarry makes restoration of pre-extraction agricultural capability unfeasible;

c) Other alternatives have been considered by the Applicant and found unsuitable; and,

d) Agricultural rehabilitation in remaining areas will be maximized.

In response, it is recognized that a portion of the lands will not be returned to an agricultural condition due to the need for woodland rehabilitation as discussed previously in Section 4.2. However, agricultural rehabilitation will be maximized through the proposed progressive rehabilitation plan, returning a majority of the subject lands to an agricultural condition.

Policy 5.11.2.4.2 outlines criteria for which the Town will approve an Official Plan Amendment to designate lands identified as Aggregate Resource Lands for a new extraction operation or expansion to an existing extraction operation. Specifically, subsection (a)(iii) of Policy 5.11.2.4.2 requires that the application meet the intent of the Rehabilitation Master Plan, where one has been prepared for the resource area. A Rehabilitation Master Plan has been approved by Council in March 2022, and the proposed agricultural rehabilitation plan for the subject lands is consistent with the approved Rehabilitation Master Plan, which identifies an agricultural land use as per the Aggregate Rehabilitation Vision Plan (ARVP) of the Master Plan.

Section 5.11.2.8 of the Official Plan states the Town's approach to mineral extraction rehabilitation. As previously noted in Section 4.2 of this report, the proposed rehabilitation plan for the subject lands will ensure that substantially the same area of land to be extracted will be returned to an agricultural condition with the same average soil quality.

In summary, the associated agricultural rehabilitation plan of the proposed extraction conforms with the policies of the Town of Caledon Official Plan.

5.0 ASSESSMENT OF IMPACT

As previously noted, mineral aggregate extraction is considered a permitted use in prime agricultural areas in accordance with Provincial, Regional and local policy. Provincial and local policies require that impacts on surrounding agricultural operations and lands be mitigated. Although resource uses such as mineral aggregate extraction have traditionally been considered part of the agricultural / rural landscape fabric, impact from these land uses should be considered and mitigated to the extent feasible. Impacts associated with the reduction / loss of agricultural land and / or infrastructure, agricultural land fragmentation, dust, noise, road traffic, water resources and other agricultural operations as a result of the proposed mineral aggregate extension on the subject lands have been assessed and are reviewed in the following sections.

5.1 Reduction / Loss of Agricultural Land and Infrastructure

As previously noted, 17.4 hectares (43 acres) of the subject lands proposed for extraction are currently in agricultural production (cash crops). There is no removal of agricultural structures proposed, and therefore no loss of agricultural infrastructure is associated with the proposed extension. The type and nature of the agricultural uses on the subject lands are typical of this area and cropping practices throughout southern /central Ontario, as confirmed through a review of 2021 Census of Agriculture data.

According to the ARA rehabilitation plans, a total of approximately 15.1 hectares of the subject lands will be returned to agriculture. Thus, the rehabilitation of the subject land results in substantially the same area of land being returned to an agricultural condition. As a result, there is a negligible permanent loss of farmland (2.3 hectares) from the proposed extension of the subject lands; however, this is required to meet the reforestation requirements of the Greenbelt Plan.

5.2 Fragmentation of Agricultural Lands

Agriculture uses and activities benefits from being adjacent to the other agricultural operations and if lands are fragmented, there is potential to negatively impact farming practices on the isolated farm parcels. The proposed aggregate operation on the subject property will not result in creating isolated agricultural lands, as the aggregate operation is an interim use and will be returned to agricultural production. Agricultural production will continue throughout the operation based on the proposed phasing plan. The 2021 Census of Agriculture indicates that the average farm size for the Town of Caledon is 10- 69 acres with grain and oilseeds being the most predominant crop production. Rehabilitation efforts will return 15.1 hectares back to an agricultural condition to ultimately support

grains and oilseed production (corn, soy and wheat), which is consistent with the average farm size in the Town of Caledon.

The land uses within the surrounding area, and more particularly within the secondary study area, are interspersed with existing rural residential lots, agricultural operations, licensed aggregate operations and natural heritage features. The location of the Belfountain settlement area southeast of the subject lands also contributes to the existing fragmentation of the agricultural system regardless of the proposed pit. When the aggregate operation is returned to an agricultural after use, the lands will be less fragmented and comprise of a more consistent agricultural landscape. As a result, the proposed aggregate extension and final rehabilitated landform will have a negligible impact on agricultural land fragmentation in the area.

5.3 Dust Impact

There are a number of typical sources of fugitive dust emissions resulting from mineral aggregate operations, including:

- On-site traffic;
- Internal roads, paved and unpaved areas;
- Material stockpiles;
- Loading / unloading areas and loading / unloading techniques;
- Material spills;
- Material conveyance system;
- Crushing and screening equipment; and
- Active pit faces.

The ARA sets provincial standards for dust control in pits and quarries. All new licenses must adhere to the following prescribed conditions as set out in the ARA provincial standards:

- Dust will be mitigated on site;
- Water or other provincially approved dust suppressants will be applied to internal haul roads and processing areas as often as required to mitigate dust;
- Processing equipment will be equipped with dust suppressing or collecting devices, where the equipment makes dust or is operated within 300 metres of a sensitive receptor; and
- If required, an environmental compliance approval (ECA) will be obtained from the processing equipment to be used on site.

Therefore, dust is required to be mitigated on site through the prescribed conditions of the ARA.

A Best Management Practices Plan for the Control of Fugitive Dust Emissions was prepared by Lafarge for the proposed application, to provide a plan for managing fugitive dust at the facility.

As a result of implementing the Provincial Standards and Best Management Practices Plan, it is not anticipated that dust will have an impact on surrounding agricultural uses.

5.4 Hydrogeology

Management of water resources is an important consideration for farm operations, particularly for watering field/ vegetable crops and hydrating livestock. Changes to the hydrologic and/or hydrogeologic conditions in the area surrounding the subject lands could have a negative impact on farm operations and crop yields.

The proposed aggregate operations on the subject lands are above the established water table. No water taking or below water extraction is proposed. A hydrogeological assessment has been prepared by WSP and concludes that during the operation and rehabilitation scenarios, there are no anticipated impacts to groundwater quality or quantity.

5.5 Traffic

The proposed Pit 3 extension is requesting a maximum annual tonnage of 1,000,000 tonnes, whereas the existing licensed pit has an unlimited annual tonnage. It is noted that the existing and established haul route will also remain unchanged, as the majority of the shipments will be to GTA markets with access to the market areas obtained by travelling northwest on Mississauga Road to Charleston Sideroad, accessed via internal haul route to the existing Pit 3. The majority of the haul route is on Regional roads, which are designed and meant to carry high volumes of traffic. Agricultural traffic on these Regional roads is not anticipated to be high as this type of traffic would generally avoid high volume routes and be directed towards local / Town roads. There is no proposed truck traffic on Shaws Creek Road.

A Traffic Impact Study was also conducted by Paradigm Transportation Solutions, and concluded that the study area and all existing road intersections will be able to operate at acceptable levels of service based on future service levels for the proposed development.

5.7 Noise Impacts

Noise is an additional potential impact from aggregate operations. A Noise Impact Study has been prepared by Howe Gastmeier Chapnik Limited (HGC Engineering) to consider sound emission levels for the proposed extension. The Noise Impact Study confirms that sound levels from the proposed pit, predicted under worst-case operating scenarios and with the noise control measures recommended herein, will comply with the MECP guideline limits at the most potentially impacted neighbouring receptors.

The Noise Impact Assessment also recommends noise control measures to be implemented by the applicant. Recommendations include the construction of perimeter berms, restricted hours of operation and localized shielding for production equipment. From an agricultural perspective, the recommendations of the Noise Impact Study will ensure surrounding agricultural uses are not negatively

impacted. The agricultural operations will be appropriately shielded from the pit operations, and livestock will not be impacted by the proposed development.

5.8 Summary of Net Impacts

The following table is consistent with Table 3 (*Minimize and Mitigate Impacts*) found in section 3.2.2 of the Province’s *Draft Agricultural Impact Assessment Guidelines*. The purpose of this table is to provide a summary of how the proposed extension minimizes or mitigates impacts on surrounding agricultural uses.

Table 3: Summary of Net Impacts

Objective	Mitigation Measure	Description
Minimize the loss of agricultural land	Select areas with less agricultural land and lower priority agricultural lands	<p>The proposed operation is an extension to an existing, licensed pit (Licence no. 6525). An extension is preferable to a new aggregate operation as impacts on surrounding agricultural uses are already managed and mitigated by the existing operation (e.g. established haul route, dust and noise management etc.).</p> <p>The lands are primarily comprised of Class 3 soils.</p> <p>A large proportion of the designated primary and secondary sand and gravel resource identified in the Region of Peel OP and within the Town of Caledon are coincident with designated prime agricultural areas. As a result, it would be difficult to locate any new aggregate operations within the Town</p>

		that would avoid prime agricultural areas.
	Rehabilitate the land	A majority of the proposed extension land will be rehabilitated to the same average soil capability. Of the 17.4 hectares of land considered to be prime agricultural land (Class 1 -3 lands), 15.1 hectares are proposed to be rehabilitated to the same average soil capability.
	Phase Development	Development and rehabilitation will be phased. As agricultural lands are removed for extraction, other phases will be progressively rehabilitated in accordance with ARA site plans.
Minimize the fragmentation of agricultural land	Maintain farm parcels	The proposed extension will not result in creating isolated agricultural lands as they are an extension of an existing aggregate operation. When the lands are returned to an agricultural after use, the lands will be less fragmented and comprise of a more consistent agricultural landscape. The lands along Shaws Creek Road could be utilized in the future for the establishment of a farming operation.

Minimize impacts on farmland and agricultural operations	Minimum Distance Separation	MDS I and II setbacks are not required for mineral aggregate resources.
	Select compatible land uses; put lower impact development adjacent to farmland and operations	The proposed extension would be buffered from adjacent agricultural land uses through the provision of setbacks, berms and existing vegetation.
	Design to support agriculture (e.g. help farms to continue to operate; help prevent and reduce trespassing and vandalism)	Conflicts between the proposed extension and the surrounding agricultural land uses will be minimized through the implementation of physical and visual barriers (vegetative berms); similar to what is currently in use at the existing pit. Fencing around the perimeter property along with a locked gate is required as per the ARA. The haul route is not proposed to change from the existing route that accesses Charleston Sideroad via Mississauga Road. There is no proposed access along Shaws Creek Road, and as such, Agricultural traffic along Shaws Creek Road will not be impacted by truck traffic from the proposed operation.
Minimize and mitigate changes in water quality or quantity	Implement a groundwater monitoring program	Extraction will remain above the established water table. Lafarge will continue to monitor groundwater through

		their existing groundwater monitoring program and recommended monitoring program for the extension.
Mitigating impacts during construction or operations (e.g. mitigate dust, noise)	Adjust operational procedures to accommodate agriculture in the area	<p>With the existing aggregate use of the licensed pit, surrounding agricultural uses are accustomed to the operational procedures associated with mineral resource extraction.</p> <p>The extension is proposed to operate from 7 am to 7 pm, with the potential to begin shipping at 6 am. These hours will not interfere with agricultural operations as the site has been designed to meet provincial standards for noise and air quality to mitigate impacts on surrounding agricultural operations.</p> <p>There are no specialty crops or large livestock operations in the area which would be affected by the operation.</p>
	Vegetative berms	A setback of 30 metres will be provided from Shaws Creek Road to create buffering between the proposed extension and surrounding land uses (including the equestrian operations at 17590 Shaws Creek Road).

