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AGRICULTURAL IMPACT ASSESSMENT

Lafarge Canada Inc.
Brantford Pit Expansion
County of Brant

Date:

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Prepared for:

Lafarge Canada Inc.

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1.0 INTRODUCTION

MacNaughton Hermsen Britton Clarkson Planning Ltd. has been retained by Lafarge Canada Inc. ("Lafarge") to complete an Agricultural Impact Assessment for a proposed expansion to their existing aggregate extraction operation ("Brantford Pit") on lands located on the south side of Colborne Street West, west of the City of Brantford, in the County of Brant. The property is legally described as Subdivision Lot 12, Concession 5, County of Brant and known municipally as 1044Colborne Street West, Brantford (see **Figure 1 – Property Location**).

The area proposed to be licenced is approximately 19.9 hectares (49 acres), with approximately 16.8 hectares (42 acres) proposed for extraction. The pit is proposed to operate below the water table. The majority of the lands are currently used for agriculture (cash crop production), with a small portion occupied by a rural residential dwelling and accessory structures. The surrounding lands include the licenced pit by Lafarge, rural residential dwellings along Colborne Street West and agricultural uses.

The proposed development will include the submission of a Licence Application to the Ministry of Natural Resources and Forestry (MNRF) for an Aggregate Resources Act (ARA) Category 1, Class "A" pit operation. An Official Plan Amendment and Zoning By-Law Amendment submitted to the County of Brant are also required.

The Growth Plan for the Greater Golden Horseshoe (2017)("Growth Plan") requires that an Agricultural Impact Assessment (AIA) be undertaken for new aggregate operations located in prime agricultural areas (Section 4.2.8.3):

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

This Report is intended to satisfy the requirements of the Growth Plan and has been prepared to be consistent with the Province's *Draft Agricultural Impact Assessment*, released in March 2018 by the Ministry of Agriculture, Food and Rural Affairs.

1.1 Data Collection and Review

In preparing this report, the following policy documents were reviewed:

- Provincial Policy Statement (2020)
- Greenbelt Plan (2017)
- County of Brant Official Plan (2012)
- County of Brant Aggregate Resource Guide (2015)

- County of Brant Comprehensive Zoning By-Law 61-16
- Agricultural System for the Greater Golden Horseshoe
    - Agricultural System Portal
    - Implementation Procedures for Agricultural System in Ontario's Greater Golden Horseshoe

A number of technical reports and studies and a Site Plan have been prepared for the proposed Brantford Pit expansion *Aggregate Resources Act* and *Planning Act* applications. Below is a list of reports that were also reviewed as part of the preparation of this Agricultural Impact Assessment:

- Natural Environment Level 1 and 2;
- Hydrogeology Level 1 and 2;
- Air Quality Assessment;
- Noise Assessment;
- Planning Justification Report and ARA Summary Statement;
- Scoped Traffic Impact Study;
- Site plans including Existing Conditions Plan, Operational Plan and Rehabilitation Plan;

In addition to the plans and reports that were specifically prepared in support of the ARA application, the following materials were also reviewed:

- 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;
- AgMaps Geographic Information Portal
- Aerial photography (historic and recent) with effective user scale of 1:10,000 or smaller;
- Parcel mapping/fabric of the area;
- Review of 2016 Agricultural Census Data; and,
- Existing Brantford Pit (ARA #5515).

A land use survey was conducted in July 2020 and information gathered from Google Satellite Imagery (February 2018) was utilized to gain a better understanding of the agricultural operations and activities on and surrounding the lands. A summary of the agricultural land use survey is provided in Section2.0 of this report. The potential for impacts on surrounding agricultural uses 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 Location of Proposed Aggregate Extraction Operation

The existing Lafarge Brantford Pit is located at 1044 Colborne Street West (Part Sub Lot 12, Concession 5, City of Brantford, County of Brant) approximately 8.4 kilometres west of Brantford. The main entrance of the existing pit is from Colborne Road West at the northern limit of the property. The property is located southwest of the Brantford airport, east of Highway 24. Current on-site processing includes washing, crushing and screening. The extension lands are located adjacent to the Lafarge Brantford Pit to the west. The proposed licence area will be approximately 19.9 ha with a limit of extraction of 16.8 ha. Extraction is proposed to occur above and below the established water table.

The entirety of the proposed area to be Licenced consists of actively farmed agricultural crop land (corn during the growing season of 2018) (See **Figure 2 – Air Photo**). There is a residential dwelling located near the access to the subject lands, as well as a small barn, driving shed and remains of a greenhouse.

The topography of the subject property is relatively flat with a very slight rise towards the south. The property contains a small surface water feature in the form of a dug-out pond. There are no watercourses, wetlands, or agricultural drains on the property. There is some isolated vegetation located around the pond. The remaining area of the property is in agricultural production (corn in 2018).

1.3 Description of Proposal

Lafarge is submitting an Application for a Class A, Category 1 Licence under the *Aggregate Resources Act* for the proposed operation. Under the *Planning Act,* amendments to the County of Brant Official Plan and Zoning By-law are also required.

The proposed pit will serve as an extension to the existing Lafarge Brantford pit (Licence # 5515) and will be operated in conjunction with the existing pit located immediately to the east. The new Licence will include an annual tonnage limit of 1,000 000 tonnes per year. No increase in production between the existing Licence and the new Licence is proposed. The new Licence will utilize the existing entrance/exit onto Colborne Street West and the haul route for the existing Brantford pit. The expansion does not propose an increase to the annual permitted tonnage.

Both above and below water extraction will occur within the proposed Licence. The pit will be sequentially operated in a northerly direction in a total of three phases with concurrent above and below water table extraction occurring in each phase. Progressive rehabilitation of the side slopes and areas above the water table will closely follow each phase of extraction.

See **Figure 3 – Concept Plan** of this report, illustrating the proposed operation.

Because the pit will be operated in phases, the existing agricultural operations on the property will continue until such time as a new phase is extracted.

1.4 Purpose of the Study

The purpose of this Agricultural Impact Assessment is to evaluate the potential impacts on agriculture from the proposed aggregate extraction operation on the property and surrounding area and to identify mitigation measures to abate these impacts to the extent feasible.

In accordance with section 2.5.4.1 of the PPS, there is a substantial quantity of aggregate located below the water table; therefore, no agricultural rehabilitation of the pit is proposed. This is further outlined in section 4.0 of this Report.

As part of this AIA, surrounding agricultural land uses and structures on properties within 500m of the area proposed to be Licenced have been documented to assess the potential impact from the proposed aggregate expansion on existing 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 as part of this AIA to document and provide a more detailed assessment of the existing soil conditions within the area proposed to be Licenced. This soils information identifies the current agricultural capability of the soil to produce various types of crops.

2.0 STUDY AREA

The agricultural land use assessment completed as part of this AIA is based on a study area comprised of a 'Primary Study Area' and 'Secondary Study Area'. Generally, 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 approximately 120 metres from the subject lands.

The secondary study area includes the area that may be potentially affected by indirect impacts of the proposed operation and can range considerably based on the size and type of the aggregate operation. For the purposes of this assessment, a secondary study area of 500m from the subject lands has been used for this impact assessment. A plan identifying the adjacent properties, existing crops and all existing barns and residential structures within the study areas is included as **Figure 4 – Primary Study Area and Figure 5 – Secondary Study Area** of this report. The inventory of existing agricultural land uses, cropping practices and structures is based on observations made during a site visits completed in the summer of 2018 and 2020 and air photo interpretation.

2.1 Primary Study Area

As shown in **Figure 4**, the predominant land use within 120m of the proposed License boundary is agricultural (field crops) to the north, west and south and aggregate resource extraction to the east. Surrounding crops include soy and wheat (north), wheat and corn (west) and wheat and tobacco (south). The subject lands are located east of Highway 24, which accesses Highway 403 further north. The Brantford airport is located east of the lands, on Colborne Road West. East of the existing pit are rural residential dwellings, with a mix of industrial/commercial uses (landscaping company, school busses, etc.).

In July 2020 agricultural uses within the primary study area (120m) included:

North – Cropped land (Soy and Wheat in 2020; Tobacco in 2018)

South – Cropped land (Wheat and Tobacco in 2020; Corn in 2018)

West – Cropped land (Wheat in 2020; Ginseng in 2018). There is an existing farm including a rural residence, large driving shed, several kilns, both old and new (see Farm #2 photos on pg. 10). It is assumed the older kilns may have been used for tobacco production, which continues to be a prominent crop in this area due to the sandy soil conditions. The newer kilns may be used for the production of ginseng.

East – Existing Brantford Pit, rural residential dwellings, commercial/industrial uses along Colborne Street West.

The agricultural uses within the Primary Study Area are primarily cash-cropped land. No livestock or pasture areas are present within the primary study area. A total of three agricultural operations are located within the primary study area, and are described further below.

Farm #1: 1044 Colborne Street West (Subject Lands)

The lands proposed for expansion include five structures: a farmhouse, drive/equipment shed, small barn (assumed use: previous tobacco production), greenhouse and shed. Photos of each structure are included below. All buildings are not currently used for agricultural production and are in poor condition. These structures are proposed to be demolished as part of the Brantford Pit expansion.

Photograph 1: Farmhouse and greenhouse, 2018

Photograph 2: Wood clad drive shed at entrance of property, 2018

Photograph 3: Existing Bank Barn, 2018

Photograph 4: Metal clad drive shed located at rear or property, 2018)

A small portion of land fronting onto Colborne Street West was observed to be ploughed under during the 2018 site visit, and was not in crop production (see Photograph 5 below). The remaining portion of the property was in corn production.

Photograph 5: Portion of land not in crop production, 2018

Photograph 6: Corn production, 2018

The agricultural lands of the property are relatively flat, with a small pond area in the centre of the parcel (see the green circle in Photograph 7). The property is flanked on the west side by an existing agricultural operation and the existing Brantford Pit (east side).

Photograph 7: Aerial of 1044 Colborne St. West (Source: Google Earth)

Farm #2: 1052 Colborne Street West

This property abuts the proposed expansion lands along the west side. This property is used for agricultural production. The built area fronting onto Colborne Street West includes several structures, including residential dwelling, large drive shed, three greenhouses ranging in condition, three older kiln/barns, and fifteen newer kilns for tobacco/ginseng storage. Ancillary equipment is stored around the property.

Photograph 8: Aerial photo of 1052 Colborne Street West (Source: Google Earth)

The northern portion of the property is separated from the subject lands by a treed hedgerow (predominantly pine). The cropped area does not have a significant natural buffer from the subject lands and proposed expansion area.

Photograph 9: Barn and kilns at 1052 Colborne Street West

In 2018, there was Ginseng production located behind the built-up area of the property and runs parallel to the subject lands. In 2020, the property was in wheat production

Photograph 10: Ginseng production at 1052 Colborne Street West, 2018

Photograph 11: Ginseng Production, 2018

Farm #3: 1035 Colborne Street West

This property is located across from the subject lands, on Colborne Street West. The lands include a residential dwelling (potentially vacant), two drive/equipment sheds, twelve kilns for tobacco/ginseng storage, and a greenhouse (does not appear to be in use at this time). This property is surrounded by cash crop production including tobacco. Forage crops (hay) are located east of this property.

Photograph 12: Aerial photo of 1035 Colborne Street West

2.2 Secondary Study Area

The Secondary Study Area includes an area with a radius of 500 meters around the subject lands (see **Figure 5**). In addition to the existing aggregate extraction operation within the Primary Study Area, there are a number of active agricultural operations within the Secondary Study Area. A site visit was conducted in August 2018 and also in July 2020 and the following is a summary of the agricultural uses and structures within the Secondary Study Area that existed on the day of the field observations. Comments on physical characteristics of existing farm structures is based solely on roadside observations and not supported by any formal structural assessment.