		Vegetative berms and setbacks will also be implemented on other property boundaries to provide a visual barrier to surrounding agricultural and other land uses.
	Maintain, restore or construct farm infrastructure	The subject lands do not include any farm infrastructure.
Mitigate ongoing impacts from new development	Implement measures that can be in place post development to support compatibility with agriculture	<p>All planting associated with the berms and forest enhancement will be non-invasive species and will not impact agricultural rehabilitation or production when the lands are returned to production.</p> <p>Some of the revegetated areas will act as a windbreak for future agricultural uses.</p> <p>The balance of the site will be rehabilitated to an agricultural condition, similar to what existed prior to extraction.</p>
Education to achieve greater compatibility between agricultural and non-agricultural uses	Education and awareness	Lafarge will continue to educate the public on rehabilitation efforts to demonstrate the importance and impact of progressive agricultural rehabilitation.

6.0 REHABILITATION

The subject lands are proposed to be rehabilitated back to an agricultural condition with the pit floor area being returned to the pre-extraction grade. As previously noted, approximately 85% of the subject lands which are currently used for agricultural production will be rehabilitated back to an agricultural after use.

The objectives of the rehabilitation plan are to:

- Return the lands to an agricultural use;
- Maintain or improve soil capability; and,
- Replicate existing grades and allow the removal of knolls to improve agricultural capability of the site.

The following agricultural rehabilitation best practices will be implemented to maximize the post-extraction condition of the property for an agricultural uses.

6.1 Phasing & Progressive Rehabilitation

To the extent possible, agricultural operations on the site should be maximized during pit operations. Later phases of extraction should be maintained in an active agricultural condition for as long as possible. The phasing of the operation can be seen on the Operations Plan (**Figure 2**). Extraction will commence in the northern portion of the site, and proceed from north to south.

Progressive rehabilitation will return the lands to an agricultural condition that is equal to or better than the original agricultural condition. **Figure 13** of this report illustrates the recommended agricultural rehabilitation sequence, which reflects the best practices discussed below. Progressive rehabilitation should follow the rehabilitation sequence.

6.2 Soil handling and stripping

All large woody vegetation should be removed prior to stripping and any large roots and stumps should be removed from the topsoil being placed in stockpiles or used directly in progressive rehabilitation. If required, stone removal may be required following cultivation. Once the site has been properly graded and stones and debris have been removed and any final grading has occurred, the soils should be tilled to prepare the seed bed.

The vegetation or crop cover on the area to be stripped should be considered. Where the lands to be stripped are under a perennial cover (e.g. hay), the area may need to be mowed and the vegetation

removed prior to stripping and incorporating the sod into the topsoil. Where soils are bare or crop residue is minimal, planting the area with a perennial crop well in advance of stripping is beneficial as it adds organic matter to the soil and improves soil structure.

6.3 Create Appropriate Post-Extraction Land Form

For at least the first growing year, the pit floor area should be planted in a grass-legume mix cover crop. If late in the year, a nurse crop or temporary crop may need to be planted to stabilize the soil.

Pre-extraction depths of each soil horizon on the pit floor should be replaced. The subsoil is to be replaced at a depth of minimum of 30 cm and the topsoil is to be replaced at a depth of minimum of 20 cm. Once soils have been replaced, they should be tilled to further alleviate any compaction from heavy equipment and transportation.

Tillage should occur across the slope to minimize the potential for erosion. Slope contours on the pit floor should be as uniform as possible and large regularly shaped fields should be created. Any grading should ensure there are no irregular undulations or depression areas on the rehabilitated pit floor.

6.4 Soil Compaction

Soil compaction should be minimized and to the extent possible, travel over soils and rehabilitated areas should be minimized. After spreading each layer of topsoil / subsoil, compaction is to be remediated by ripping or tilling the soils. Any ripping / tilling during this process should avoid mixing of the topsoil and subsoil layers (i.e. do not rip below the upper most / latest applied soil horizon).

6.5 Fertility Analysis and Soil Amendments

Replaced soil should be free of stones and any debris. Once the topsoil has been replaced, the seed bed has been prepared and a cover crop sown, a soil fertility analysis should be undertaken on the site using methods consistent with OMAFRA's soil fertility sampling guidelines. The samples are to be sent to an accredited laboratory to provide a complete analysis of the soil fertility and nutrient content in order to determine the appropriate amount and type of soil amendments and / or fertilizer required to restore or improve the soil to pre-extraction conditions. The soil fertility analysis should include all of the soil parameters sampled and analyzed from the samples collected for the pre-extraction site conditions.

A grass-legume cover crop should be established initially and maintained for up to five (5) years in order to maximize results. Cover crops should be plowed under annually in order to promote and increase organic matter. Cover crops should be monitored at least twice during the growing season to ensure success of cover crop and control weed growth. Over-seeding and reseeded may be necessary to control weeds and ensure successful cover crop establishment. As required, soil amendments should be added to the site to restore the soil fertility and organic matter concentrations

to a minimum of the pre-extraction conditions (Class 3 soil capabilities) outlined in **Table 1**. Soil amendments may include fertilizers, manure, compost, arbuscular mycorrhizal fungi (AMF), agricultural lime, planting of fallow crops.

6.6 Monitoring Program and Annual Report

Based on the phasing of the operation, at the location of the processing area Phase 2A will be the first area to be rehabilitated. Once final grades are achieved within Phase 2A, and at final rehabilitation of the site, an Annual Rehabilitation Report should be prepared by a qualified person (e.g. an agrologist or certified crop advisor) that reports on the stages of the rehabilitation process, where applicable, including,

- An overview of the status of the current extraction and progressive rehabilitation phases;
- Description of annual soil removal and storage;
- Description of any land that has been progressively rehabilitated;
- Documentation on the alleviation of any soil compaction, drainage provisions, erosion control etc.;
- Description of how the soil has been replaced and any amendments added (fertilizer, organic matter);
- Description of any seeding or planting that has occurred;
- A review of previous rehabilitation management activities and observations regarding field conditions;
- Report of agricultural activity (crops grown, annual yields) and any anecdotal feedback from the farmer;
- Summary of soil test results and post rehabilitation soil capability; and,
- Summary of monitoring data.

The report should include observational documentation, records of activity and quantitative information on soil conditions.

7.0 RECOMMENDATIONS

Based on our analysis, the following recommendations are made to reduce the impacts of the proposed extension on the surrounding agricultural uses in the Primary and Secondary Study Area. Recommendations are also made for final and progressive rehabilitation to ensure the pit is returned to the same average soil capabilities and agricultural production as pre-extraction:

1. Extraction shall occur in phases to minimize the amount of disturbed area. Later phases of the operation that are not currently in extraction should remain in agricultural production for as long as realistically possible.
2. The recommended agricultural rehabilitation sequence (**Figure 13**) shall be included in the ARA rehabilitation plan to ensure best practices are implemented throughout progressive rehabilitation.
3. Travel over soils and rehabilitated areas shall be minimized to reduce compaction. Ripping/tilling the soils shall be used to alleviate soil compaction; however, this process shall avoid the mixing of the top soil/subsoil layers.
4. Topsoil and subsoil shall be replaced at generally the same pre-extraction depths (a minimum of $\pm 200\text{mm}$ and $\pm 300\text{mm}$, respectively) as found in the Soil Survey completed by DBH. **Figure 13** herein shows the pit floor agricultural rehabilitation sequence. Organic matter may be added to the soil to improve soil structure, if required.
5. A grass-legume cover crop (such as perennial crops) shall be established during progressive rehabilitation, maintained for up to five years and ploughed under annually in order to promote and increase organic matter.
6. Plantings in agricultural areas shall include an agricultural seed mix of Annual Rye (50%), Oats (23%), Winter Rye (23%), and White Clover (4%).
7. The post extraction landform shall be rehabilitated in a manner that alleviates compaction and minimizes the potential for erosion.
8. An Agricultural Rehabilitation Monitoring Program Report shall be submitted annually by a qualified professional once final grades are reached in Phase 2A until final rehabilitation of the

site is complete. The report shall document the stages of the rehabilitation process and include details on matters such as the following:

- a) Evaluate the rehabilitated agricultural condition and soil capability, relative to the baseline soil conditions documented.
 - b) An overview of the status of the current extraction and progressive rehabilitation phases;
 - c) Description of annual soil removal and storage methods;
 - d) Description of any land that has been progressively rehabilitated;
 - e) Documentation on the alleviation of any soil compaction, drainage provisions, erosion control, etc.;
 - f) Description of how the soil has been replaced and any amendments added (fertilizer, organic matter)
 - g) Description of any seeding or planting that has occurred;
 - h) A review of previous rehabilitation management activities and observations regarding field conditions;
 - i) Report of agricultural activity (crops grown, annual yields) and any anecdotal feedback from the farmer;
 - j) Review of drainage issues and recommended mitigation measures as necessary;
 - k) Summary of soil test results and post rehabilitation soil capability;
 - l) Summary of monitoring data; and
 - m) Make recommendations on future agricultural rehabilitation activities and any needed adjustments to best management practices.
9. No livestock operations shall be permitted.
10. Best Management practices shall be implemented with the respect to the storage and application of fertilizers and pesticides.

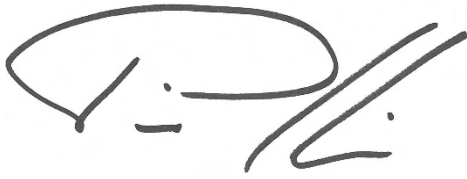
8.0 SUMMARY

In summary, the proposed mineral aggregate extraction on the subject lands is not anticipated to have a negative impact on agricultural uses and operations within the primary / secondary study areas. This opinion recognizes the following:

- Provincial and local planning policies recognize that mineral aggregate extraction operations are an interim land use. Mineral aggregate extraction is a permitted use within prime agricultural areas in accordance with provincial policy.
- The subject lands are within a prime agricultural area.
- The subject lands are not within a specialty crop area.
- The subject lands will be rehabilitated back to an agricultural condition with the same average soil capability that currently exists.
- The proposed extension of the existing pit on the subject lands is within an area of established mineral aggregate operations.

85% of the existing agricultural lands currently in production will be returned to an agricultural condition, with a minor loss due to rehabilitation of woodlands in accordance with the requirements of the Greenbelt Plan.

- No new haul routes are being created and existing truck traffic to/from the existing aggregate operations is not changing because of the proposed extension.
- Extraction is proposed to be above the established water table and no water taking is proposed. As a result, no impacts are anticipated on the availability of groundwater resources for the continued operation of the surrounding agricultural uses.
- Impacts from dust and noise will be mitigated through implementation of prescribed conditions and technical requirements / recommendations and berming.
- Implementation of the recommended rehabilitation plan including the recommended best practices in the report will ensure a successful agricultural rehabilitation process.



Pierre Chauvin, BSc (Agr.) MA, MCIP, RPP
Partner

APPENDIX A | Secondary Study Area Review

Farm No. 1 – 17923 Shaws Creek Road (Pinkney Farm Barn and House)

As previously discussed, the original Pinkney farmhouse fronts onto Shaws Creek Road. The farmhouse is vacant, and the barn shown below has since been removed due to safety concerns. The lands are no longer used for agriculture.



Original farm house, Shaws Creek Road



Barn at 17923 Shaws Creek Road. Photo, December 2016 (MHBC). Barn has since been removed.

Farm No. 2 – 17950 Shaws Creek Road

As previously discussed, a portion of these lands is located within the primary study area, adjacent to the subject lands. This farm is located southwest of the subject lands and includes a residential dwelling, equestrian facility and ancillary structures. Horse run-in shelters and fencing are also found at this property and horses were visible on the site visit. The barn is surrounded by fenced paddocks for the horses. The lands located northwest of this farm are used for cash crop production.



17950 Shaws Creek Road (Roadside photo taken from Shaws Creek Road)

Farm No. 3 – 17757 Shaws Creek Road

This farm is located on the north side of Shaws Creek Road, directly southeast of the subject lands, with crop land abutting onto the area proposed for extraction. A wooden bank barn is visible from the Elora Cataract Trail and the surrounding lands are in cash crop production. The barn does not appear to be in agricultural use for livestock as the roof of the silo no longer exists. No livestock was visible from the Trailway or the road, however aerial photos show fencing and infrastructure used for horses.



17757 Shaws Creek Road (Image taken from Elora Cataract Trail)



17757 Shaws Creek Road (Source: Google Earth)

Farm No. 4 – 17673 Shaws Creek Road

This property is located southeast of the subject lands and includes a rural residential dwelling and small barn which appears to be used for equestrian purposes. No horses/livestock were visible during the site visit; however, the fencing and pasture lands are indicative of an equestrian operation (hobby farm).



17673 Shaws Creek Road (Source: Google Earth)

Farm No. 5 17854 Shaws Creek Road

This property is located on the south side of Shaws Creek Road. Aerial photos indicate that this property includes a rural residential dwelling, a large bank barn, and ancillary structures characteristic of an equestrian operation. A fenced paddock at the rear of the property with a horse run-in shelter can be seen. The property was not visible from Shaws Creek Road. The surrounding crop lands were in soy production.



17854 Shaws Creek Road (Source: Google Earth)



Lands surrounding 17854 Shaws Creek Road, soy production

Farm No. 6 – 17529 Shaws Creek Road

This property is located southeast of the subject lands. It is unknown if this property includes agricultural operations, however aerial photos indicate the rural residential dwelling and drive shed are surrounded by cash crop lands and a woodlot.



17529 Shaws Creek Road (Source: Google Earth)

Farm No. 7 – 18101 Shaws Creek Road

This property is located west of the subject lands and includes a residential dwelling, large bank barn, two drive sheds and ancillary structures on the north side of Shaws Creek Road. This property is surrounded by lands in cash crop production. Horse jumping equipment, fencing and horse run-in shelters indicate this property is also used for equestrian uses. Signage fronting onto Shaws Creek Road further indicates that a portion of the lands (Belain Farm) was donated to the Ontario Farmland Trust for a conservation easement.



18101 Shaws Creek Road (Source: Google Earth)

Farm No. 8 –18113 Winston Churchill Boulevard

A barn and drive/equipment shed is located directly across the road from 18101 Shaws Creek Road (south side of Shaws Creek Road). There is no fire number, but based on property assessment mapping, it appears to be owned by the existing farm at 18113 Winston Churchill Boulevard. No livestock was visible at this barn, and the barn is surrounded by cash crop production.



Barn at 18113 Winston Churchill Boulevard

Farm No. 9 – 18249 Shaws Creek Road

This farm is located west of the subject lands, is occupied by a residential dwelling, barn, and drive shed with additional ancillary structures for horses. Fencing indicates an equestrian operation; however, no horses were visible during the site visit. All structures appear to be in good condition. Agricultural land surrounding the farmstead is in pasture production for the horses.



Farmstead at 18249 Shaws Creek Road (Source: Google Earth)

Farm No. 10 – 18234 Mississauga Road

This property was not visible from the road; however, signage indicates that there may be a dairy cattle operation at this property. Aerial imagery indicates a residential dwelling and barn/drive shed is located at this site. Fencing towards the rear of the property may also be indicative of equestrian livestock.



18234 Mississauga Road (Source: Google Earth)

Farm No. 11 – 18147 Mississauga Road

Aerial photos indicate that a rural residence is located on the north side of Mississauga Road. However, directly south of the residence's driveway is a treed laneway that leads to an older building. The building does not appear to be used for agriculture at this time.



18147 Mississauga Road (Source: Google Earth)

APPENDIX B | Soil Survey and Canada Land Inventory Classification



**SOIL SURVEY AND CANADA LAND INVENTORY
CLASSIFICATION FOR
PART LOT 13
CONCESSION 5 WEST SIDE OF CENTRE ROAD
(OR COMMUNICATION STREET)
TOWN OF CALEDON
REGION OF PEEL**

Prepared for:

Lafarge Canada Inc.
Proposed Pit 3 Extension

DBH Soil Services Inc.

March 4, 2024

TABLE OF CONTENTS

1.0	Background	1
2.0	Methodology	2
2.1	Data Sources.....	2
2.2	Field Data Collection	3
2.2.1	Soil Investigation	3
2.2.2	Topography and Climate.....	3
2.2.3	Agricultural Land Use	3
3.0	Findings.....	4
3.1	Subject Lands	4
3.2	Physiography and Climate	5
3.3	Detailed Soil Survey.....	5
3.3.1	Artificial Drainage	8
3.3.2	Irrigation	8
3.3.3	Landforming	9
3.3.4	Soil Capability for Agriculture.....	11
3.3.5	Hoffman Productivity Index (Soil Productivity Rating).....	13
4.0	Summary and Conclusions	15
5.0	References.....	17

LIST OF FIGURES

Figure 1	Soils and Canada Land Inventory	10
----------	---------------------------------------	----

LIST OF TABLES

Table 1	Canada Land Inventory - Subject Lands.....	13
Table 2	Soil Productivity Index Ranges	14
Table 3	Soil Productivity Index Range and Equivalent CLI	14
Table 4	Soil Productivity Rating and Equivalent CLI for the Subject Lands	14

APPENDIX A Soil Inspection Site Characteristics

APPENDIX B Photographs

APPENDIX C Curriculum Vitae

1.0 BACKGROUND

DBH Soil Services Inc was retained by Lafarge Canada Inc. to complete a Soil Survey and Canada Land Inventory (CLI) Classification assessment for an area identified as:

Part Lot 13
Concession 5 West Side of Centre Road or Communications Street
Town of Caledon
Region of Peel
(17823 Shaw's Creek Road)

This area is comprised of one parcel identified as Roll Number 21240300091630000000 in the Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA) Agricultural Atlas (<http://www.gisapplication.lrc.gov.on.ca/AIA/Index.html?viewer=AIA.AIA&locale=en-US>).

The site comprises approximately 25.6 ha (63.3 acres) of which the limit of extraction will encompass 20.9 ha (51.6 acres).

For the purposes of this report, this parcel is henceforth referred to as the Subject Lands

This report was completed to document the existing soil conditions and to provide a more detailed assessment of the Canada Land Inventory (CLI) classification of the soil resources onsite.

This report documents the methodology, findings, conclusions, and mapping completed for this study.

2.0 METHODOLOGY

2.1 DATA SOURCES

The following data sources were used to carry out the detailed Soil Survey and Canada Land Inventory Classification (CLI) for this study:

- 1:10000 scale Ministry of Natural Resources (MNR) Aerial Photography, 1978,
- 1:10000 scale Ontario Base Map (1983) Ministry of Natural Resources:
 - 10 17 5750 48500,
 - 10 17 5750 48450
- 1:50000 scale NTS Map No 30 M/13. 1984. Ministry of Energy Mines and Resources, Canada,
- 1:50000 scale NTS Map No 30 M/13. Canada Land Inventory (CLI) Capability Mapping,
- Agricultural Information Atlas (online resource, Ontario Ministry of Natural Resources),
- *Agronomy Guide for Field Crops (Publication 811)*. (2009). Ontario Ministry of Agriculture, Food and Rural Affairs,
- *Birdseye Satellite Imagery - Garmin*,
- *Classifying Prime and Marginal Agricultural Soils and Landscapes: Guidelines for Application of the Canada Land Inventory in Ontario*. OMAFRA. Online, 2016,
- *Draft Agricultural Impact Assessment (AIA) Guidance Document (March 2018)*,
- *Google Earth Pro Imagery*,
- *Guide to Agricultural Land Use*, Ontario Ministry of Agriculture, Food and Rural Affairs, March 1995,
- *Guidelines for Detailed Soil Surveys for Agricultural Land Use Planning (OMAFRA, 2018 online)* (http://www.omafra.gov.on.ca/english/landuse/facts/soil_survey.htm),
- *Guidelines on Permitted Uses in Ontario's Prime Agricultural Areas (Publication 851)*, Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA), 2016,
- Online Soils data for the Province of Ontario (Land Information Ontario (LIO), 2018,
- Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA) Factsheet – Crop Heat Units for Corn and Other Warm Season Crops in Ontario, 1993,
- Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA) AgMaps online mapping, (<http://www.gisapplication.lrc.gov.on.ca/AIA/Index.html?viewer=AIA.AIA&locale=en-US>)
- Ontario Ministry of Agriculture and Food - Land Use Systems Mapping,
- Ontario Ministry of Agriculture and Food - Artificial Drainage Mapping,
- *Soil Survey of Peel County*, (Hoffman, D. W and N.R. Richards, 1955). Report No. 18 of the Ontario Soil Survey,
- *The Physiography of Southern Ontario 3rd Edition*, Ontario Geological Survey Special Volume 2, Ministry of Natural Resources, 1984,
- *Windshield and field surveys by DBH Soil Services staff*, May 9, 2018.

2.2 FIELD DATA COLLECTION

2.2.1 SOIL INVESTIGATION

Basic soils information was provided in the Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA) soils reporting and mapping (*Soil Survey of Peel County, Report No. 18 of The Ontario Soil Survey*. Hoffman, D. W. and N.R. Richards. 1955) with mapping at a scale of 1:63360 (or one inch to one mile). Mapping at this scale is of a general nature when referring to site-specific planning; therefore detailed soils assessments are often required for farm scale or lot size planning initiatives and applications for amendments to Official Plans.

With this in mind, a detailed soil survey was completed for the Subject Lands. The detailed soil survey was completed by following the Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA) *Guidelines for Detailed Soil Surveys for Agricultural Land Use Planning* (May 31, 2004). These guidelines were created in response to concerns with the accuracy of published mapping and classification of soil materials and that the existing information is of too general a nature to adequately describe and interpret the soil properties for site-specific planning purposes.

A detailed onsite soil survey and surrounding land reconnaissance survey were conducted on May 9, 2018.

2.2.2 TOPOGRAPHY AND CLIMATE

Topographic information was reviewed and correlated to the Site Plan (provided by MHBC), the 1:10000 scale Ontario Base Mapping, Land Information Ontario digital contour mapping, detailed soil survey assessment (using a handheld clinometer), aerial photo interpretation and windshield surveys.

Climate data was taken from the OMAFRA document titled 'Agronomy Guide for Field Crops – Publication 811 (June 2009)' and the Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA) Factsheet – Crop Heat Units for Corn and Other Warm Season Crops in Ontario, 1993.

2.2.3 AGRICULTURAL LAND USE

Initial Agricultural Land Use data was provided by the Ontario Ministry of Agriculture, Food and Rural Affairs. This information is presented at the Township level and identified a land usage for individual properties and fields. This information provided a baseline for the identification of agricultural land use on the Subject Lands. It should be noted that the OMAFRA Land Use data is of older material and is not updated on a regular basis. With this in mind, the OMAFRA data was used for comparison purposes.

Agricultural land use data was collected through observations made during the detailed soil survey completed in May 9, 2018. Data collected included the identification of land use (both agricultural and non-agricultural), documentation of the type and location of agricultural facilities (if any), non-farm residential units (if any) and non-farm buildings (business, commercial and

institutional usage). The data presented in this report reflects the present day agricultural land use (if any).

3.0 FINDINGS

3.1 SUBJECT LANDS

The Subject Lands were defined as:

Part Lot 13
Concession 5 West Side of Centre Road or Communications Street
Town of Caledon
Region of Peel
(17823 Shaw's Creek Road)

This area is comprised of one parcel identified as Roll Number 21240300091630000000 in the Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA) Agricultural Atlas (<http://www.gisapplication.lrc.gov.on.ca/AIA/Index.html?viewer=AIA.AIA&locale=en-US>).

The site comprises approximately 25.6 ha (63.3 acres) of which the limit of extraction will encompass 20.9 ha (51.6 acres).

At the time of the onsite survey there were no buildings or other structures observed onsite. There were no woodlots onsite. The majority of the Subject Lands were comprised of agricultural land uses (common field crop), with smaller areas of treed fencerows, scrubland and an old aggregate pit located immediately adjacent to the Elora Cataract Trail. Small pockets of standing water were noted in the lower areas of the old aggregate pit.

No other areas of ponds, standing water or flowing stream courses were observed on any portion of the Subject Lands at the time of the onsite survey.