Overall, it was observed that while the secondary study area is comprised mainly of large fields of cash crop production, there are few barns/agricultural structures within the 500 meter radius. The crops found in the secondary area include:

- Tobacco
- Ginseng[1]
- Soybeans
- Corn
- Wheat
- Fallow

Figure 5 illustrates the location and type of crops found in the secondary study area. Most structures within the 500 metre study area are located along Colborne Street and include residential dwellings and accessory structures. In most cases, it appears that these properties are not associated with surrounding agricultural operations. For example, no livestock was visible during the site visits and there does not appear to be other indicators of livestock (such as fencing, shelters, barns, etc.).

[1] No Ginseng was observed in 2020.

The lands south of the subject lands (predominantly tobacco, corn and wheat) are tile drained (tiling equipment visible north of Arthur Road and also mapped on Ontario's Agricultural Portal). Otherwise, the secondary study area is representative of normal cropping practices for this area.

2.3 Census of Agriculture, 2016

A review of the 2016 Census of Agriculture for the County of Brant 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.

A majority of farming in the County of Brant consists of typical cash crop production including oilseed and grain production (43.4%), followed by corn production (18.3%). Other crop farming (15.3%), which primarily includes the Hay (5.3%) and tobacco (3.5%) is also present in the area. The large amount of oilseed and grain farming is reflective of agricultural patterns throughout the County of Brant and southwestern Ontario more broadly.

In terms of parcel size, a majority of farms (30%) are within the 10 - 69 acre farm size, followed by 19.8% of farms falling in the 70 – 129 acre range[2]. 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 2011 from 137,543 acres to 139,429 acres representing an increase in crop land of 1.37%[3].

Based on the site visits, the agricultural activities within the Primary Study Area are indicative of broader agricultural trends in the County of Brant and south-western Ontario. The surrounding crops include typical cash crops such as soybeans and corn, as well as specialty crops such as Tobacco and Ginseng[4] (due to the presence of sandy soils throughout this area).

Overall, the Primary Study Area is representative of normal agricultural production for this area and do not consist of specialized farming practices or designated specialty crops.

[2] Census of Agriculture, 2016. Farms classified by total farm area: Table 32-10-0404-01
[3] Census of Agriculture, 2016. Farms classified by land use: Table 32-10-0406-01
[4] No Ginseng was observed in 2020

3.0 FIELD COLLECTION DATA

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 6 – Soil Mapping**), the property is comprised of Class 2 soils.

In order to confirm the soil type and classification and to help inform the rehabilitation plans, where applicable, 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 A** of this report. The on-site soil survey was conducted on September 18, 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 (The Soils of Brant County, Vol. 1 & 2, of the Ontario Institute of Pedology, C.J. Acton, 1989);
- 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.

A total of 22 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 7 – DBH Soil Mapping**.

The onsite soil survey revealed two soil series. The soil series were identified as Burford and Fox. An additional miscellaneous group was identified (for areas that have been disturbed). Burford soils tend to occur on gently sloping topography and typically consist of 15 to 20 cm of loam or silt loam, while Fox soils tend to indicate a significant increase in clay.

Based on the work completed by DBH, each polygon identified on-site was classified according to the Canada Land Inventory rating system and then correlated to the CLI classifications as presented in The Soils of Brant County, Vol. 1 & 2, of the Ontario Institute of Pedology, C.J. Acton, 1989 report.

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

Table 1– Canada Land Inventory of Subject Lands

Canada Land Inventory Class (CLI)	Area (ha/acres)	Percent Occurrence (%)
Class 1	-	-
Class 2	18.8/46.5	94.2
Class 3	-	-
Class 4	-	-
Class 5	-	-
Class 6	-	-
Class 7	-	-
Disturbed Soil Areas	1.2/2.8	5.8
Totals	20.0/49.4	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 (94%).

With regards to drainage on the properties, an evaluation was done by DBH through a correlation of observations noted during windshield surveys, aerial photographic interpretation and a review of the OMAFRA's Artificial Drainage System Mapping. Based on the information available, it does not appear that drainage systems are registered to either of the subject lands. Therefore, no additional investment in agriculture is associated with these lands.

The DBH analysis confirms that a majority of the subject lands is comprised of Class 2 soils. The presence of the Class 2 means that the subject lands are considered prime agricultural lands.

3.2 Soil Suitability and Microclimate for Specialty Crop Production

As part of the Soil Survey and Canada Land Inventory Classification by DBH, topographic information was reviewed and correlated to the Site Plan, the 1:10,000 scale Ontario Base Mapping, detailed soil survey assessment (utilizing a hand held clinometer), aerial photo interpretation and windshield surveys.

The Physiography of Southern Ontario Physiographic Unit Map identifies the subject lands as being located along the boundary between the Norfolk Sand Plains and the Horseshoe Moraines. Due to the location of the subject lands along the boundary between the two physiographic units, the lands will have characteristics of both physiographic units.

The subject lands are located within the 2900-3100 average accumulated Crop Heat Units (CH-MI) area 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 3000 near Windsor. The higher the CHU value, the longer the growing season and greater are the opportunities for growing value crops.

Although no portions of the subject lands were used for the production of specialty crop, soil capability for specialty crop ratings were reviewed for the soil series found on the subject lands. DBH's review of Special Crop ratings suggests that the soils with higher sand and gravel content are less well suited to the production of the listed special crops. Soils with surface textures of loamy sands and sandy loams are better suited for the production of special crops than the soils with higher sand and gravel content.

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 expansion 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 2020 Provincial Policy Statement (PPS) was issued under Section 3 of the Planning Act and came into effect on April 30, 2014. 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 2014 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."*

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.

As previously noted, based on the Canada Land Inventory mapping and the soil survey completed by DBH Soil Services Inc., 94% of the subject lands consist of Class 2 soils and a small portion is considered to be disturbed. The lands are designated as prime agricultural area under the Agricultural Land Base for the Greater Golden Horseshoe (See **Figure 8 – GGH Agricultural System Mapping**). In accordance with Section 2.3.2 of the PPS, the County of Brant designates the subject lands as Agricultural.

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 also permitted in prime agricultural areas in accordance with Policy 2.3.6 of the PPS.

Policy 2.3.6.1(a) provides that extraction of mineral aggregate resources is permitted in prime agricultural areas in accordance with policies 2.4 and 2.5 of the PPS. 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. Although the PPS 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 in Section 5.0 of 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 provided that rehabilitation of the site

will be carried out so that substantially the same areas and same average soil quality for agriculture are restored. This section of the PPS also states that 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 new licence is proposed to include below water table extraction and therefore rehabilitation to an agricultural use post-extraction is not feasible. Extraction is proposed to occur to a depth of 223 masl. Rehabilitation will include an open-water area of approximately 17.1 ha and slope setback areas that will be re-vegetated with native vegetation.

The vast majority of lands within Brant County are considered to be prime agricultural lands within a prime agricultural area and there are limited areas within the County of Brant for aggregate extraction that would avoid prime agricultural lands.

Geological investigations undertaken on the property indicate that there are substantial aggregate resources located above and below the water table on the property as outlined in further detail in the Planning Justification Report and Summary Statement, (MHBC 2020).

The property is located outside of a specialty crop area and does not include soils that would support speciality crop production[5].

As Lafarge is currently operating a below the water table aggregate operation directly to the east of the subject property, the subject property is the most is logical choice for a new Licence and will help minimize potential impacts to agriculture as the proposed pit is an expansion of an existing use and will not introduce 'new' impacts to agricultural operations through the use of the existing haul route and activities. Lafarge has chosen to expand operations into an adjacent property rather than another property located farther away. This allows for both Licences to be operated collectively utilizing the same processing equipment, entrance/exit, and existing haul route. The new licences will be operated as an expansion to the exiting pit which prevents further

[5]DBH Soil Survey and Canada Land Inventory Classification for Part Lot 12, Concession 5, County of Brant. October 12, 2018

fragmentation of agricultural land on landscape and facilitates the comprehensive rehabilitation of both properties.

As outlined in Section 5.0 of this Report, the proposed pit is not anticipated to have any negative impact on surrounding agricultural operations.

Given the foregoing, it is our opinion that aggregate extraction and the proposed rehabilitation plan to a water feature with naturalized side slopes is consistent with the agricultural policies of the PPS.

4.2 The Growth Plan for the Greater Golden Horseshoe

The Growth Plan for the Greater Golden Horseshoe ('Growth Plan') is the Government of Ontario's initiative to plan for growth and development in a way that supports economic prosperity, protects the environment, and helps communities achieve a high quality of life. A Place to Grow, Growth Plan for the Greater Golden Horseshoe was approved under the Places to Grow Act, 2005, and took effect on May 16, 2019 and is applicable to the subject lands. Any planning decisions made for lands in the Greater Golden Horseshoe growth plan area must conform to the policies of the Growth Plan.

The Growth Plan advocates for a balanced approach to the wise use and management of all resources, including those related to water, natural heritage, agriculture, cultural heritage, and mineral aggregates.

Policy 4.2.6 of the Growth Plan requires that the Province identify an *Agricultural System* for the Greater Golder Horseshoe and that *Prime agricultural areas*, including specialty crop areas, be designated in accordance with mapping identified by the Province and that these areas will be protected for long-term use for agriculture. This updated 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.

As shown in **Figure 8**, the subject lands are designated Prime Agricultural Area in provincial Agricultural Land Base mapping. Policy 4.2.6 also requires that where *agricultural uses* and non-agricultural uses interface outside of *settlement areas*, land use compatibility will be achieved by avoiding or where avoidance is not possible, minimizing and mitigating adverse impacts on the *Agricultural System*. Where mitigation is required, measures should be incorporated as part of the non-agricultural uses, as appropriate, within the area being developed.

Policy 4.2.8 (3) states that in *Prime Agricultural Area*, applications for new *mineral aggregate operations* will be supported by an *agricultural impact assessment*, and where possible, will seek to maintain or improve connectivity of the *Agricultural System*. As the proposed new Licence will serve as an expansion to the existing operation, fragmentation of the Agricultural System is

reduced. There are no key natural heritage features or key hydrologic features identified on the subject property.

Further Policy 4.2.8(4) requires that for new *mineral aggregate operations*, located outside of the *natural heritage system,* that final rehabilitation will appropriately reflect the long-term land use of the general area and in *Prime Agricultural areas* the site will be rehabilitated in accordance with policy 2.5.4 of the PPS (2014). As the proposed extraction of the subject lands will occur below the water table, in accordance with section 2.5.4.2 of the PPS, the Rehabilitation Plan for the Brantford Pit proposes to return a majority of the lands to an open-water area with naturalized side-slopes.

Policy 4.2.8.4 c) requires that aquatic areas remaining after extraction are to rehabilitated to aquatic enhancement, which will be representative of the natural ecosystem in that particular setting or ecodistrict. The rehabilitation of the pit to an open-water feature will include the creation of shallow water littoral zones, native shoreline plantings, and the creation of artificial fish habitat.

The proposed new licence is an expansion of the existing licensed pit (Licence no. 5515). The Level 1 and Level1 Hydrogeological Investigation (MTE, December 2018) determined that the new licence will not have any significant impacts on the quantity or quality of groundwater and surface water in the area. Although impacts are not anticipated, both a monitoring program and a Spill Contingency Plan are in place to prevent any potential impacts to the quantity and quality of groundwater and surface water resources.

The proposed ARA site plans prescribe extraction phases that ensure that the amount of disturbed area is minimized.

The proposed extraction and rehabilitation of the Lafarge Brantford Expansion pit conforms to the policies of the Growth Plan.