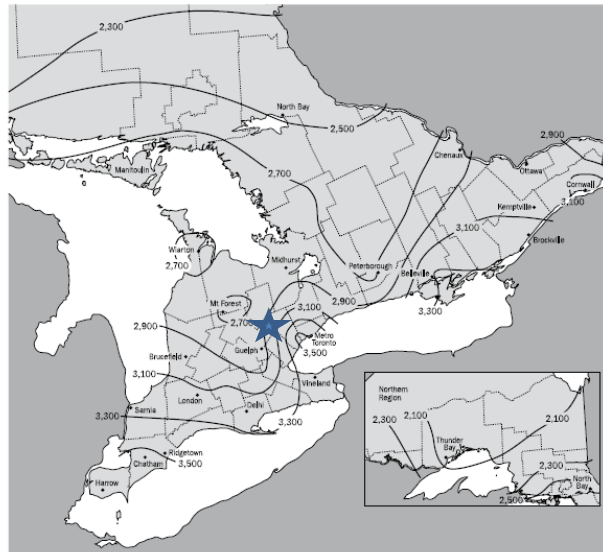
The topography was variable with steeply sloping areas along the perimeter of the old aggregate pit and a level bottom/floor to the old aggregate pit. The northern portions of the Subject Lands were considered as gently rolling, with steeper slopes occurring to the northeast and southeast areas. Random stone piles (cobble to boulder size) were noted in many fence/tree row locations around and within the property.

3.2 PHYSIOGRAPHY AND CLIMATE

The *Physiography of Southern Ontario* Physiographic Unit Map indicates that the Subject Lands are located within the Guelph Drumlin Field physiographic region. The Guelph Drumlin Field physiographic region centers on the city of Guelph and extends into the City of Hamilton, Region of Waterloo, Region of Halton, Region of Peel and Wellington County. The drumlin field includes approximately 300 drumlins of all sizes. These hills are generally broad and oval shaped with slopes less steep than those of the Peterborough drumlins. The till material is loamy and calcareous, with numerous stones.

The Subject Lands are located within the 2900 - 3100 average accumulated Crop Heat Units in Ontario. The Crop Heat Units (CHU) index was originally developed for field corn and has been in use in Ontario for 30 years. The CHU ratings are based on the total accumulated crop heat units for the frost free growing season in each area of the province. CHU averages range between 2500 near North Bay to over 3500 near Windsor. The higher the CHU value, the longer the growing season and greater are the opportunities for growing value crops.

Crop Heat Units for corn (based on 1971-2000 observed daily minimum and maximum temperature (OMAFRA, 2009)) map is illustrated below. The approximate location of the Subject Lands is marked with a star.



Source: Agronomy Guide for Field Crops OMAFRA – Publication 811

3.3 DETAILED SOIL SURVEY

A detailed on-site soil survey was conducted to more accurately map and classify the soil resources of the soil materials on the Subject Lands as a whole and for the individual parcels. The soil survey included the following tasks:

- Completion of a review of published soil information (*Soil Survey of Peel County, (Hoffman, D. W and N.R. Richards, 1955). Report No. 18 of the Ontario Soil Survey*),
- Conduct a review of published Canada Land Inventory (CLI) ratings for the soils of

- this area,
- Conduct an aerial photographic review and interpretation of the soil polygons, disturbed soil areas and miscellaneous landscape units (ie: streams, boulder pavement, wayside pits),
 - Conduct an on-site soil survey,
 - Completion of mapping to illustrate the location of the property, the occurrence of soil polygons and appropriate CLI capability ratings,
 - Completion of a report outlining the methodologies employed, findings (including a discussion of relevant features identified) and a conclusion as to the relevance of the CLI classifications for the soil polygons on the property.

The detailed soil survey of the Subject Lands and reconnaissance of the surrounding area was conducted on May 9, 2018. Aerial photographic interpretation was used to delineate soil polygon boundaries by comparing areas, on stereoscopic photographs, for similar tone and texture. Delineated soil polygons were evaluated for the purpose of verifying soil series and polygon boundaries. The evaluation was completed through an examination of the existing soil conditions to a minimum depth of 100 cm or to refusal. A handheld Dutch Soil Auger and/or Dutch Stone Auger was used to extract the soil material to a minimum depth of one metre (or to refusal).

Each soil profile was examined to assess inherent soil characteristics. Soil attributes were correlated with the *Canadian System of Soil Classification (CSSC)* (Agriculture Canada, 1998) and the *Field Manual for Describing Soils in Ontario* (Ontario Centre for Soil Resource Evaluation, 1993). A hand held clinometer was used to assess percent slope characteristics. Soils were assigned to a soil map unit (series) based on soil texture (hand texturing assessment), soil drainage class and topography (position and slope).

Depth to free water within one metre of the soil surface was also recorded at inspection sites located on lower slope positions (where applicable). Names for the soil series and the Canada Land Inventory (CLI) ratings were assigned to each soil polygon by correlating the soil series with soils information presented in the *Soil Survey of Peel County, (Hoffman, D. W and N.R. Richards, 1955). Report No. 18 of the Ontario Soil Survey)* and with the CLI information presented on the 1:50000 scale manuscript mapping.

Observations noted during the detailed soil survey of the Subject Lands revealed that a large portion of the western side, adjacent to the Elora Cataract Trailway had steeply sloping sides into a depressional area with a level bottom. Surficial soils in this area were thin and calcareous, and overlay calcareous sands and gravels. This formation of soils and slope conditions is consistent with an aggregate pit. Conversations with Lafarge personnel confirmed that this portion of the Subject Lands was an old aggregate pit area. The majority of the remaining areas of the Subject Lands were used for agricultural activities such as the production of common field crops. Small portions of the Subject Lands were occupied by fence rows/trees rows, while one small area in the southeastern portion would be considered as scrubland. Stone and boulder piles were noted in many of the fence rows/tree rows.

The following photograph illustrates the crop residue from the 2017 crop year, plus the condition of the 2018 year crop. Also noted in this photograph are the relative size, shape and occurrence of surface stone.



Photograph illustrates examples of the crop in 2018 and the 2017 crop residue, plus the relative size and occurrence of surface stone.

The photograph below illustrates the relative topography and slope lengths associated with the old aggregate pit area of the Subject Lands (looking north).



Photograph illustrates the topography and slope length in the old aggregate pit area.

A total of 29 soil inspection sites were examined on the Subject Lands. The soil inspection information was correlated with soil descriptions in *Soil Survey of Peel County*, (Hoffman, D. W and N.R. Richards, 1955. Report No. 18 of the Ontario Soil Survey) and the OMAFRA digital soils data (2018), prior to the production of the soils map in Figure 2. Soil names used in the

identification of the soil series on Figure 1 were taken from *Soil Survey of Peel County*, (Hoffman, D. W and N.R. Richards, 1955). Report No. 18 of the Ontario Soil Survey.

The onsite soil survey identified one soil series and one miscellaneous landscape unit. The one soil series was identified as Caledon Loam. The miscellaneous landscape unit was identified as Disturbed Soils. The Disturbed soils were associated with the areas of the old aggregate pit including the entrance, roadway and excavation areas.

The Caledon Loam soil series is the well-drained member of the Caledon soil catena. The Caledon Loam soils developed on well sorted gravelly materials that were deposited in slowly moving water typical of outwash plains. The soil parent materials contain large amounts of shale in addition to the calcareous materials. These soils have good internal and external drainage. The Caledon soils are often low in natural fertility. The Caledon soils occur on smooth moderately sloping topography and are prone to erosion.

Disturbed soils are associated with areas where the materials were modified by human activities such as: construction activities (house construction, roadway/laneway construction, wells, septic systems, barns); aggregate operations (quarries, pits); or other activities that would cause significant soil mixing and degradation.

A detailed description of the soils at each inspection site is included in Appendix A.

3.3.1 ARTIFICIAL DRAINAGE

An evaluation of artificial drainage on the Subject Lands was completed through a correlation of observations noted during the windshield surveys, aerial photographic interpretation and a review of the Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA) Artificial Drainage System Mapping.

Visual evidence supporting the use of subsurface tile drains would include observations of drain outlets to roadside ditches or surface waterways, and surface inlet structures (hickenbottom or french drain inlets).

Evidence in support of subsurface tile drainage on aerial photographs would be based on the visual pattern of tile drainage lines as identified by linear features in the agricultural lands and by the respective light and dark tones on the aerial photographs. The light and dark tones relate to the moisture content in the surface soils at the time the aerial photograph was taken.

OMAFRA Artificial Drainage System Maps were reviewed to determine if an agricultural tile drainage system had been registered to the Subject Lands. The OMAFRA maps revealed that agricultural drainage systems were not registered to Subject Lands.

3.3.2 IRRIGATION

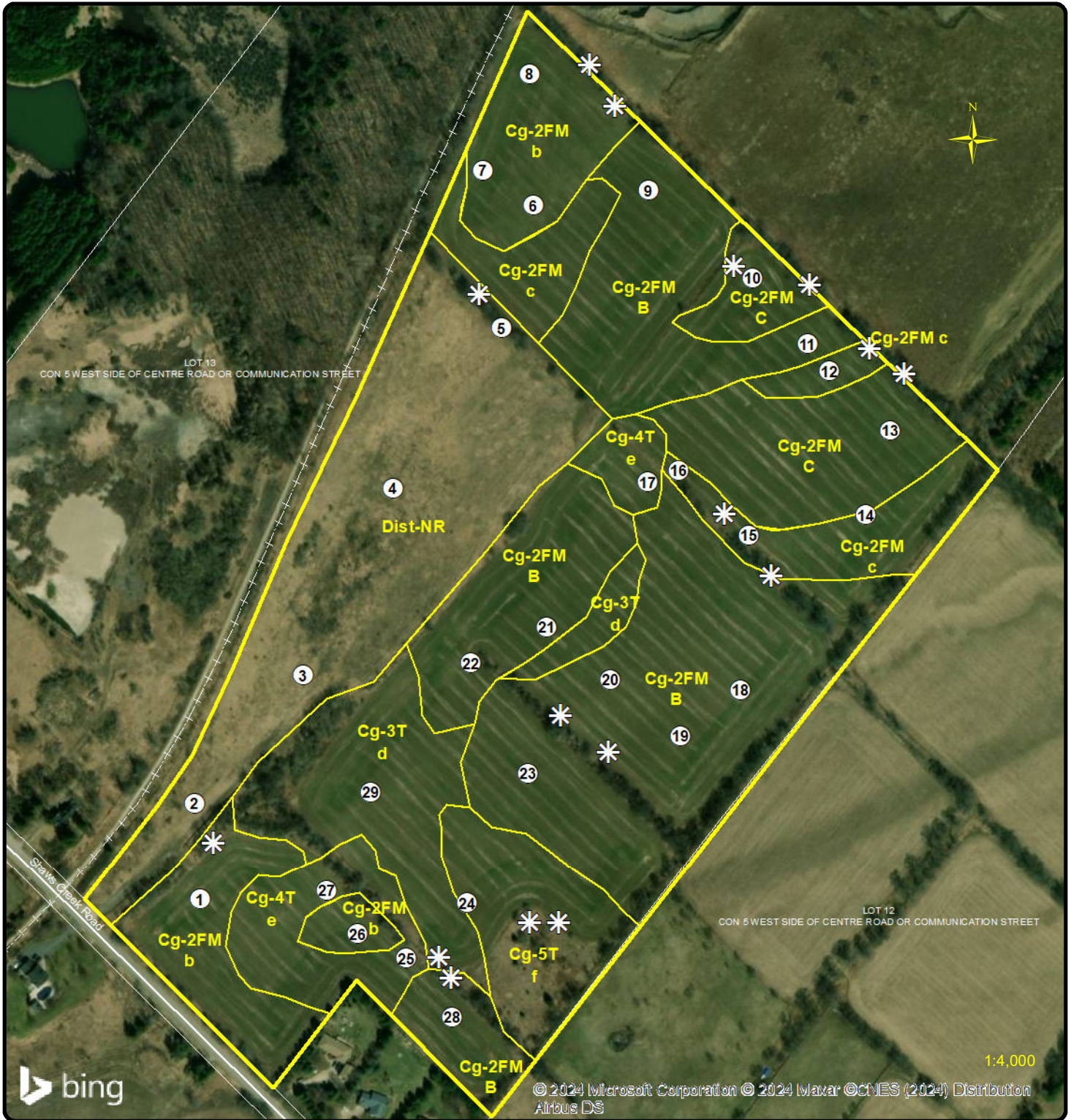
Observations noted during the surficial soil survey indicated that the Subject Lands are not irrigated and that the property is not set up for the use of irrigation equipment. Visual evidence

supporting the use of irrigation equipment would include the presence of the irrigation equipment (piping, water guns, sprayers, tubing, etc), the presence of a body of water capable of sustaining the irrigation operation and lands that are appropriate for the use of such equipment.

No irrigation equipment was observed onsite during the course of the on-site survey.

3.3.3 LANDFORMING

There is no evidence of any landforming for the purposes of leveling or reducing slope for the enhancement of agricultural activities or operations.



Legend

- Soil Inspection Locations
- ✱ Stone Pile
- Rail Trail (Elora Cataract Trailway)
- Roads (MNR)
- Lot Lines (MNR)
- ▭ Soil Polygon Boundary
- ▭ Subject Lands (approximate)

Soil Code

Cg - Caledon Loam
Dist = Disturbed Area

Slope Class

Aa = 0.0 - 0.5%
Bb = 0.5 - 2.0%
Cc = 2.0 - 5.0%
Dd = 5.0 - 9.0%
Ee = 9.0 - 15.0%
Ff = 15.0 - 30.0%

Slope length < 50 m
Slope length > 50 m

Soil Code — **CLI Class**

Cg - 2FM — CLI Class
B — CLI Subclass

Slope Code — **CLI Subclass Limitation**

F = Fertility Limitation
M = Moisture Limitation
T = Topography Limitation

Figure 1
**Soils and
Canada Land Inventory (CLI)**

DBH Soil Services Inc.
March 2024

File:2018/12/Figure 2 - Soils/CLI

3.3.4 SOIL CAPABILITY FOR AGRICULTURE

Basic information about the soils of Ontario is made more useful by providing an interpretation of the agricultural capability of the soil for various crops. The Canada Land Inventory (CLI) system combines attributes of the soil to place the soils into a seven-class system of land use capabilities. The CLI soil capability classification system groups mineral soils according to their potentialities and limitations for agricultural use. The first three classes are considered capable of sustained production of common field crops, the fourth is marginal for sustained agriculture, the fifth is capable for use of permanent pasture and hay, the sixth for wild pasture and the seventh class is for soils or landforms incapable for use for arable culture or permanent pasture. Organic or Muck soils are not classified under this system. Disturbed Soil Areas are not rated under this system.

The Ontario Ministry of Agriculture, Food and Rural Affairs document “Classifying Prime and Marginal Agricultural Soils and Landscapes: Guidelines for Application of the Canada Land Inventory in Ontario” defines the Canada Land Inventory (CLI) classification as follows:

- “Class 1 - Soils in this class have no significant limitations in use for crops. Soils in Class 1 are level to nearly level, deep, well to imperfectly drained and have good nutrient and water holding capacity. They can be managed and cropped without difficulty. Under good management they are moderately high to high in productivity for the full range of common field crops*
- Class 2 - Soils in this class have moderate limitations that reduce the choice of crops, or require moderate conservation practices. These soils are deep and may not hold moisture and nutrients as well as Class 1 soils. The limitations are moderate and the soils can be managed and cropped with little difficulty. Under good management they are moderately high to high in productivity for a wide range of common field crops.*
- Class 3 - Soils in this class have moderately severe limitations that reduce the choice of crops or require special conservation practices. The limitations are more severe than for Class 2 soils. They affect one or more of the following practices: timing and ease of tillage; planting and harvesting; choice of crops; and methods of conservation. Under good management these soils are fair to moderately high in productivity for a wide range of common field crops.*
- Class 4 - Soils in this class have severe limitations that restrict the choice of crops, or require special conservation practices and very careful management, or both. The severe limitations seriously affect one or more of the following practices: timing and ease of tillage; planting and harvesting; choice of crops; and methods of conservation. These soils are low to medium in productivity for a narrow to wide range of common field crops, but may have higher productivity for a specially adapted crop.*
- Class 5 - Soils in this class have very severe limitations that restrict their capability to producing perennial forage crops, and improvement practices are feasible. The limitations are so severe that the soils are not capable of use for sustained production of annual field crops. The soils are capable of producing native or tame species of perennial forage plants and may be improved through the use of farm machinery. Feasible improvement practices may include clearing of bush, cultivation, seeding, fertilizing or water control.*

Class 6 - Soils in this class are unsuited for cultivation, but are capable of use for unimproved permanent pasture. These soils may provide some sustained grazing for farm animals, but the limitations are so severe that improvement through the use of farm machinery is impractical. The terrain may be unsuitable for the use of farm machinery, or the soils may not respond to improvement, or the grazing season may be very short.

Class 7 - Soils in this class have no capability for arable culture or permanent pasture. This class includes marsh, rockland and soil on very steep slopes.”

Each polygon identified on-site was classified according to the Canada Land Inventory rating system then correlated to the CLI classifications as presented *Soil Survey of Peel County, (Hoffman, D. W and N.R. Richards, 1955. Report No. 18 of the Ontario Soil Survey)* report, CLI map No. 30 M/13, the digital soil data provided by OMAFRA, and the OMAFRA document “Classifying Prime and Marginal Agricultural Soils and Landscapes: Guidelines for the Application of the Canada Land Inventory in Ontario”.

Caledon Loam soils occurring on simple (greater than 50 m slope length) ‘B’ slopes (0.5 – 2.0%) and ‘C’ slopes (2.0 – 5.0%), and on complex (less than 50 m slope length) ‘b’ (0.5 - 2.0%) and ‘c’ (2.0 – 5.0%) were classified as 2FM. Caledon Loam soils occurring on: complex ‘d’ slopes (5.0 – 9.0%) were rated as class 3T; and on complex ‘e’ slopes (9.0 – 15.0%) were rated as class 4T; and on complex ‘f’ slopes (15.0 – 30.0%) were rated as class 5T.

The Ontario Ministry of Agriculture, Food and Rural Affairs document “Classifying Prime and Marginal Agricultural Soils and Landscapes: Guidelines for Application of the Canada Land Inventory in Ontario” defines the Canada Land Inventory (CLI) subclassification as follows:

Subclass F – Low Natural Fertility: This subclass is made up of soils having low fertility that is either correctable with careful management in the use of fertilizers and soil amendments or is difficult to correct in a feasible way. The limitation may be due to a lack of available plant nutrients, high acidity, low exchange capacity, or presence of toxic compounds.

Subclass M – Moisture deficiency: Soils in this subclass have lower moisture holding capacities and are more prone to droughtiness.

Subclass T - Topography: This subclass denotes limitations due to slope steepness and length. Such limitations may hinder machinery use, decrease the uniformity of crop growth and maturity, and increase water erosion potential.

Disturbed soil areas are considered as Not Rated within the Canada Land Inventory classification system.

Table I summarizes the relative percent area occupied by each capability class for the Subject Lands.

Table 1 Canada Land Inventory - Subject Lands

Canada Land Inventory Class (CLI)	Area (ha/acres)	Percent Occurrence
Class 1	-	
Class 2	15.5/38.5	60.8
Class 3	2.2/5.5	8.7
Class 4	1.4/3.4	5.4
Class 5	1.4/3.4	5.4
Class 6	-	
Class 7	-	
Disturbed Soil Areas	5.1/12.5	19.8
Totals	25.6/63.3	100.0

The Subject Lands comprise approximately 69.5 percent Canada Land Inventory (CLI) class 1 – 3 soils.

3.3.5 HOFFMAN PRODUCTIVITY INDEX (SOIL PRODUCTIVITY RATING)

The Hoffman Productivity Index (HPI) is a tool that was published in ARDA Report No. 4 “The Assessment of Soil Productivity for Agriculture” and is used to relate the productivity of lands to the Canada Land Inventory (CLI) soil capability.

These indices are also referred to as the Soil Productivity Index and are used to calculate and assign a parcel or polygon a single value which represents the overall productivity of that parcel or polygon.

The single value is derived from the sum of the percent occurrence of each CLI Soil Capability Class on the parcel or within the polygon multiplied by the productivity index corresponding to the soil class.

Certain assumptions are made when using the productivity index. The HPI assumes that if the same level of management is applied to areas of differing CLI classes, then the productivity for each class will differ. Hoffman determined the average yields produced for common field crops on lands with CLI classes 1 to 4 within Ontario.

It was determined that a CLI class 2 land produced approximately 80% of the yield that would be associated with a class 1 land. Further that a class 3 land produced approximately 64% of the yield that would be associated with a class 1 land, while a class 4 land produced approximately 49%. Values for class 5 through class 7 lands were extrapolated. As a result, it was determined that the productivity ranges were as follows as illustrated in Table 2

Table 2 Soil Productivity Index Ranges

Soil Productivity Index Ratings	
CLI Class	Soil Productivity Index
1	1.0
2	0.8
3	0.64
4	0.49
5	0.33
6	0.17
7	0.02

A parcels or polygons HPI or Soil Productivity Index is calculated as follows:

Soil Productivity Index =

$$(\text{percent occurrence of class 1 lands} \times 1.0) + (\text{percent occurrence of class 2 lands} \times 0.8) + (\text{percent occurrence of class 3 lands} \times 0.64) + (\text{percent occurrence of class 4 lands} \times 0.49) + (\text{percent occurrence of class 5 lands} \times 0.33) + (\text{percent occurrence of class 6 lands} \times 0.17) + (\text{percent occurrence of class 7 lands} \times 0.02)$$

Once a Soil Productivity Index value is calculated for the parcel or polygon, the value can be related back to a CLI Equivalent. The following table (Table 3) illustrates the range of values which can be directly correlated to the equivalent CLI class.

Table 3 Soil Productivity Index Range and Equivalent CLI

Soil Productivity Index Range	
Equivalent CLI Class	Soil Productivity Range
1	0.90 - 1.00
2	0.73 - 0.89
3	0.58 - 0.72
4	0.43 - 0.57
5	0.28 - 0.42
6	0.10 - 0.27
7	0.00 - 0.09

With respect to the Subject Lands, an HPI calculation was completed. The HPI value and subsequent CLI class are provided in Table 3.

Table 4 Soil Productivity Rating and Equivalent CLI for the Subject Lands

	Soil Productivity Rating	Corresponding CLI Class
Subject Lands	0.59	3

The calculated Soil Productivity Rating for the Subject Lands was 0.59 or a CLI class 3 equivalent.

4.0 SUMMARY AND CONCLUSIONS

DBH Soil Services Inc was retained by Lafarge Canada Inc. to complete a Soil Survey and Canada Land Inventory (CLI) Classification assessment for an area identified as:

Part Lot 13
Concession 5 West Side of Centre Road or Communications Street
Town of Caledon
Region of Peel
(17823 Shaw's Creek Road)

This area is comprised of one parcel identified as Roll Number 21240300091630000000 in the Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA) Agricultural Atlas (<http://www.gisapplication.lrc.gov.on.ca/AIA/Index.html?viewer=AIA.AIA&locale=en-US>).

The site comprises approximately 25.6 ha (63.3 acres) of which the limit of extraction will encompass 20.9 ha (51.6 acres).