4.3 County of Brant Official Plan, 2012

The County of Brant Official Plan was adopted by the County of Brant in 2010 and approved by the Ministry of Municipal Affairs and Housing in 2012. The Official Plan designates the subject lands as "Agriculture".

The Official Plan recognizes that the Agricultural land base makes up a significant portion of the County and that the County is comprised of large areas of prime agricultural land and land that has considerable agricultural potential.

Policy 2.2.3 of the Official Plan identifies Agricultural Areas as areas that are intended to accommodate rural resource activities, including primarily agricultural, natural resource extraction, resource-based uses, and related uses.

Policy 2.2.3.4 indicates that the County's Agricultural Area is predominately prime agricultural land and is therefore considered a prime agricultural area in accordance with the PPS. This policy recognizes that the County's agricultural land base should be protected and the use of the land

should be predominately related to agriculture, with aggregate resource extraction as an important secondary use.

Policy 2.3.4.2 d) and e) of the Official Plan requires that where extraction is proposed on prime agricultural land, and within the Agriculture designation, rehabilitation of the site shall be carried out so that the same areas and the same average soil quality are restored.

Policy 2.3.4.2 f) identifies the criteria that must be satisfied where extraction is proposed below the water table and includes the policies of the PPS, in addition to, the requirement for a Permit To Take Water (PTTW) where more than 50,000 Liters a day of groundwater/surface water will be drawn as well as a hydrogeological study to assess the use of groundwater for aggregate washing.

Section 4.0 of this Report addresses the PPS tests for below the water table extraction in Prime Agricultural Land. As no washing will occur on site, a Permit to Take Water (PTTW) is not required.

The Official Plan recognizes that aggregate operations are an appropriate use in the agricultural area of the County. The proposed new pit Licence will minimize and mitigate impacts on adjacent and surrounding agricultural uses through measures outlined in the operational plan and summarized in Section5.0 of this Report.

4.4 County of BrantZoning By-Law

The subject property is zoned Agricultural Restrictive (AR) in the County's Zoning By-law. This zone permits a variety of agricultural and agricultural-related uses. The existing Lafarge Brantford Pit is zoned Extractive Industrial (EX). A zoning by-law amendment is required to permit the proposed extractive use of the subject property.

5.0 ASSESSMENT OF IMPACTS

As previously noted, limited non-agricultural uses such as mineral aggregate extraction are a permitted use in prime agricultural and secondary agricultural / rural areas in accordance with provincial policy and the County of Brant Official Plan. 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 expansion on the subject lands are assessed and reviewed in the following sections.

5.1 Reduction / Loss of Agricultural Land and Infrastructure

Approximately 18 ha (44 acres) of the subject lands are currently farmed (corn in the summer of 2018). There does not appear to be significant improvements to the lands, such as fencing. A review of the Ontario Ministry of Agriculture, Food and Rural Affairs AgMaps confirms there is no tile drainage on the site. The type and nature of the agricultural uses on the subject lands are fairly typical of this area and cropping practices throughout southern /central Ontario.

The new licence is proposed to operate below the water and will serve as an expansion to the existing pit to the east. Due to the below the water table extraction, in accordance with section 2.5.4.1 of the PPS, no lands are proposed to be returned to an agricultural land use once extraction is completed.

Extraction of the property will result in the permanent conversion of approximately 18ha of agricultural land to an alternative land-use. Considering the extensive amount of prime agricultural land available in the County of Brant, this represents a small loss in agricultural land that is permitted by Provincial and municipal planning policy.

The proposed rehabilitation of the licence area to an, open-water feature with naturalized side-lopes will create a final land use that is compatible with the surrounding agricultural uses and will provide alternative landscape benefits such as flood attenuation, habitat for wildlife, and surface water reserves that could be used for irrigation.

5.2 Fragmentation of Agricultural Lands

Agriculture uses and activities benefit 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. As the subject property is located adjacent to an existing licenced pit, the proposed expansion will not result in the further fragmentation of agricultural lands.

The land uses within the surrounding area, and more particularly within the secondary study area, are fairly cohesive and comprised of large and connected agricultural land parcels. There are several existing aggregate extraction operations located in the secondary study area along Colborne Street that are separated by industrial land also fronting onto to Colborne Street. The proposed new licence will not create any isolated agricultural land uses and will not alter the current connectivity of the agricultural land uses in the primary and secondary study area.

As a result, the proposed aggregate expansion and final rehabilitated land form will have a negligible impact on agricultural land fragmentation in the area.

5.3 Assessment and Mitigation of Impacts from Extraction

Both aggregate extraction and agricultural uses are permitted uses in prime agricultural areas. Aggregate extraction is an existing and established land-use within the primary and secondary study area and is compatible with the surrounding industrial and agricultural uses in the area.

The proposed new Licence will be operated in accordance with the Site Plan which has been development to prevent and mitigate any off-site impacts to surrounding and adjacent land uses.

5.3.1 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 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 for a Category 1 pit:

- 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 recommendations and/or recommended monitoring programs identified in the technical reports will be described in the site plan and all records will be retained by the

licensee and made available upon request by the Ministry of Natural Resources for audit purposes;
- If required, an Environmental Compliance Approval will be obtained for processing equipment to be used on site; and

Therefore, dust is required to be mitigated on site through the prescribed conditions of the ARA and any applicable Environmental Compliance Approvals (ECA's) that may be required for any permanent equipment on site.

As outlined in the Air Quality Study (RJ Burnside & Associates Ltd, 2020), dust mitigation measures and best management practices will be implemented as outlined on Page 2 of 3 of the Site Plan. Mitigation measures and best management practices include:

- Reducing the speeds of on-site traffic
- Treating internal road with water or commercial dust suppressant
- On very dry days wetting material prior to processing and extraction
- Monitoring the site for visible dust and apply additional water as needed
- Re-vegetating disturbed areas as soon as possible
- On extremely dry and windy days, suspending on-site activities if required.

As a result of implementing these dust management measures, it is not anticipated that dust will have an impact on surrounding agricultural uses and operations.

5.3.2 Hydrogeology

Management of water resources is an important consideration for farm operations, particularly for irrigating crops and providing fresh water supplies 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 operation on the subject property will occur below the water table and will be operated as an expansion to the existing pit located directly to the east.

Although the proposed pit is for a below-water-table extraction, there will be no pumping or diversion of groundwater as aggregate will be extracted using an excavator or drag line. This technique of aggregate extraction involves removing aggregate resources without having to pump or divert groundwater. No discharge to any existing surface water bodies or water courses is proposed. As aggregate material is extracted from the property, groundwater accumulates in the pit pond.

The Level 1 and 2 Hydrogeology Report (MTE, December 2018) determined that the estimated drawdown caused by extraction in the new licence area will be indistinguishable from the background fluctuations in the water-table and that the zone-of-influence created by below-water-table extraction will not pose a quantity threat to private or municipal water supplies. The Hydrogeology Report recommends a monitoring program to ensure that shallow groundwater connections will not be adversely affected by the pit operations. The monitoring program is outlined on Drawing 2 of 3 of the Site Plan. In addition, Lafarge will implement a comprehensive

spills management plan and any on-site fuel storage will occur in accordance with the Gasoline Handling Act.

Given the conclusions of the Hydrogeological Assessment and through the implementation of the recommended monitoring plan, there is no impact anticipated to the surrounding agricultural operation from a groundwater or surface water resource perspective.

5.3.3 Traffic

The new licence will be operated in conjunction with the existing pit and no increase in truck traffic is anticipated. The existing and established haul route will also remain unchanged. The established haul route will utilize the existing pit entrance/ exit on Colborne Street West to access Highway 24, and Highway 403 and west to the City of Brantford. The entirety of the haul route is on County roads, which are designed and meant to carry high volumes of traffic. Agricultural traffic on these roads is not anticipated to be as high as farm vehicles will generally avoid high volume routes and be directed towards local roads instead.

As a result, it is not anticipated that the truck traffic on the existing haul route will significantly conflict with farm vehicle traffic in the area. There are existing aggregate extraction and industrial uses along Colborne Street which is a well-established truck route. Any potential impacts / conflicts with agricultural traffic / machinery would be nominal and only concentrated during planting and harvest periods (early spring / late fall).

5.3.4 Noise Impacts

Noise is an additional potential impact from aggregate operations. A Noise Impact Study has been prepared by Aercoustics Engineering Ltd. and has confirmed that noise from the proposed extraction operations on the subject lands will comply with the guidelines established by the Ministry of the Environment, Conservation and Parks (MECP). The Noise Study recommends a number of specific noise control measures that are required to be incorporated into the aggregate operation, to protect residential sensitive uses. There are no livestock operations adjacent to or surrounding the proposed pit expansion. The noise control measures are outlined in detail on Page 2 of 3 of the Site Plan and are summarized as follows:

- Limiting operating equipment to what is specified on the site plan
- Processing equipment will operate on the floor only
- Acoustical berms will be install along Colborne Street
- Processing restrictions in Phase 3

Through the implementation of the recommended noise control measures, the proposed expansions to the existing aggregate operations will comply with the Ministry's guidelines. As a result, it is not anticipated that surrounding agricultural uses would be impacted by noise.

5.4 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 expansion minimizes or mitigates impacts on surrounding agricultural uses.

Table 2: 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	The proposed operation is an expansion to an existing, licenced pit (Licence no. 5515). An expansion 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.). The lands are primarily comprised of Class 2 soils. A large proportion of the designated primary and secondary sand and gravel resource identified in the County of Brant OP are coincident with designated prime agricultural areas. As a result, it would be difficult to locate any new aggregate operations within the County that would avoid prime agricultural areas.
	Rehabilitate the land	The new licence is proposed to include below water table extraction and therefore rehabilitation to an agricultural use post-extraction is not feasible
	Phase Development	Development will be phased(3 Phases) as per the Concept Plan (**Figure 3)**
Minimize the fragmentation of agricultural land	Maintain farm parcels	The proposed expansion will not result in creating isolated agricultural lands as they are an expansion of an existing

		aggregate 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 expansion 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 expansion 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. The haul route is not proposed to change from the existing route that accesses Colborne Street West. Agricultural traffic along Colborne Street will not be impacted by truck traffic from the proposed operation. Truck traffic is not anticipated to increase. Processing facilities will be located in close proximity to the working face and will operate in accordance with the Technical Report recommendations, best management practices, and MOECP guidelines to mitigate noise and dust impacts.
Minimize and mitigate changes in water quality or quantity	Implement a groundwater monitoring program	A groundwater monitoring program is included on the Site Plan.
Mitigating impacts during construction or operations (e.g. mitigate dust, noise)	Adjust operational procedures to accommodate agriculture in the area	With the existing aggregate use of the licenced pit, surrounding agricultural uses are accustomed to the operational procedures associated with mineral resource extraction.

		There are no large livestock operations in the area which would be affected by the operation.
	Vegetative berms	A setback of 30 metres will be provided from Colborne Street West to create buffering between the proposed expansion and surrounding land uses. Vegetative berms will also be implemented which will provide a visual barrier.
	Maintain, restore or construct farm infrastructure	The subject lands do not include any farm infrastructure. The existing structures are in poor condition, as will be removed as part of the proposed operations.
Mitigate ongoing impacts from new development	Implement measures that can be in place post development to support compatibility with agriculture	All planting associated with the berms and future water feature will be non-invasive species and will not impact surrounding agricultural producers.
Education to achieve greater compatibility between agricultural and non-agricultural uses	Education and awareness	Lafarge will continue to engage and educate the public.

6.0 PROPOSED REHABILITATION PLAN

In accordance with section 2.5.4.1 of the PPS, the proposed aggregate operation will include below water extraction of a substantial quantity of aggregate resources, therefore complete rehabilitation to an agricultural conditions is not required.

The proposed licence will be rehabilitated to an open-water feature with naturalized side-slopes and will be comprehensively rehabilitated with the adjacent Lafarge operation to the east. The open-water area is proposed to be ecologically enhanced through the creation of littoral zones, riparian plantings, fish habitat creation, and naturalization of shorelines and side-slopes. This final rehabilitated land-use is compatible with the surrounding agricultural uses and operations and will create landscape diversity. The open-water feature can provide benefits to the agricultural uses in the area through flood attenuation and the storage of fresh water for potential irrigation purposes.

As recommended in Section 7.0 of this report, if during the operation of the pit, the below the water table aggregate resources are found to be of a quality and quantity that does not warrant extraction, then the operator should consider revising the rehabilitation plan to implement agricultural rehabilitation of the property, where feasible.

7.0 RECOMMENDATIONS

Based on our analysis, the following recommendations are made to reduce the impacts of the proposed new licence on the surrounding agricultural uses and operations in the primary and secondary study area:

1. Extraction should 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. All of the recommendations of the technical reports should be implemented to minimize and prevent impacts to adjacent and surrounding agricultural uses and operations.
3. If during extraction, the material below the water table is found to be of insufficient quality or quantity to warrant extraction, then the operator should consider revising the rehabilitation plan to implement agricultural rehabilitation of the property, where feasible.

8.0 SUMMARY& CONCLUSIONS

In summary, the proposed mineral aggregate extraction on the subject lands is not anticipated to have a negative impact on the long term agricultural uses and operations in the primary or secondary study areas.

Based on a detailed review of all applicable Provincial and County policy, as well as considering the surrounding uses, operation, and rehabilitation plan for the proposed Licence, it is our opinion that:

- Mineral aggregate extraction is a permitted use on prime agricultural land and within prime agricultural areas in accordance with the PPS, Growth Plan, and the County of Brant Official Plan.
- The subject property is not within a specialty crop area and does not contain soils that would support specialty crops.
- In accordance with Policy 2.5.4.1 of the PPS there is a substantial quantity of mineral aggregate resources available below the water table; therefore, complete rehabilitation to an agricultural condition is not required.
- No new haul routes are being created and existing truck traffic to/from the existing aggregate operations is not expected to change.
- Impacts from dust and noise will be mitigated through implementation of prescribed conditions and the technical report recommendations included on the Site Plan.
- There are no impacts anticipated to the surrounding and adjacent agricultural uses or operations as a result of the proposed Licence.

Respectfully submitted by,

MHBC Planning

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

Report Figures

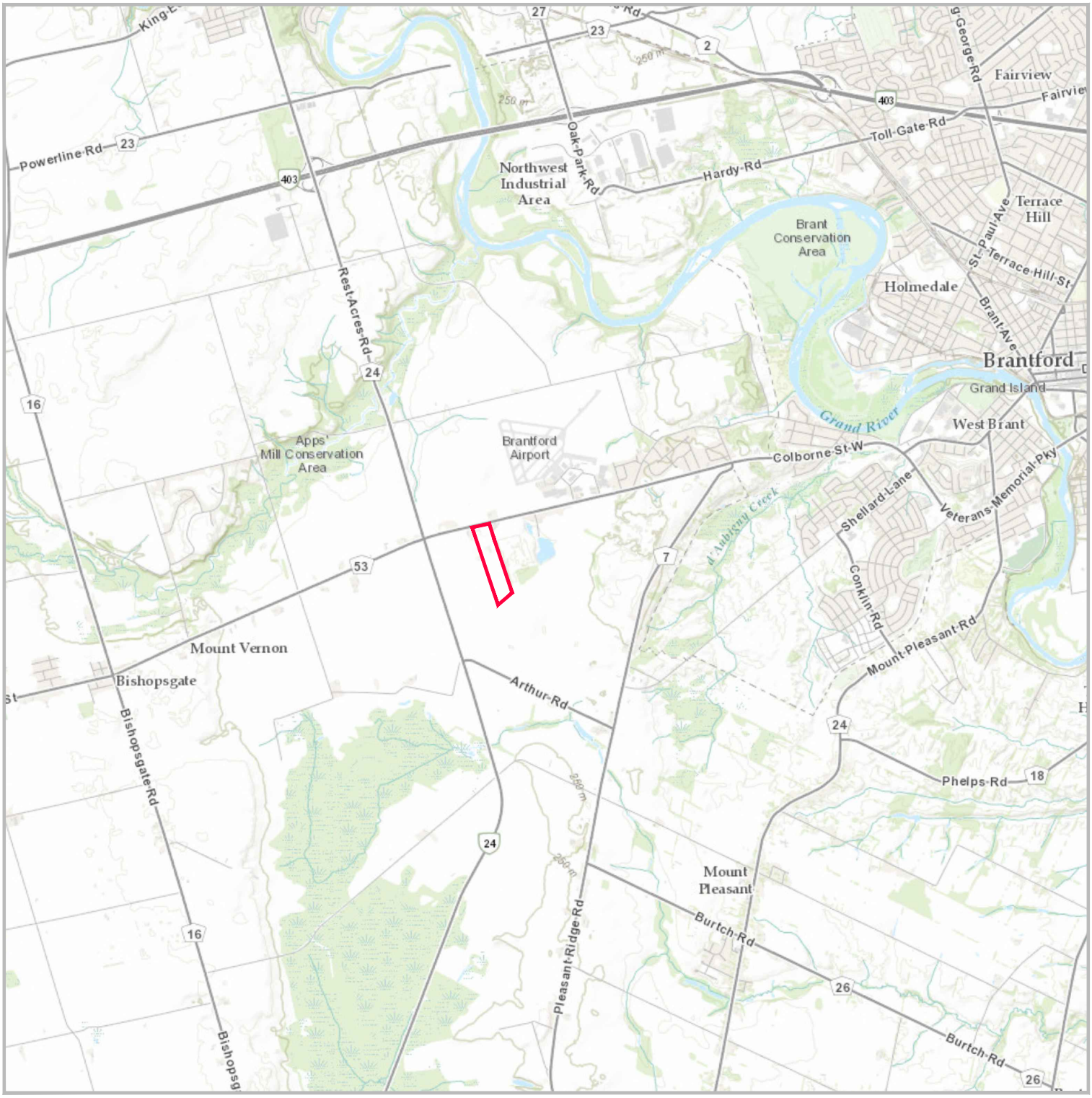

Figure 1:
Location Map

LEGEND

Subject Lands

Part of Lot 12
Concession 5
(former Geographic Township of Brantford)
County of Brant

Base Map Source: ESRI World Topographic Map

DATE: Dec 19, 2018

SCALE: NTS

FILE: 9526FU

DRAWN: GC

north

K:\9526FU-LAFARGE-GINSENG FARM PROPERTY-COUNTY OF BRANT\RPT\LOCATION MAP.DWG

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Figure 2:
Air Photo

LEGEND

Proposed Brantford Expansion Pit

Existing Brantford Expansion Pit #5515

DATE: June, 2020

SCALE: NTS

FILE: 9526FU

DRAWN: GC

north

K:\9526FU-LAFARGE-GINSENG FARM PROPERTY-COUNTY OF BRANT\RPT\AIRPHOTO2.DWG

Part of Lot 12
Concession 5
(former Geographic Township of Brantford)
County of Brant

Base Map Source: Google Satellite Imagery 2016

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Figure 3:
Operations Concept

LEGEND

- Subject Lands (± 20.0 ha)
- Proposed Limit of Extraction
- 120m Buffer

DATE: Dec 19, 2018

SCALE: NTS

FILE: 9526FU

DRAWN: GC

north

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Part of Lot 12
Concession 5
(former Geographic Township of Brantford)
County of Brant

Base Map Source: Google Satellite Imagery 2016

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Figure 4: **Primary Study Area**

Part of Lot 12
Concession 5
(former Geographic Township of Brantford)
County of Brant

Legend

- Subject Lands
- 120m Buffer
- Barn Location

Crops

- Corn
- Soy
- Tobacco
- Wheat

Source: Crop info based on July 2, 2020 field visit

Date: July, 2020

Scale: 1:10,000

File: 9526FU

Drawn: GC

N

Document Path: C:\Users\gcurnow\Desktop\Primary Study Area.mxd

MHBC PLANNING URBAN DESIGN & LANDSCAPE ARCHITECTURE

Figure 5: **Secondary Study Area**

Legend

- Subject Lands
- 500m Buffer
- Barn Location

Crops

- Corn
- Fallow
- Soy
- Tobacco
- Wheat

Part of Lot 12
Concession 5
(former Geographic Township of Brantford)
County of Brant

Source: Crop info based on July 2, 2020 field visit

Date: July, 2020

Scale: 1:12,000

File: 9526FU

Drawn: GC

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Document Path: C:\Users\gcurnow\Desktop\9526FU AIA figures\Secondary Study Area.mxd

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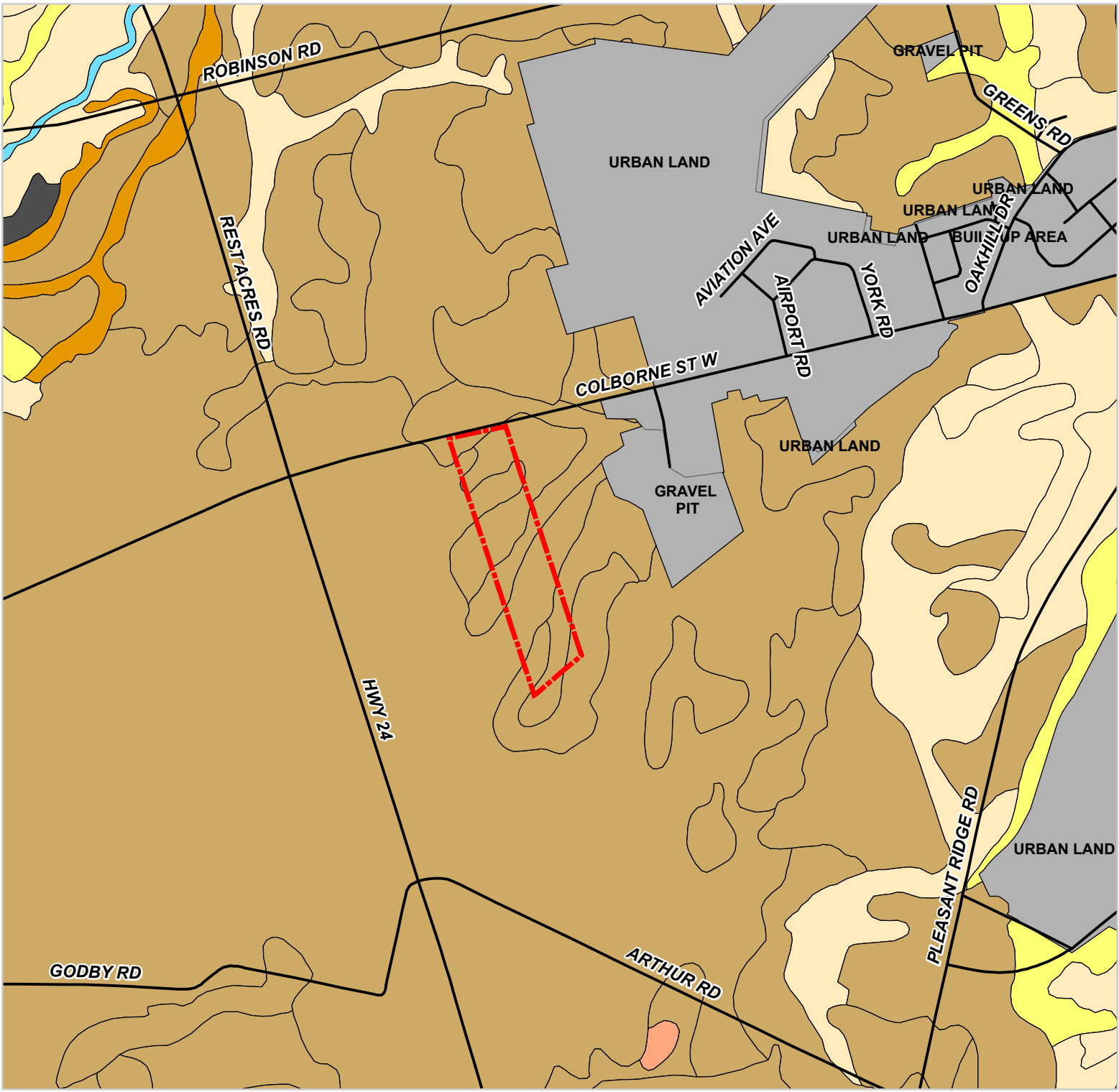