This report was completed to document the existing soil conditions and to provide a more detailed assessment of the Canada Land Inventory (CLI) classification of the soil resources onsite

The results of the Soil Survey assessment include the following:

- A portion of the Subject Lands adjacent to the Elora Cataract Trailway was previously used as an aggregate pit. This portion of the Subject Lands is considered as Disturbed soils.
- The majority of the Subject Lands are used for the production of common field crops.
- A small portion of the Subject Lands comprises scrublands.
- No buildings (residential unit, barn, sheds) were located on the Subject Lands.
- With the exception of a small area of shallow standing water on the floor of the old aggregate pit area, no open water, ponds or flowing streams were observed on the Subject Lands.
- Significant stone piles were noted along the fence rows and field edges throughout the Subject Lands.
- No irrigation equipment or irrigation systems were observed on the Subject Lands
- No artificial tile drainage was noted on the Subject Lands and no agricultural tile drainage systems were registered to the property. Therefore, no additional investment in agriculture is associated with these lands.

- Approximately 69.5 percent of the Subject Lands is Canada Land Inventory (CLI) class I – 3 soils.
- The Soil Productivity Rating for the Subject Lands is 0.59 giving a CLI equivalent rating of class 3.

5.0 REFERENCES

- 1:10000 scale Ministry of Natural Resources (MNR) Aerial Photography, 1978,
- 1:10000 scale Ontario Base Map (1983) Ministry of Natural Resources:
 - 10 17 5750 48500,
 - 10 17 5750 48450
- 1:50000 scale NTS Map No 30 M/13. 1984. Ministry of Energy Mines and Resources, Canada,
- 1:50000 scale NTS Map No 30 M/13. Canada Land Inventory (CLI) Capability Mapping,
- Agricultural Information Atlas (online resource, Ontario Ministry of Natural Resources),
- *Agronomy Guide for Field Crops (Publication 811)*. (2009). Ontario Ministry of Agriculture, Food and Rural Affairs,
- *Birdseye Satellite Imagery - Garmin*,
- *Classifying Prime and Marginal Agricultural Soils and Landscapes: Guidelines for Application of the Canada Land Inventory in Ontario*. OMAFRA. Online, 2016,
- *Draft Agricultural Impact Assessment (AIA) Guidance Document (March 2018)*,
- *Google Earth Pro Imagery*,
- *Guidelines for Detailed Soil Surveys for Agricultural Land Use Planning (OMAFRA, 2018 online)* (http://www.omafra.gov.on.ca/english/landuse/facts/soil_survey.htm),
- *Guidelines on Permitted Uses in Ontario's Prime Agricultural Areas (Publication 851)*, Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA), 2016,
- Online Soils data for the Province of Ontario (Land Information Ontario (LIO), 2018,
- Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA) Factsheet – Crop Heat Units for Corn and Other Warm Season Crops in Ontario, 1993,
- Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA) AgMaps online mapping, (<http://www.gisapplication.lrc.gov.on.ca/AIA/Index.html?viewer=AIA.AIA&locale=en-US>)
- Ontario Ministry of Agriculture and Food - Land Use Systems Mapping,
- Ontario Ministry of Agriculture and Food - Artificial Drainage Mapping,
- *Soil Survey of Peel County, (Hoffman, D. W and N.R. Richards, 1955)*. Report No. 18 of the Ontario Soil Survey,
- *The Physiography of Southern Ontario 3rd Edition, Ontario Geological Survey Special Volume 2, Ministry of Natural Resources, 1984*,
- *Windshield and field surveys by DBH Soil Services staff, May 9, 2018*.

APPENDIX A

Soil Inspection Site Characteristics

Soil Inspection Site Number	Horizon	Depth of Horizon (cm)	Soil Texture	Drainage Class	Soil Series
1	Ap	0-23	L/fSL	Well	Caledon
	AB	23-33	L/fSL		
	BMI	33-50	L/fSL		
	BM2*	50-65	L/fSL		
2	Ah	0-20	L/fSL	Well	Disturbed
	BMI	20-30	L/fSL		
	BM2	30-45	L/fSL		
	CKg*	45-70	L/fSL		
3	Ahk	0-20	L/fSL	Poor	Disturbed
	Ck*	20**	gS		
4	Ahk	0-10	L/fSL	Poor	Disturbed
	Ck*	10**	gS		
5	Ap	0-20	L/fSL	Well	Disturbed/Caledon
	AB	20-31	L/fSL		
	BMI	31-43	L/fSL		
	BM2*	43-60	L/fSL		
6	Ap	0-20	L/fSL	Well	Caledon
	Bm*	20-28	L/fSL		
7	Ap	0-20	L/fSL	Well	Caledon
	Bm*	20-31	L/fSL		
8	Ap	0-20	L/fSL	Well	Caledon
	Bm*	20-33	L/fSL		
9	Ap	0-20	L/fSL	Well	Caledon
	Bm*	20-28	L/fSL		
10	Ap	0-20	L/fSL	Well	Caledon
	Bm*	20-28	L/fSL		
11	Ap	0-20	L/fSL	Well	Caledon
	Bm*	20-28	L/fSL		
12	Apk	0-15	L/fSL	Well	Caledon
	Bmk*	15	L/fSL		
13	Ap	0-20	L/fSL	Well	Caledon
	Bm*	20-28	L/fSL		
14	Ap	0-20	L/fSL	Well	Caledon
	Bm*	20-37	L/fSL		
15	Apk	0-20	L/fSL	Well	Caledon
	Bmk*	20-25	L/fSL		
16	Ap	0-21	L/fSL	Well	Caledon
	Bm*	21-28	L/fSL		
17	Ap	0-21	L/fSL	Well	Caledon
	Bm1	21-38	L/fSL		
	Bm2	38-42	L/fSL		
18	Ap	0-18	L/fSL	Well	Caledon
	Bm*	18-25	L/fSL		
19	Ap	0-20	L/fSL	Well	Caledon
	Bm*	20-29	L/fSL		
20	Ap	0-20	L/fSL	Well	Caledon
	Bm*	20-27	L/fSL		
21	Ap	0-20	L/fSL	Well	Caledon
	Bm*	20-25	L/fSL		
22	Ap	0-20	L/fSL	Well	Caledon
	Bm*	20-29	L/fSL		
23	Ap	0-20	L/fSL	Well	Caledon
	Bm*	20-25	L/fSL		
24	Ap	0-20	L/fSL	Well	Caledon
	Bm*	20-28	L/fSL		

Soil Inspection Site Number	Horizon	Depth of Horizon (cm)	Soil Texture	Drainage Class	Soil Series
25	Ap	0-20	L/fSL	Well	Caledon
	Bm*	20-28	L/fSL		
26	Ap	0-20	L/fSL	Well	Caledon
	Bm*	20-28	L/fSL		
27	Ap	0-20	L/fSL	Well	Caledon
	Bm*	20-28	L/fSL		
28	Ap	0-20	L/fSL	Well	Caledon
	Bm*	20-28	L/fSL		
29	Ap	0-20	L/fSL	Well	Caledon
	Bm*	20-28	L/fSL		

Notes:

L = Loam, SL = Sandy Loam, fSL = fine Sandy Loam

- A horizons are the surface materials often with the greatest percent of organic material
- B horizons are generally beneath the A horizon and show slight soil formation (ie: increases in clay and organic content)
- C horizons are generally beneath the B horizon and show little to no soil profile/horizon formation

* = refusal

APPENDIX B

Photographs



Photograph illustrating standing water on the floor of the old aggregate pit area.



Photograph illustrating stone pile content in tree row.



Photograph illustrating area of steeply sloping lands (southern portion of the Subject Lands)



Photograph illustrating stone pile content in tree row.

APPENDIX C

Curriculum Vitae



DAVID B. HODGSON, B.Sc., P. Ag.
PRESIDENT – Senior Pedologist/Agrologist

EDUCATION

- B.Sc. (Agriculture), 1983-1987; University of Guelph, Major in Soil Science
- Agricultural Engineering, 1982-1983; University of Guelph.
- Materials Science Technology, 1981-1982; Northern Alberta Institute of Technology (NAIT), Edmonton, Alberta.

AREAS OF PROFESSIONAL EXPERIENCE

2000 to Present **Senior Pedologist/President. DBH Soil Services Inc., Kitchener, Ontario.**
Mr. Hodgson provides expertise in the investigation, assessment and resource evaluation of agricultural operations/facilities and soil materials. Dave is directly responsible for the field and office operations of DBH Soil Services and for providing advanced problem solving skills as required on an individual client/project basis. Dave is skilled at assessing soil and agricultural resources, determining potential impacts and is responsible for providing the analysis of and recommendations for the remediation of impacts to soil/agricultural/environmental systems in both rural and urban environments.

1992 to 2000 **Pedologist/Project Scientist. Ecologistics Limited, Waterloo, Ontario.**
As pedologist (soil scientist), Mr. Hodgson provided expertise in the morphological, chemical and physical characterization of insitu soils. As such, Mr. Hodgson was involved in a variety of environmental assessment, waste management, agricultural research and site/route selection studies.
Dave was directly responsible for compiling, analysis and management of the environmental resource information. Dave is skilled at evaluating the resource information utilizing Geographic Information System (GIS) applications.

Dave was also involved the firms Environmental Audit and Remediation Division in the capacity of: asbestos identification; an inspector for the remediation of a pesticide contaminated site; and an investigator for Phase I and Phase II Audits.

SELECT PROJECT EXPERIENCE

Environmental Assessment Studies

- Agricultural Component of the Highway 6 Widening Hamilton 2022 – ongoing.
- Agricultural Component of the Bradford Bypass (Highway 400 to 404 link) 2021 – ongoing.
- Agricultural Component of the Green for Life (GFL) Environmental, Moose Creek, Eastern Ontario Waste Handling Facility (EOWHF) Expansion, 2020 – 2023.
- Agricultural Component of the Greater Toronto Area West (GTAW) Highway 413 Corridor Assessment, 2019 – ongoing.
- Peer Review of the Walker Environmental Group (WEG) Inc. Southwestern Landfill Proposal, Ingersoll, 2013 – 2021.
- Agricultural Component for the High-Speed Rail Kitchener to London –Terms of Reference, 2018,
- Agricultural Component of the Mount Nemo Heritage District Conservation Study – City of Burlington, 2014 – 2015.
- Agricultural Component of the Greater Toronto Area West (GTAW) Highway Corridor Assessment – Phase 2, 2014 – 2016.
- Peer Review of the Agricultural Component of the Walker Group Landfill – Ingersoll, 2013 – 2015.
- Agricultural Component of the Highway 407 East Extension Design and Build Phase, 2012 – 2013.



- Agricultural Component of the Beechwood Road Environmental Centre (Landfill/Recycling) – Napanee, 2012 – 2013.
- Agricultural Component of the Clean Harbors Hazardous Waste Landfill Lambton County 2009 – 2015.
- Agricultural Component of the Highway 401 widening Cambridge to Halton Region 2009 – 2012.
- Agricultural Component of the Upper York Sanitary Sewer Study, York Region, 2009 – 2013.
- Agricultural Component of the Greater Toronto Area West Corridor Environmental Assessment Study 2007 – 2013 (Phase I).
- Agricultural Component of the Niagara to GTA Planning and Environmental Assessment Study, 2007 – 2013.
- Agricultural Component of the Highway 401 widening, Chatham, 2006 - 2007.
- Agricultural Component of the Trafalgar Road study, Halton Region, 2005.
- Agricultural Component of the Highway 404 Extension North, 2004.
- Agricultural Component of the Highway 404 – 400 Bradford Bypass, 2004.
- Agricultural Component of the Highway 407 East Extension, 2002 – 2010.