Figure 6: **Canada Land Inventory Soils**

Part of Lot 12
Concession 5
(former Geographic Township of Brantford)
County of Brant

Legend

Subject Lands

Soil Class

- Class 1
- Class 2
- Class 3
- Class 4
- Class 5
- Class 6
- Class 7
- Organic
- Water
- Other

Source: Land Information Ontario (LIO) Open data

Date: Dec 19, 2018

Scale: 1:20,000

File: 9526FU

Drawn: GC

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Document Path: K:\9526FU-Lafarge-Ginseng Farm Property-County of Brant\Rpt\Soils.mxd

MHBC PLANNING URBAN DESIGN & LANDSCAPE ARCHITECTURE

Figure 7:
DBH Soil Mapping

LEGEND

- Soil Inspection Locations
- Stone Pile
- Lot Lines (MNR)
- Roads (MNR)
- Soil Polygon Boundary
- Subject Lands

Soil Code: BUF-B 2MF (Soil Code / Slope Code; CLI Class / CLI Subclass)

Soil Code
BUF - Burford
FOX - Fox

Dist - Disturbed

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

CLI Subclass Limitation
F = Low Natural Fertility
M = Moisture Deficiency
S = Adverse Soil Characteristics
T = Topography

DATE: Dec 19, 2018

SCALE: NTS

FILE: 9526FU

DRAWN: GC

north

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Part of Lot 12
Concession 5
(former Geographic Township of Brantford)
County of Brant

SOURCE
DBH Soil Services Inc.
SOIL SURVEY AND CANADA LAND INVENTORY
CLASSIFICATION (CLI) FOR PART LOT 12, CONCESSION 5
COUNTY OF BRANT, 1044 COLBORNE STREET WEST
OCTOBER 12, 2018

MHBC
PLANNING
URBAN DESIGN
& LANDSCAPE
ARCHITECTURE
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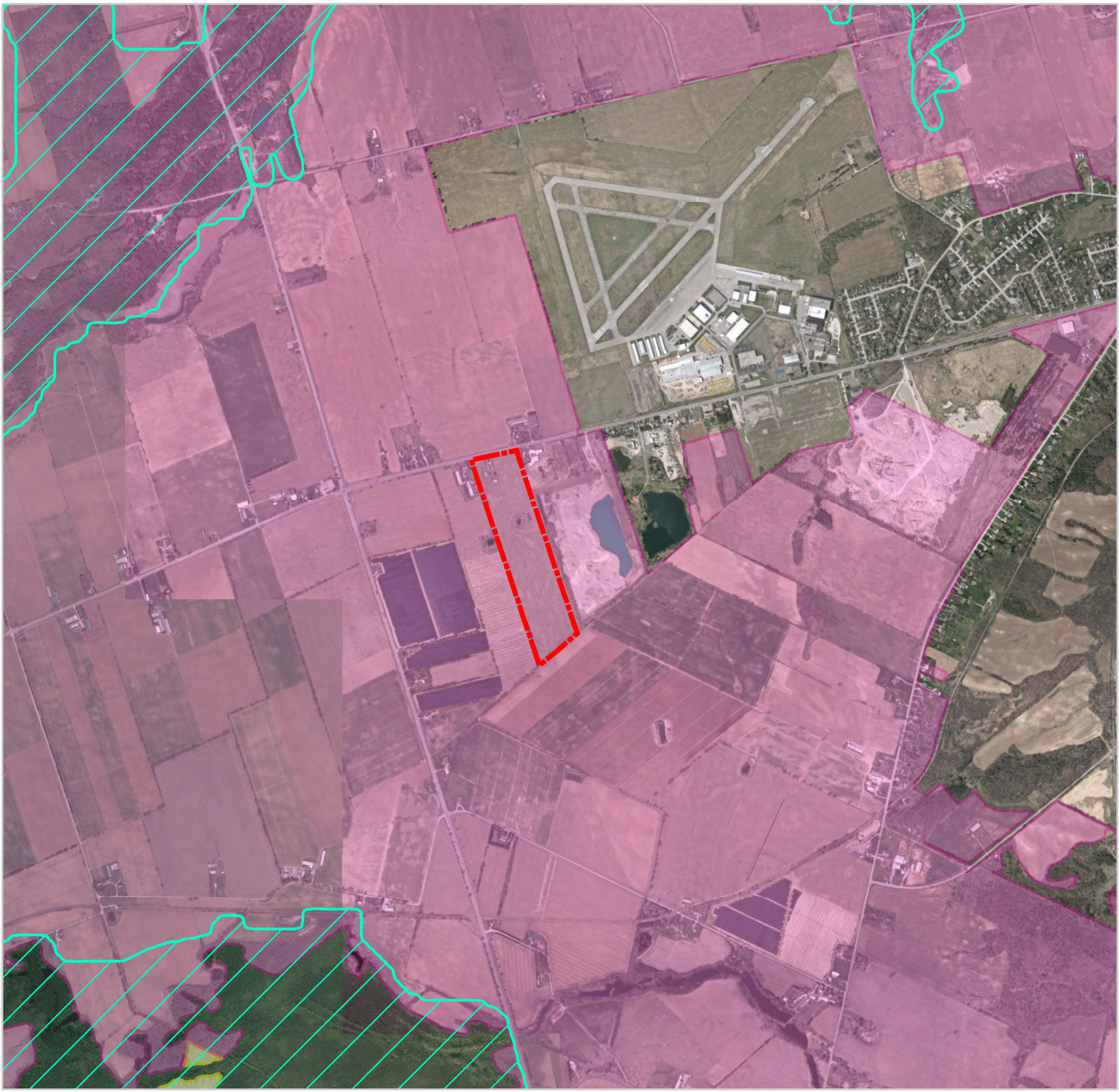

Figure 8:
Growth Plan Natural Heritage System and Agricultural Heritage System

Part of Lot 12
Concession 5
(former Geographic Township of Brantford)
County of Brant

Legend

- Boundary
- Natural Heritage System Area
- Prime Agrigultural Area
- Prime Agricultural Candidate Area

Source: Land Information Ontario (LIO) Open data

Date: Dec 19, 2018

Scale: 1:25,000

File: 9526FU

Drawn: GC

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Document Path: K:\9526FU-Lafarge-Ginseng Farm Property-County of Brant\Rpt\Growth Plan NHS AHS.mxd

MHBC PLANNING URBAN DESIGN & LANDSCAPE ARCHITECTURE

Appendix **A**

DOCUMENT TRANSMITTAL

Document: **SOIL SURVEY AND CANADA LAND INVENTORY (CLI) EVALUATION – BRANTFORD PIT EXTENSION (LAFARGE)**

Prepared for:
Ms. Julie Welch
MHBC Planning, Urban Design & Landscape Architecture
540 Bingemans Centre Drive
Suite 200
Kitchener, ON
N2B 3X9

Date: October 12, 2018
Our Ref. No.: 2018 - 19
Your Ref. No.:

Attention: Ms. J. Welch

DRAFT ☑ FINAL

DISTRIBUTION

COPIES	TO
1 pdf report	Ms. Julie Welch (via email)

Approved by:

Dave Hodgson, P. Ag.
DBH Soil Services Inc.

SOIL SURVEY AND CANADA LAND INVENTORY CLASSIFICATION (CLI) FOR PART LOT 12 CONCESSION 5 COUNTY OF BRANT 1044 COLBORNE STREET WEST (BRANT COUNTY HIGHWAY 53) BRANTFORD, ON BRANTFORD PIT EXTENSION

Prepared for:

Lafarge Canada Inc.
Proposed Brantford Pit Extension

DBH Soil Services Inc.

October 12, 2018

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

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 12
Concession 5
County of Brant
1044 Colborne Street West
(Brant County Highway 53)
Brantford, ON

This area is comprised of one parcel identified as Roll Number 29200040200540000000 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 20.0 ha (49.4 acres) of which the majority of the lands are used for the production of common field crop (corn in the 2018 growing season). The lands are generally level to gently rolling; with the exception of a deep excavated area located roughly central to the property. A small wooded area (trees and brush) was observed in close proximity and around the perimeter of the deep excavated area.

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

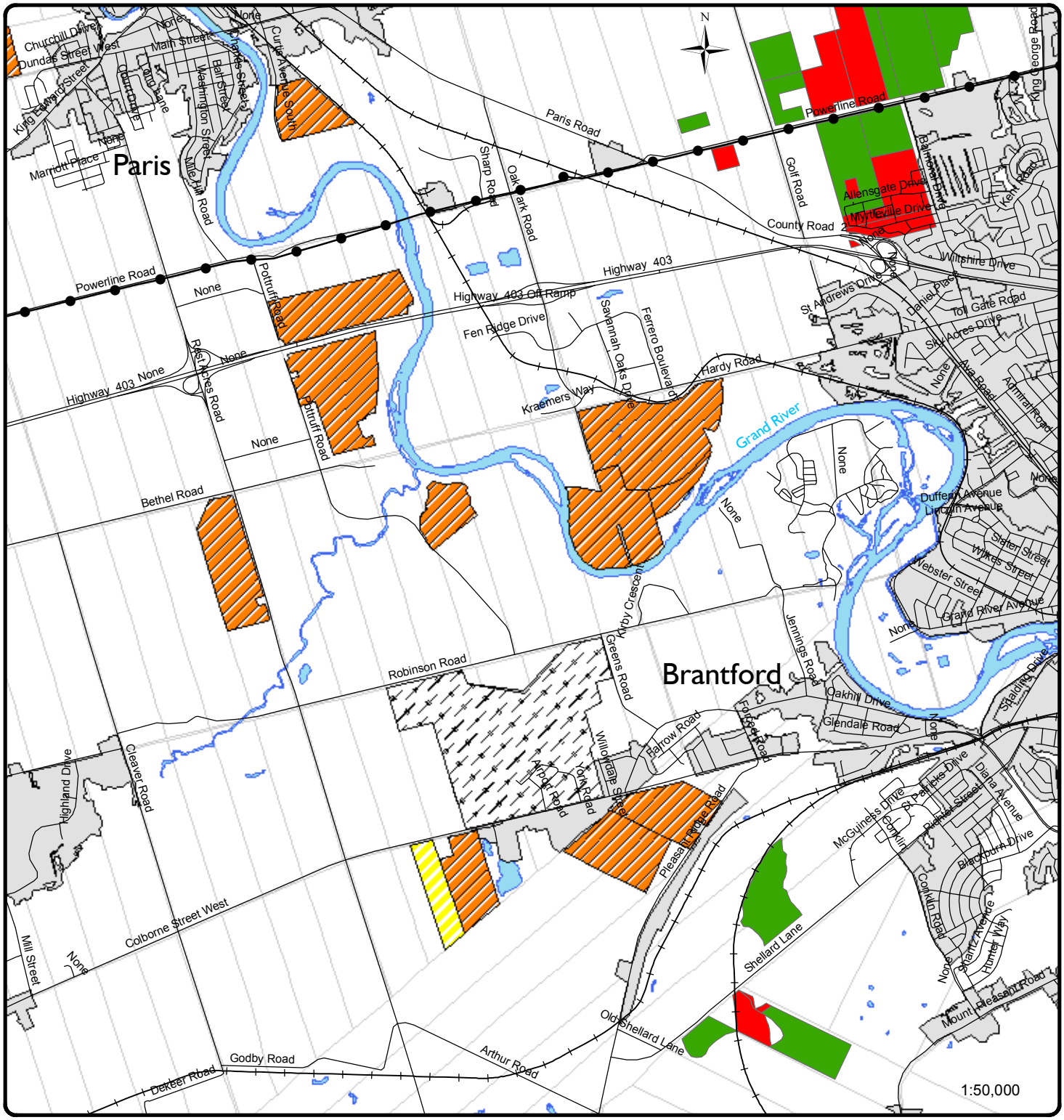
The Subject Lands are roughly bounded: on the north by: Colborne Street, agricultural lands and the Brantford Airport lands; on the east by the existing Lafarge Brantford Pit; on the south by agricultural lands; and on the west by agricultural lands. A residential unit, machine shed, bank barn, shed and a small greenhouse were observed on the property.