Agricultural Impact Assessment/Minimum Distance Separation Studies

- Town of King Battery Energy Storage System (BESS) Agricultural Impact Assessment, 2023.
- City of London Agricultural Impact Assessment, 2023 - ongoing
- Caledonia Secondary Plan Agricultural Impact Assessment, 2023.
- Inglewood Well Agricultural Impact Assessment, 2023 – ongoing.
- Orangeville Battery Energy Storage System (BESS) Agricultural Impact Assessment, 2023.
- County Road 109 Realignment Agricultural Impact Assessment, 2023 – ongoing.
- Thornbury Acres Agricultural Impact Assessment, 2022 – 2023.
- Highway 6 Widening Hamilton Agricultural Impact Assessment, 2022 – ongoing.
- Whistle Bare Pit Agricultural Impact Assessment, 2022.
- Middletown Road Agricultural Impact Assessment, 2022.
- Claremont Minimum Distance Separation, Durham Region. 2022.
- Grand Valley Settlement Area Boundary Expansion 2022 -ongoing.
- Hagersville Minimum Distance Separation, 2022.
- East River Road Minimum Distance Separation, County of Brant, 2022.
- Brampton Brick Norval Quarry, Agricultural Impact Assessment, 2022 – ongoing.
- Northfield Drive Minimum Distance Separation, Waterloo Region, 2021
- Bradford Bypass Highway 400- 404 Link, Agricultural Impact Assessment, 2021 – ongoing.
- Wilfrid Laurier Milton Campus, Agricultural Impact Assessment, 2021 – 2023.
- Town of Lincoln Road Realignment, Agricultural Impact Assessment, 2021 – 2023.
- Britannia Secondary Plan, Agricultural Impact Assessment, Milton, 2021 – 2023.
- Reesor Road Minimum Distance Separation, Markham, 2021.
- Maclean School Road Minimum Distance Separation, County of Brant, 2021.
- Petersburg Sand Pit, Agricultural Impact Assessment, 2021 – 2022.
- Milton, CRH Quarry Expansion, Agricultural Impact Assessment, 2020 – 2022.
- Grimsby, Specialty Crop Area Redesignation, Agricultural Impact Assessment, 2020 - 2022.
- Halton Hills, Premier Gateway Phase 2 Employment Lands Secondary Plan, Agricultural Impact Assessment, 2020 - 2021.
- Milton Education Village Secondary Plan, Agricultural Impact Assessment, 2020 - 2021.
- Woodstock, Pattullo Avenue Realignment, Agricultural Impact Assessment, 2020 - 2021.
- Smithville, West Lincoln Master Community Plan, Agricultural Impact Assessment, AECOM, 2019 – 2022.
- Kirby Road Agricultural Impact Assessment, HDR, Vaughan, 2019 – 2021.
- Elfrida Lands, City of Hamilton, Agricultural Impact Assessment Update, WSP, 2019 – 2021.
- Dorsay Development – Durham Region High Level Agricultural Assessment, 2019.
- Stoney Creek Landfill AIA Update – GHD, 2019.
- Town of Wilmot, Agricultural Impact Assessment (AIA) Aggregate Pit Study (Hallman Pit), 2018, on-going.



- Courtice Area South East Secondary Plan (Clarington) Agricultural Impact Assessment (AIA), 2019,
- Town of Halton Hills, Minimum Distance Separation (MDS 1), August 2018,
- Cedar Creek Pit/Alps Pit (North Dumfries), Agricultural Impact Assessment (AIA), 2018 – 2021,
- Belle Aire Road (Simcoe County) Agricultural Impact Assessment (AIA) Study, 2019,
- Vinemount Quarry Extension (Niagara) Agricultural Impact Assessment (AIA) Study, December 2017.
- Grimsby – Agricultural Impact Assessment Opinion, November 2017.
- City of Hamilton, Urban Core Developments – Agricultural Capability Assessment, February 2017.
- Township of North Dumfries – Minimum Distance Separation (MDS 1), February 2017.
- Township of Erin, County of Wellington – Minimum Distance Separation 1 (MDS1 Study), 2016.
- Halton Hills Employment Area Secondary Plan, Halton, 2015 - 2016.
- Peer Review of Agricultural Impact Assessment, Oro-Medonte Township, 2015.
- Greenwood Construction Aggregate Pit, Mono Township, 2014 - 2015.
- Innisfil Mapleview Developments, Town of Innisfil – Minimum Distance Separation (MDS 1), 2014.
- Loyalist Township – Minimum Distance Separation (MDS 1 & 2), 2014.
- Rivera Fine Homes, Caledon – Minimum Distance Separation (MDS 1), 2014.
- Town of Milton PanAm Velodrome – Minimum Distance Separation (MDS) 2012 – 2013.

Soil Surveys/Soil Evaluations

- Soil Survey and Canada Land Inventory Evaluation, Pinehurst Road, 2023.
- Soil Survey and Canada Land Inventory Evaluation, Paris Plains Church Road Site, 2022.
- Soil Survey and Canada Land Inventory Evaluation, Mulmur Site, 2022.
- Soil Survey and Canada Land Inventory Evaluation, Port Colborne Site, 2022.
- Soil Survey and Canada Land Inventory Evaluation, Pike Site, 2022.
- Soil Survey and Canada Land Inventory Evaluation, New Dundee Road Site, 2022.
- Soil Survey and Canada Land Inventory Evaluation, Gehl Farm, 2022
- Soil Sampling, City of Kitchener, 2021 – 2022.
- Soybean Cyst Nematode Soil Sampling, Enbridge, 2021.
- Soil Survey and Canada Land Inventory Evaluation, Max Becker Enterprises, City of Kitchener, 2021
- Soil Survey and Canada Land Inventory Evaluation, Max Beck Enterprises, City of Kitchener, 2021 – 2022.
- Soil Survey and Canada Land Inventory Evaluation, Burlington, Nelson Quarry, 2020-2021.
- City of Kitchener, City Wide Soil Studies, 2020-ongoing.
- Soil Survey, Fallowfield Drive, City of Kitchener Development Manual Study, 2020 - ongoing.
- Soil Survey, Williamsburg Estates, City of Kitchener Development Manual Study, 2020 - 2021.
- Soil Survey, South Estates, City of Kitchener Development Manual Study, 2020 - 2021.
- Soil Survey and Canada Land Inventory Evaluation, Burlington, Nelson Quarry, 2019.
- Soil Survey and Canada Land Inventory Evaluation, Maryhill Pit, 2019.
- Soil Survey and Canada Land Inventory Evaluation, Glen Morris Pit, Lafarge Canada, 2018,
- Soil Survey and Canada Land Inventory Evaluation, Brantford Pit Extension, Lafarge Canada, 2018,
- Soil Survey and Canada Land Inventory Evaluation, Pinkney Pit Extension, Lafarge Canada, May 2018,
- Soil evaluation and opinion, King-Vaughan Road, March 2018,
- Soil Sampling, Upper Medway Watershed, Agriculture and Agri-Food Canada. December 2017 – June 2018.
- Soil Survey and Canada Land Inventory Evaluation, Hillsburgh Pit Extension, SBM St Marys, December 2017.
- Soil Survey and Canada Land Inventory Evaluation, Erin South Pit Extension, Halton Crushed Stone, December 2017.
- City of Kitchener, City Wide Urban Soil Assessments, 2016 – On-going.
- Soil Survey and Canada Land Inventory Evaluation, Solar Feed-In Tariff (FIT) Program Study, 2016.
 - Bruce County (15 sites)
 - Grey County (4 sites)
- Soil Survey and Canada Land Inventory Evaluation, Wasaga Beach area, County of Simcoe, 2016.
- Soil Survey and Canada Land Inventory Evaluation Study, MHBC Bradford, Simcoe County, 2016.
- Soil Survey and Canada Land Inventory Evaluation, Solar Feed-In Tariff (FIT Program Study), Carbon Foot Print



Offsetters, Durham Region, 2015.

- Soil Survey and Canada Land Inventory Evaluation, Solar Feed-In Tariff (FIT Program Study), Abundant Solar Energy (12 Sites – Peterborough, Madoc, Havelock, Belleville), 2015.
- Soil Survey and Canada Land Inventory Evaluation, Solar Feed-In Tariff (FIT Program Study), City of Hamilton, 2015.

Municipal Comprehensive Review and Mapping Studies (MCR)

- Bruce County 2022 – 2023.
- Simcoe County, 2020 - ongoing.
- Northumberland County, 2020 - ongoing.
- Halton Region, 2019 - 2022.

Land Evaluation and Area Review Studies (LEAR)

- Mapping Audit Bruce County. Assessment of Prime and Non-Prime Agricultural Lands, 2022.
- Mapping Audit Northumberland County. Comparison of Regional and Provincial Prime Agricultural Area Mapping – 2021 - ongoing.
- Mapping Audit Simcoe County. Comparison of Regional and Provincial Prime Agricultural Area Mapping – 2021 - ongoing.
- Mapping Audit Halton Region. Comparison of Regional and Provincial Prime Agricultural Area Mapping – 2019 - 2022.
- Land Evaluation and Area Review – Soils Component, in Association with AgPlan Ltd, Kanata/Munster. December 2017 – July 2018.
- Land Evaluation and Area Review – Soils Component, Prince Edward County, 2016 – 2017.
- Land Evaluation and Area Review – Soils Component, Peel Region, 2013 - 2014.
- Land Evaluation and Area Review, Minto Communities, Ottawa, 2012 – 2013.
- GIS and LE component of Land Evaluation and Area Review, York Region 2008 – 2009.
- Land Evaluation and Area Review, Mattamy Homes, City of Ottawa – Orleans, 2008 – 2009.
- GIS for Manitoba Environmental Goods and Services (EG&S) Study. 2007 – 2008.
- GIS and LE component of Land Evaluation and Area Review, Halton Region 2007 - 2008.
- GIS and LE component of Land Evaluation and Area Review, City of Hamilton, 2003 – 2005.

Expert Witness

- Local Planning Appeal Tribunal (LPAT) Hearing, Greenwood Aggregates Limited, Violet Hill Pit Application, 2020.
- Ontario Municipal Board (OMB) Hearing, Burl's Creek Event Grounds 2018-2019.
- Town of Mono Council Meeting, Greenwood Aggregates Violet Hill Pit, January 2018.
- Ontario Municipal Board (OMB) Hearing, Burl's Creek Event Grounds, Simcoe County, 2015 – 2016.
- Ontario Municipal Board (OMB) Hearing, Town of Woolwich, Gravel Pit, 2012 – 2013.
- Ontario Municipal Board (OMB) Hearing, Mattamy Homes – City of Ottawa, 2011 – 2012.
- Ontario Municipal Board (OMB) Hearing, Town of Colgan, Simcoe County, 2010.
- Presentation to Planning Staff on behalf of Mr. MacLaren, City of Ottawa, 2005.
- Ontario Municipal Board (OMB) Hearing, Flamborough Severance, 2002.
- Preparation for an Ontario Municipal Board Hearing, Flamborough Golf Course, 2001.
- Ontario Municipal Board (OMB) Hearing, Stratford RV Resort and Campground – Wetland Delineation Assessment, 2000.
- Ontario Municipal Board (OMB) Hearing, Watcha Farms, Grey County, Agricultural Impact Assessment – Land Use Zoning Change, 1999-2000.
- Ontario Municipal Board (OMB) Hearing, Town of St. Vincent Agricultural Impact Assessment – Land Use Zoning Change, 1999 – 2000.
- Halton Agricultural Advisory Committee (HAAC), Halton Joint Venture Golf Course Proposal - Agricultural Impact Assessment for Zoning Change, 1999-2000
- Halton Agricultural Advisory Committee (HAAC), Sixteen Mile Creek Golf Course Proposal – Agricultural



Impact Assessment for Zoning Change, 1999.

- Ontario Municipal Board (OMB) Hearing, Town of Flamborough, Environs Agricultural Impact Assessment for Zoning Change – Golf Course Proposal, 1999.
- Ontario Municipal Board (OMB) Hearing, Stratford RV Resort and Campground – Agricultural Impact Assessment, 1998.