In the local area context, the Subject Lands are located immediately adjacent to the west side of Brantford, and approximately 7.0 km south of Paris.

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. A proposed aggregate pit extension application necessitated this study. At the time of this survey it was not known if the proposed pit extension would be an above or below water table extraction operation.

Figure 1 illustrates the relative location of the Subject Lands with respect to the above mentioned features.

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



Legend

- Rail LIne (MNR)
- Roads (MNR)
- Authorized Aggregate Areas (MNR)
- Brantford Airport
- Built Up Areas (MNR)
- lot lines clipped
- Subject Lands

Tile Drain System Type

- Random
- Systematic

Utility Lines (MNR)

- Hydro Line
- Unknown Pipeline

Figure 1

Location

DBH Soil Services Inc.

October 2018

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 5500 47700
- 1:50000 scale NTS Map No 40 P/1. 1984. Ministry of Energy Mines and Resources, Canada,
- 1:50000 scale NTS Map No 40 P/1. 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,*
- *Greenbelt Plan* (2017),
- *Growth Plan for the Greater Golden Horseshoe (2017),*
  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,
- Official Plan of the County of Brant. 2012. Adopted by Council via By-law 50-15, April 29, 2014,
- 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,
- *Provincial Policy Statement, 2014,*
- *The Physiography of Southern Ontario 3rd Edition, Ontario Geological Survey Special Volume 2, Ministry of Natural Resources, 1984,*
- *The Soils of Brant County (Vol 1 & 2).* Report No. 55 of the Ontario Institute of Pedology. (C.J. Acton), 1989.
- *Windshield and field surveys by DBH Soil Services staff, September 18, 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 report (*The Soils of Brant County (Vol 1 & 2)*. Report No. 55 of the Ontario Institute of Pedology. (C.J. Acton), 1989) with mapping at a scale of 1:25000. 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 September 18, 2018.

2.2.2 PHYSIOGRAPHY

Physiographic information and Quaternary Geology information was provided in *The Physiography of Southern Ontario 3rd Edition, Ontario Geological Survey Special Volume 2, Ministry of Natural Resources, 1984.* Physiographic information provides detail on the parent materials from which the soils developed in a specific area.

2.2.3 TOPOGRAPHY AND CLIMATE

Topographic information was reviewed and correlated to the detailed contour mapping provided by Lafarge, the 1:10000 scale Ontario Base Mapping, Land Information Ontario digital contour mapping, detailed soil survey assessment (using a hand held 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.

2.2.4 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 on September 18, 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 POLICY REVIEW

The long term protection of quality agricultural lands is a priority of the Province of Ontario and has been addressed in the Provincial Policy Statement (2014). Municipal Governments have similar regard for the protection and preservation of agricultural lands, and address their specific concerns within their respective Official Plans. With this in mind, the Provincial Policy Statement (2014), and the *Official Plan of the County of Brant* (2012) were reviewed for policies directly related to soil resources and Canada Land Inventory (CLI).

The Official Plan Policies were reviewed to verify if there were any additional or specific soil components to be investigated when determining the potential impacts to agriculture due to a mineral aggregate operation extension.

Further, in an effort to protect agricultural lands, the Province of Ontario has adopted policy and guidelines to provide a framework for managing growth in four land use plans. These four provincial land use plans: *Greenbelt Plan (2017); the Oak Ridges Moraine Conservation Plan (2017); the Niagara Escarpment Plan (2017); and the Growth Plan for the Greater Golden Horseshoe (GGH) (2017)* support the long term protection of farmland.

With respect to this proposed Agricultural Soil Evaluation (detailed soil survey) and the four provincial land use plans only the *Growth Plan for the Greater Golden Horseshoe (2017)* is applicable to this site.

3.1 PROVINCIAL AGRICULTURAL POLICY (2014)

The Provincial Policy Statement (2014) was enacted to document the Ontario Provincial Governments development and land use planning strategies. The Provincial Policy Statement provides the policy foundation for regulating the development and use of land.

Agricultural Policies are addressed in Section 2.3 – Agriculture. Section 2.3.6 – Non-Agricultural Uses in Prime Agricultural Areas provides policy specific to this study. Section 2.3.6.1 states: "*Planning authorities may only permit non-agricultural uses in prime agricultural areas for:*

a) extraction of minerals, petroleum resources and mineral aggregate resources, in accordance with policies 2.4 and 2.5;

Mineral Aggregate Resource Policies are addressed within Section 2.5 of the Provincial Policy Statement. Section 2.5.1 identifies the Protection of Long-term Resource Supply and states: "Mineral aggregate resources shall be protected for long-term use and, where provincial information is available, deposits of mineral aggregate resources shall be identified."

Further, Section 2.5.2.1 states:

"*2.5.2.1 As much of the mineral aggregate resources as is realistically possible shall be made available as close to markets as possible. Demonstration of need for mineral aggregate resources, including any type of supply/demand analysis, shall not be required, notwithstanding the availability, designation or licensing for extraction of mineral aggregate resources locally or elsewhere.*

2.5.2.2 Extraction shall be undertaken in a manner which minimizes social, economic and environmental impacts.

2.5.2.3 Mineral aggregate resource conservation shall be undertaken, including through the use of accessory aggregate recycling facilities within operations, wherever feasible.

2.5.2.4 Mineral aggregate operations shall be protected from development and activities that would preclude or hinder their expansion or continued use or which would be incompatible for reasons of public health, public safety or environmental impact. Existing mineral aggregate operations shall be permitted to continue without the need for official plan amendment, rezoning or development permit under the Planning Act. When a license for extraction or operation ceases to exist, policy 2.5.2.5 continues to apply.

2.5.2.5 In known deposits of mineral aggregate resources and on adjacent lands, development and activities which would preclude or hinder the establishment of new operations or access to the resources shall only be permitted if: a) resource use would not be feasible; or b) the proposed land use or development serves a greater long-term public interest; and c) issues of public health, public safety and environmental impact are addressed.

2.5.3 Rehabilitation

2.5.3.1 Progressive and final rehabilitation shall be required to accommodate subsequent land uses, to promote land use compatibility, to recognize the interim nature of extraction, and to mitigate negative impacts to the extent possible. Final rehabilitation shall take surrounding land use and approved land use designations into consideration.

2.5.3.2 Comprehensive rehabilitation planning is encouraged where there is a concentration of mineral aggregate operations.

2.5.3.3 In parts of the Province not designated under the Aggregate Resources Act, rehabilitation standards that are compatible with those under the Act should be adopted for extraction operations on private lands.

2.5.4 Extraction in Prime Agricultural Areas

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 preextraction 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 preextraction 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*."

3.2 OFFICIAL PLAN POLICY

Official Plan policies are prepared under the Planning Act, as amended, of the Province of Ontario. Official Plans generally provide policy comment for land use planning while taking into consideration the economic, social and environmental impacts of land use and development concerns. For the purpose of this report the *Official Plan of the County of Brant (2012. Adopted by Council via By-law 50-15, April 29, 2014), was* reviewed for policy related to agricultural designated areas and mineral aggregate extraction.

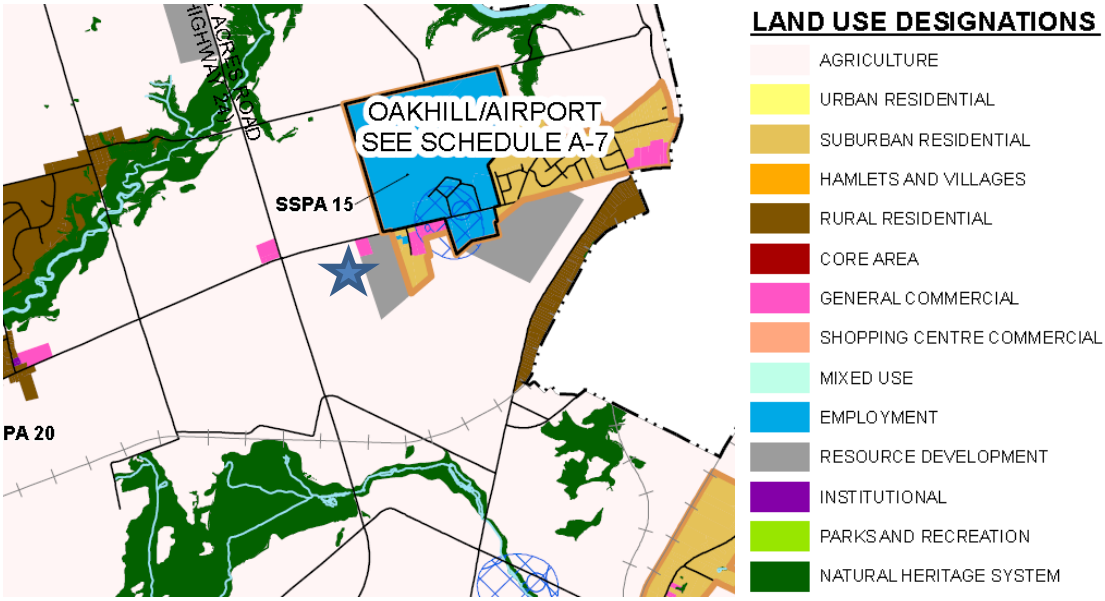
The County municipal government is a one tier system. As such, the County provides the policy.

3.2.1 OFFICIAL PLAN OF THE COUNTY OF BRANT (2012)

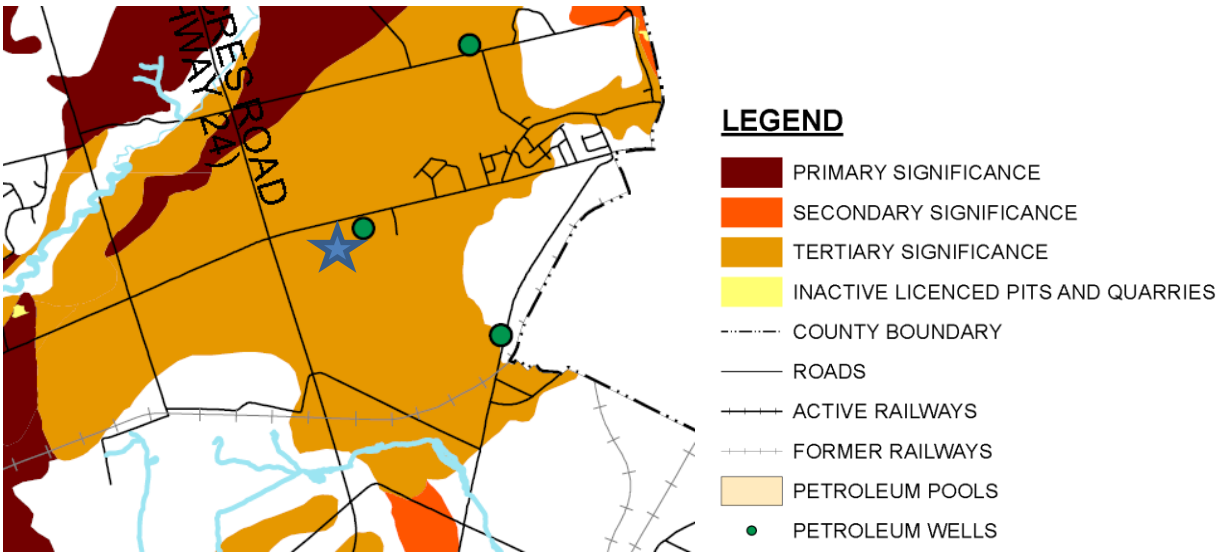
A review of the *Official Plan of the County of Brant (2012 Adopted by Council via By-law 50-15, April 29, 2014, and respective Schedules)* Schedule A - Land Use Plan illustrates that the Subject Lands comprise lands designated as Agriculture. The image below represents a select portion

of Schedule A – Land Use Plan and corresponding Land Use Designations legend. The blue star identifies the approximate location of the Subject Lands.

Schedule E – Aggregate and Petroleum Resources illustrates that portions of the Subject Lands are located within an area of Tertiary Significance for aggregate resources. The image below represents a select portion of Schedule E – Aggregate and Petroleum Resources and the corresponding Legend. The blue star identifies the approximate location of the Subject Lands.



Schedule A – Land Use Plan



Schedule E – Aggregate and Petroleum Resources

Agriculture policies are provided in the Official Plan of Brant County (2012) in Section 2.2.3.4 – Agricultural Areas and Section 3.3 - Agriculture. Potential Mineral Aggregate Resources policies are addressed in Section 2.3.4.2 of the Official Plan of Brant County (2012). Resource

Development policy is provided in Section 3.13 –Resource Development, of the Official Plan of Brant County.

Section 3.13.1 – Intent identifies the strategies for lands in the County that are not currently designated Resource Development.

3.3 GROWTH PLAN FOR THE GREATER GOLDEN HORSESHOE (2017)

A review of the Growth Plan for the Greater Golden Horseshoe (2017) through the OMAFRA Agricultural System Portal illustrated that the Subject Lands are located within a Prime Agricultural Area.

The Growth Plan for the Greater Golden Horseshoe (2017) provides comment on Agricultural Lands in Section 4.2.6 – Agricultural System. Section 4.2.6 states:

1. The Province will identify an Agricultural System for the GGH.

2. Prime agricultural areas, including specialty crop areas, will be designated in accordance with mapping identified by the Province and these areas will be protected for long-term use for agriculture.

3. Where agricultural uses and non-agricultural uses interface outside of settlement areas, land use compatibility will be achieved by avoiding or where avoidance is not possible, minimizing and mitigating adverse impacts on the Agricultural System. Where mitigation is required, *measures should be incorporated as part of the non-agricultural uses, as appropriate, within the area being developed.*

4 *The geographic continuity of the agricultural land base and the functional and economic connections to the agri-food network will be maintained and enhanced.*

5 *The retention of existing lots of record for agricultural uses is encouraged, and the use of these lots for non-agricultural uses is discouraged.*

6 *Integrated planning for growth management, including goods movement and transportation planning, will consider opportunities to support and enhance the Agricultural System.*

7 *Municipalities are encouraged to implement regional agri-food strategies and other approaches to sustain and enhance the Agricultural System and the long-term economic prosperity and viability of the agri-food sector, including the maintenance and improvement of the agri-food network by:*

a) providing opportunities to support access to healthy, local, and affordable food, urban and near-urban agriculture, food system planning and promoting the sustainability of

agricultural, agri-food, and agri-product businesses while protecting agricultural resources and minimizing land use conflicts;

b) protecting, enhancing, or supporting opportunities for *infrastructure*, services, and assets. Where negative impacts on the *agri-food network* are unavoidable, they will be assessed, minimized, and mitigated to the extent feasible; and

c) establishing or consulting with agricultural advisory committees or liaison officers.

8 *The prime agricultural areas identified in official plans that are approved and in effect as of July 1, 2017 will continue to be protected in accordance with the official plan until provincial mapping of the Agricultural System* has been issued.

9 *In implementing the Agricultural System, upper- and single-tier municipalities may, through a municipal comprehensive review, refine or augment provincial mapping in a manner that is consistent with* this Plan and any implementation procedures issued by the Province.

Further, the review of the Growth Plan for the Greater Golden Horseshoe indicated that additional policy and comment for Mineral Aggregate Resources was provided in Section 4.2.8. Section 4.2.8 - ***Mineral Aggregate Resources states:***

1. *"Municipalities will develop and implement official plan policies and other strategies to conserve mineral aggregate resources, including:*
   a) the recovery and recycling of manufactured materials derived from mineral aggregate resources for reuse in construction, manufacturing, industrial, or maintenance projects as a substitute for new mineral aggregate resources; and
   b) the wise use of mineral aggregate resources, including utilization or extraction of on-site mineral aggregate resources prior to development occurring.
2. *Notwithstanding the policies in subsections 4.2.1, 4.2.2, 4.2.3 and 4.2.4, within the Natural Heritage System, mineral aggregate operations and wayside pits and quarries are subject to the following:*
   a) no new mineral aggregate operation and no new wayside pits and quarries, or any ancillary or accessory use thereto, will be permitted in the following key natural heritage features and key hydrologic features:
      i. significant wetlands;
      ii. habitat of endangered species and threatened species; and
      iii. significant woodlands unless the woodland is occupied by young plantation or early successional habitat, as defined by the Province, in which case, the application must demonstrate that policies 4.2.8.4 b) and c) and 4.2.8.5 c) have been addressed and that they will be met by the operation;
   b) any application for a new mineral aggregate operation will be required to demonstrate:

i. how the connectivity between key natural heritage features and key hydrologic features will be maintained before, during, and after the extraction of mineral aggregate resources;

ii. how the operator could replace key natural heritage features and key hydrologic features that would be lost from the site with equivalent features on another part of the site or on adjacent lands;

iii. how the water resource system will be protected or enhanced; and

iv. how any key natural heritage features and key hydrologic features and their associated vegetation protection zones not identified in policy 4.2.2.3 a) will be addressed in accordance with policies 4.2.8.4 b) and c) and 4.2.8.5 c); and

c) an application requiring a new approval under the Aggregate Resources Act to expand an existing mineral aggregate operation may be permitted in the Natural Heritage System, including in key natural heritage features, key hydrologic features and any associated vegetation protection zones, only if the related decision is consistent with the PPS and satisfies the rehabilitation requirements of the policies in this subsection.

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

4. For rehabilitation of new mineral aggregate operation sites, the following apply:

a) the disturbed area of a site will be rehabilitated to a state of equal or greater ecological value and, for the entire site, long-term ecological integrity will be maintained or enhanced;

b) if there are key natural heritage features or key hydrologic features on the site, or if such features existed on the site at the time of the application:

i. the health, diversity, and size of these key natural heritage features and key hydrologic features will be maintained or enhanced; and

ii. any permitted extraction of mineral aggregate resources that occurs in a feature will be completed, and the area will be rehabilitated, as early as possible in the life of the operation;

c) aquatic areas remaining after extraction are to be rehabilitated to aquatic enhancement, which will be representative of the natural ecosystem in that particular setting or ecodistrict, and the combined terrestrial and aquatic rehabilitation will meet the intent of policy 4.2.8.4 b); and

d) outside the Natural Heritage System, and except as provided in policies 4.2.8.4 a), b) and c),final rehabilitation will 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 will be rehabilitated in accordance with policy 2.5.4 of the PPS, 2014."

4.0 FINDINGS

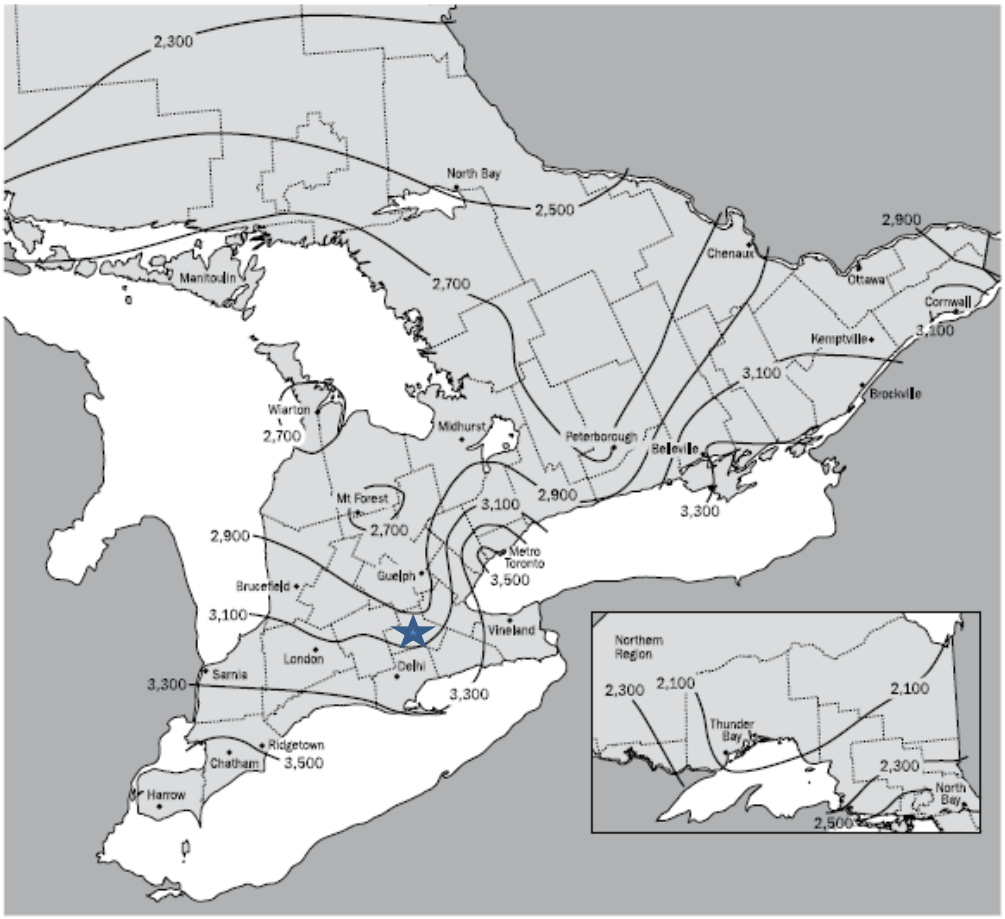
4.1 PHYSIOGRAPHY AND CLIMATE

The *Physiography of Southern Ontario* Physiographic Unit Map indicates that the Subject Lands are located along the boundary between the Norfolk Sand Plains and the Horseshoe Moraines. The Norfolk Sand Plains is described as a large wedge shape with the southern boundary as a curved base along the shore of Lake Erie and coming to a point near Brantford. The sands and silts in this area were deposited as a delta in glacial Lake Wittlesey and Warren. The Horseshoe Moraines cover a large area extending from Grey County south through Niagara Region. A lobe of the moraine extends into Brant County and disappears under the sands of the Norfolk Plain. The moraine provides two chief landforms: irregular, stony knobs and ridges which are composed of till with some sand and gravel deposits; and pitted sand and gravel terraces and swampy valley floors.