Monitoring Studies

- Ontario Stone, Sand, and Gravel Association (OSSGA) Rehabilitation Study, 2023 – ongoing.
- Enbridge Soil Sampling for Soybean Cyst Nematode, various sites Lambton County, 2022
- Union Gas/Enbridge Gas 20” Gas Pipeline Construction Monitoring – Kingsville – 2019 - 2020.
- Union Gas/Enbridge Gas – Gas Pipeline Construction Monitoring for Tree Clearing. Kingsville Project. February/March 2019.
- CAEPLA – Union Gas 36” Gas Pipeline Construction Monitoring and Post Construction Clean Up – Agricultural Monitoring Panhandle Project. 2017 – 2018.
- CAEPLA – Union Gas 36” Gas Pipeline Construction Clearing Panhandle Project (Dawn Station to Dover Station) – Agricultural Monitoring, 2017 (Feb-March).
- City of Kitchener, Soil Sampling and data set analysis, 2017 – On-going.
- GAPLO – Union Gas 48” Gas Pipeline (Hamilton Station to Milton) Construction Soil and Agricultural Monitoring, 2016 – 2017.
- GAPLO – Union Gas 48” Gas Pipeline (Hamilton –Milton) Clearing – Agricultural Monitoring, 2016.

Publications

D.E. Stephenson and D.B. Hodgson, 1996. Root Zone Moisture Gradients Adjacent to a Cedar Swamp in Southern Ontario. In Malamoottil, G., B.G. Warner and E.A. McBean., *Wetlands Environmental Gradients, Boundaries, and Buffers*, Wetlands Research Centre, University of Waterloo. Pp. 298.

APPENDIX C | Curriculum Vitae – Pierre Chauvin, BSc(Agr), MA, MCIP, RPP



EDUCATION

1997

Masters of Arts, Regional Planning and Resource Development
University of Waterloo

1993

Bachelor of Science in Agriculture
University of Guelph

CONTACT

540 Bingemans Centre Drive,
Suite 200
Kitchener, ON N2B 3X9
T 519 576 3650 x 701
F 519 576 0121
pchauvin@mhbcpplan.com
www.mhbcpplan.com

CURRICULUM VITAE

Pierre Chauvin, BSc(Agr.), MA, MCIP, RPP

Pierre Chauvin joined the firm as a Planner in 1998. Mr. Chauvin provides urban and rural planning analysis and research services for public and private sector projects across Ontario.

His professional activities include project management, community planning, and land development. Pierre's experience ranges from residential and commercial development, environmental and recreational planning and resource management.

Pierre also has specific expertise in rural and agricultural planning. He has prepared agricultural impact assessments as part of settlement area expansions and development proposals. He also has experience with MDS and the Nutrient Management Act, and has provided expert agricultural and planning evidence at the Ontario Municipal Board and other tribunals.

Pierre holds a Masters degree in Regional Planning and Resource Development and a Bachelor of Science in Agriculture degree with a major in Natural Resources Management. Pierre is also a full member of the Canadian Institute of Planners and Ontario Professional Planners Institute.

PROFESSIONAL ASSOCIATIONS

Full Member, Canadian Institute of Planners
Full Member, Ontario Professional Planners Institute
Past Member, Committee of Adjustment for the Township of Centre Wellington
Past Member (Build Committee), Habitat for Humanity - Centre Wellington
Past Member, Grand River Conservation Authority, Recreation Working Group
Past Vice-Chair, Village of Elora Planning Advisory Committee
Past Member, Heritage Centre Wellington Committee (LACAC)
Past Board of Directors, Guelph & District Homebuilders' Association
Past Chair of the Industry Luncheon Committee, Guelph & District Homebuilders' Association
Member of the Waterloo Region Homebuilders' Association Liaison Committee with the Region of Waterloo
Member of the Waterloo Region Homebuilder's Association Liaison Committee with the Townships of Woolwich and Wilmot
Member of the Guelph & District Homebuilders' Association Liaison Committee with the Grand River Conservation Authority

CURRICULUM VITAE

Pierre Chauvin, BSc(Agr.), MA, MCIP, RPP

PROFESSIONAL HISTORY

- 2013 – Present Partner,
MacNaughton Hermsen Britton Clarkson Planning Limited
- 2004 - 2013 Associate,
MacNaughton Hermsen Britton Clarkson Planning Limited
- 1998 - 2004 Planner,
MacNaughton Hermsen Britton Clarkson Planning Limited
- 1997 - 1998 Assistant Planning Officer,
Upper Grand District School Board
- 1993 - 1995 Research Assistant (Nutrient Management),
Land Resource Science Department, University of Guelph

SELECTED PROJECT EXPERIENCE

Agricultural/Rural Planning

Project planner to undertake a review of the Minimum Distance Separation formulae for the Region of Peel and Town of Caledon as part of their LEAR Study.

Review and provided opinion to the Township of Guelph-Eramosa regarding the revised Minimum Distance Separation Formulae.

Project planner for the preparation of an agricultural assessment of potential growth areas as part of the City of Brantford Growth Strategy/Official Plan Review.

Preparation of agricultural impact statements/assessments including MDS I & II assessments on behalf of various private sector clients in support of development and aggregate applications.

Preparation of an agricultural assessment on behalf of the Township of Guelph/Eramosa to explore the feasibility and potential of a dual Agricultural/Rural designation approach in the Official Plan.

CONTACT

540 Bingemans Centre Drive,
 Suite 200
 Kitchener, ON N2B 3X9
 T 519 576 3650 x 701
 F 519 576 0121
 pchauvin@mhbcplan.com
 www.mhbcplan.com

CURRICULUMVITAE

Pierre Chauvin, BSc(Agr.), MA, MCIP, RPP

Parks & Recreation

Project lead and consultant to the City of Port Colborne to complete a Parks and Recreation Master Plan.

Project lead and consultant to the Town of Collingwood to complete a Parks and Recreation Master Plan.

Project lead and consultant to the Town of Grimsby to complete a Parks and Recreation Master Plan.

Project lead and consultant to the City of Kitchener to undertake a Business Case for the Doon Pioneer Park Community Centre Expansion.

Project lead and consultant to the Town of Cobourg for the Cobourg Community Centre and YMCA Northumberland Joint Facility Needs Assessment.

Project lead and consultant to the Town of Cobourg for the preparation a Recreation Strategy and Implementation Plan.

Project Lead and Consultant to the Town of Caledon in the preparation of a Parks and Recreation Visioning Plan.

Consultant to the Township of West Lincoln in the preparation of a Parks and Recreation Master Plan.

Project planner, Township of Guelph-Eramosa Parks, Recreation and Culture Master Plan.

Source Water Protection

Prepared Official Plan Amendment and policies as well as implementing Zoning By-law to implement the Source Water Protection Plan policies for the Counties of Norfolk, Elgin and Middlesex.

Prepared Official Plan Amendment and policies to implement the Source Water Protection Plan policies for the County of Wellington.

CONTACT

540 Bingemans Centre Drive,
Suite 200
Kitchener, ON N2B 3X9
T 519 576 3650 x 701
F 519 576 0121
pchauvin@mhbcpplan.com
www.mhbcpplan.com

CURRICULUMVITAE

Pierre Chauvin, BSc(Agr.), MA, MCIP, RPP

Consultant to Grand River Conservation Authority, County of Wellington and County of Perth in the development of Source Water Protection water quality policies for the Lake Erie Region Source Protection Plan.

Prepared Official Plan Amendment and policies to implement the Groundwater Protection Strategy for the County of Wellington.

Official Plan/Zoning By-laws

Project lead and consultant for the preparation of an Official Plan Update for the Municipality of Kincardine.

Project lead and consultant to the Municipality of Kincardine for the preparation of a Comprehensive Zoning By-law Review (on-going).

Project lead and consultant to the Township of Huron-Kinloss for the preparation of a Comprehensive Zoning By-law Review.

Project lead and consultant for the preparation of an Official Plan Update for the Township of Huron-Kinloss.

Project lead and consultant to the County of Norfolk to prepare an Issues and Report for the Hastings Drive Zoning By-law Study.

Project planner for preparation of a Consolidated Zoning By-law for the City of Kawartha Lakes (involved consolidating 17 By-laws).

Special Studies & Other

Consulting planner for the County of Perth to review and process planning applications.

Consulting planner for the County of Bruce to review Consent and Minor Variance applications for the Lakeshore and Peninsula Hubs.

Consulting planner for the City of Stratford to review and process select development applications.

Project planner for the Municipality of North Perth to complete a Secondary Plan and Master Servicing Plan for North-East Listowel (on-going).

CONTACT

540 Bingemans Centre Drive,
Suite 200
Kitchener, ON N2B 3X9
T 519 576 3650 x 701
F 519 576 0121
pchauvin@mhbcpplan.com
www.mhbcpplan.com

CURRICULUM VITAE

Pierre Chauvin, BSc(Agr.), MA, MCIP, RPP

Project Lead and planner for the Upper Grand District School Board for the approval of new secondary school in the City of Guelph.

Consultant to the Upper Grand District School Board regarding the justification and approval of a new secondary school in the Township of Centre Wellington, including a settlement area expansion.

Consultant to the Huron-Perth Catholic District School Board regarding the justification and approval of a new elementary school in the Town of North Perth, including an agricultural impact assessment for a proposed expansion of the settlement boundary to accommodate the school.

Justification of an urban expansion in the former Town of Listowel (Municipality of North Perth) and preparation of a Plan of Subdivision for a 50 acre property. The justification included an assessment of agricultural impacts and servicing considerations.

Consultant to the City of Woodstock regarding the justification and approval of the East Woodstock Secondary Plan & Design Study. Prepared Official Plan Amendment and policies to implement the Secondary Plan.

Consultant to the Town of North Perth on the Southeast Listowel Community Plan.

Project planner providing planning services to the Township of Guelph-Eramosa. Review of applications, and preparation and presentation of planning reports to Council.

Review and/or preparation of numerous planning approvals relating to draft plan of subdivisions, draft plan of condominiums, site plans, Official Plan amendments, Zoning By-law amendments, consents and minor variances throughout the Region of Waterloo, the Counties of Wellington, Perth, Bruce, Oxford, Huron and surrounding areas.

Advisor to various aggregate producers regarding the review of new Official Plan policies in the Region of Durham and County of Oxford.

Project Planner to the Aggregate Producers' Association of Ontario on the review of the Oak Ridges Moraine Conservation Plan.

CONTACT

540 Bingemans Centre Drive,
Suite 200
Kitchener, ON N2B 3X9
T 519 576 3650 x 701
F 519 576 0121
pchauvin@mhbcpplan.com
www.mhbcpplan.com

CURRICULUM VITAE

Pierre Chauvin, BSc(Agr.), MA, MCIP, RPP

Coordinating the design and preparation of site plans under the Aggregate Resources Act. Research and preparation of Planning Reports and Aggregate Resources Act Reports for license and permit applications, including work for companies such as Lafarge Canada, Dufferin Aggregates, Federal White Cement and Beachville Lime Limited.

AWARDS / PUBLICATIONS / PRESENTATIONS

- | | |
|------|--|
| 2017 | Designing Public Spaces to Support Vibrant Communities – Presentation on Park Land Dedication and Implications of Bill 73, September 15, 2017 |
| 2012 | OPPI – Southwest District – Presentation on Source Water Protection Planning and Implementation, October 25, 2012 |
| 2012 | Ontario Sand and Gravel Association – Presentation on Implications of Source Water Protection on Aggregate Operations, November 8, 2012. |
| 2004 | B. Hermsen and P. Chauvin, 2004. Elementary Schools and Residential Absorption Rates in New Neighbourhoods. Spring 2004 Ontario Expropriation Association Newsletter. |
| 2003 | Nutrient Management Act - Presentation to the Municipal Law Seminar Series, in co-operation with Kearns McKinnon LLP, February 26, 2003. |
| 1997 | Planning and Development of Recreational Trails on Private Lands: A Case Study of the Grand Valley Trails Association. Unpublished M.A. Thesis, School of Urban and Resource Development Planning, Faculty of Environmental Studies, University of Waterloo, Ontario • |

CONTACT

540 Bingemans Centre Drive,
 Suite 200
 Kitchener, ON N2B 3X9
 T 519 576 3650 x 701
 F 519 576 0121
pchauvin@mhbcpplan.com
www.mhbcpplan.com