Due to the location of the Subject Lands along the boundary between the two physiographic units, the Subject Lands will have characteristics of both physiographic units. It should be noted that the boundary line between physiographic units is an approximation of the divide between the physiographic units and is not considered as a firm defined limit of each physiographic unit.

The Subject Lands are located within the 2900 - 3100 average accumulated Crop Heat Units area 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

4.2 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 (*The Soils of Brant County (Vol 1 & 2)*. Report No. 55 of the Ontario Institute of Pedology. (C.J. Acton), 1989),
- 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 September 18, 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 hand held 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).

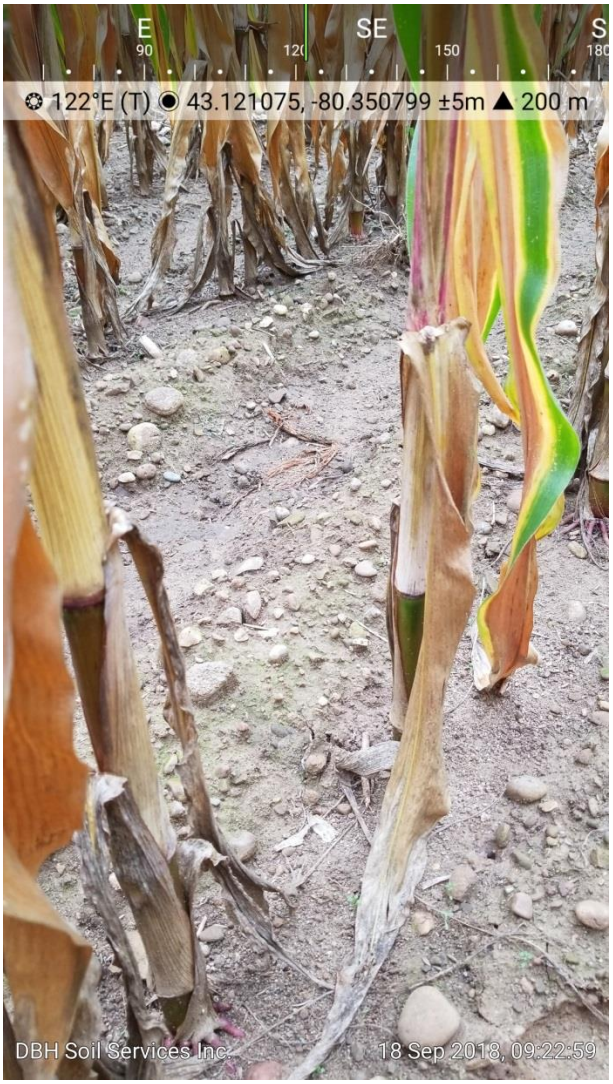
Each soil profile was examined to assess inherent soil characteristics. Soil attributes were correlated with the *Canadian System of Soil Classification* (CSSC) (Agriculture Canada, 1998) and the *Field Manual for Describing Soils in Ontario* (Ontario Centre for Soil Resource Evaluation, 1993). A hand 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 Soils of Brant County (Vol 1 & 2). (* Report No. 55 of the Ontario Institute of Pedology. (C.J. Acton), 1989) and with the CLI information presented on the 1:50000 scale manuscript mapping.

Observations noted at the time of the onsite soil survey included:

- The majority of the Subject Lands were used for the production of common field crop (Corn) in the 2018 growing season
- There was a farmstead on the lands (residential unit, shed, greenhouse, bank barn, machine shed)
- There was one area of steeply sloping lands associated with an older excavation near the centre of the property.
- The steeply sloping areas were generally tree/brush covered
- Standing water was observed in the older excavation area (pond)
- Stone piles were noted along the edge of the fields near the excavated area
- Stones were rounded (river stone)

The following photograph illustrates the crop residue from last year, plus the condition of this year's crop (as of September 18, 2018). Also noted in this photograph are the relative size, shape and occurrence of surface stone in a Burford soil area.



Photograph illustrates examples of this year's crop and last year's crop residue, plus the relative size and occurrence of surface stone.

The photograph below illustrates the surface stone content in a Fox soil area. Fox soils do not have surface stone. The small stone seen in the image were most likely distributed during cultivation operations.

Photograph illustrates examples of this year's crop and last year's crop residue, plus the relative size and occurrence of surface stone in a Fox soil area.

A total of 22 soil inspection sites were examined on the Subject Lands. The soil inspection information was correlated with soil descriptions in *The Soils of Brant County (Vol 1 & 2). (*Report No. 55 of the Ontario Institute of Pedology. (C.J. Acton), 1989) and the OMAFRA digital soils data (Land Information Ontario, 2018), prior to the production of the soils map in Figure 2. Soil names used in the identification of the soil series on Figure 2 were taken from *The Soils of Brant County (Vol 1 & 2)*. Report No. 55 of the Ontario Institute of Pedology. (C.J. Acton), 1989.

It should be noted that the soil mapping provided with the *Soils of Brant County* report makes use of slope groupings as follows: Aa = 0 – 3 percent; Bb = 3 – 6 percent; Cc = 6 – 12 percent; Dd = 12 – 20 percent; and Ee = 20-30 percent. Capital letters represent simple slopes (slope lengths greater than 50 metres, while lower case letters represent complex slopes (slope lengths less than 50 metres.

The normal or standard slope groupings (as presented in the Ontario Centre for Soil Resource Evaluation document "*Field Manual for Describing Soils in Ontario*, 4th Edition (1993)" provides slope groupings as follows: Aa = 0.0 – 0.5 percent; Bb = 0.5 – 2.0 percent; Cc = 2.0 – 5.0 percent; Dd = 5.0 – 9.0 percent; Ed = 9.0 – 15.0 percent; Ff = 15.0 – 30.0 percent; and Gg = 30.0 – 45.0 percent.

Legend

- Soil Inspection Locations
- Stone Pile
- Lot Lines (MNR)
- Roads (MNR)
- Soil Polygon Boundary
- Subject Lands

Soil Code — Slope Code

BUF-B

2MF

CLI Class — CLI Subclass

Soil Code
BUF - Burford
FOX - Fox

Dist - Disturbed

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

CLI Subclass Limitation

F = Low Natural Fertility
M = Moisture Deficiency
S = Adverse Soil Characteristics
T = Topography

Figure 2

Soils and
Canada Land Inventory
(CLI)

DBH Soil Services Inc.

October 2018

Further, on review of the OMAFRA document "*Classifying Prime and Marginal Agricultural Soils and Landscapes: Guidelines for Application of the Canada Land Inventory In Ontario*" soils are rated for topography with slopes grouped similar to the *Field Manual for Describing Soils in Ontario* and are presented as follows: <2; 2-5; 5-9; 9-15; 15-30; 30-60; and >60. These groupings are similar to the groupings presented in the *Field Manual for Describing Soils in Ontario*.

For the purposes of providing mapping and soil capability ratings that are consistent with the OMAFRA document "*Classifying Prime and Marginal Agricultural Soils and Landscapes: Guidelines for Application of the Canada Land Inventory In Ontario*", the slope groupings and mapping presented in this report reflect the standard percent slope groupings as are documented in the *Field Manual for Describing Soils in Ontario*.

The onsite soil survey identified two soil series. The two soil series were identified as: Burford; and Fox. An additional miscellaneous group was identified. The miscellaneous group is for areas that have been disturbed.

The Burford soils are the well-drained member of the Burford soil catena. These soils developed on glaciofluvial deposits of gravelly sands and gravel textures. These soils usually consist of 15 to 20 cm of loam or silt loam with varying degrees of gravels in the surface horizon. The B horizons are generally loamy with the C horizons as calcareous gravelly coarse sandy materials. Burford soils occur on nearly level or gently sloping topography.

The Fox soils are the well-drained-member of the Fox soil catena. These soils developed on sandy glaciolacustrine sediments which were then modified on the surface by eolian (wind modified) activity. The surface horizons range from Sandy Loam to Loamy Sand, and are underlain by deep Loamy Sand or Sand textures. Fox soils typically contain a Bt horizon in which there is a significant increase in clay.

Small areas of disturbed soils were noted within the Subject Lands. These areas were too small to map at the final mapping scale. 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.

4.2.1 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. Figure 1 illustrates the location of the OMAFRA artificial tile drainage systems in the area.

4.2.2 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.

4.2.3 LANDFORMING

With the exception of the creation of two laneways to allow access through the steeply sloping central area, there is no evidence of any landforming for the purposes of leveling or reducing slope for the enhancement of agricultural activities or operations.

4.2.4 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 *Soils of Brant Count* report, CLI map No. 40 P/1, 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".

Burford soils on simple (slope length greater than 50 metres) 'B' (0.5-2.0 percent) slopes were rated as Canada Land Inventory (CLI) class 2MF. Burford soils on complex 'c' slopes were rated as CLI class 2ST.

Fox soils on simple 'B' (0.5 – 2.0 percent) were rated as CLI class 2MF.

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 S - Adverse soil characteristics: This subclass denotes a combination of limitations of equal severity. In Ontario it has often been used to denote a combination of F and M when these are present with a third limitation such as T, E or P*
>
> *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 1 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	18.8/46.5	94.2
Class 3	-	-
Class 4	-	-
Class 5	-	-
Class 6	-	-
Class 7	-	-
Disturbed Soil Areas	1.2/2.8	5.8
Totals	20.0/49.4	100.0

The Subject Lands comprise approximately 94.2 percent Canada Land Inventory (CLI) class 1 – 3 soils.

4.2.5 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 1land, 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 =

(percent occurrence of class 1 lands x 1.0) + (percent occurrence of class 2 lands x 0.8) + (percent occurrence of class 3 lands x 0.64) + (percent occurrence of class 4 lands x 0.49) + (percent occurrence of class 5 lands x 0.33) + (percent occurrence of class 6 lands x 0.17) + (percent occurrence of class 7 lands x 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	0.75	2

The calculated Soil Productivity Rating for the Subject Lands was 0.71 or a CLI class 2 equivalent.

4.2.6 SOIL CAPABILITY FOR SPECIALTY CROP

Although no portions of the Subject Lands were used for the production of specialty crop, nor were specialty crops grown on the adjacent abutting lands, soil capability for specialty crop ratings were reviewed for the soil series found on the Subject Lands.

A review the *Soils of Brant County* (Report No. 55 of the Ontario Soil Survey (C.J. Acton, 1989)) revealed a section related to the Agricultural Suitability Ratings for Special Crops. Suitability ratings were provided for a variety of special crops including potatoes, ginseng, peppers, strawberries, beans, cabbage, cauliflower, tomatoes, sweet corn and apples. These crops were grouped into four main sets based mainly on their response to soil conditions. Each group was further divided into subgroups as presented in the following table (Table 9 from the *Soils of Brant County*).

Table 9. Organization of special crops into crop groups and crop subgroups for the Brant County region

Crop Group	Crop Subgroup	Special Crops
A	1	potatoes
	2	tobacco
B	1	ginseng
	2	peppers
	3	strawberries
C	1	beans
	2	cabbage, cauliflower, tomatoes, sweet corn
D	1	apples

The *Soils of Brant County* provided soil suitability class as follows:

Soil Suitability Classes

The soil suitability classification for special crops consists of seven classes. The best soils, with no significant limitations for crop use, are designated as good. Soils designated with the ratings fair to good, fair, poor to fair, poor, and very poor, have decreasing suitability for special crops. Soils with an unsuitable rating have no potential for special crops.

Good (G)	Soils with slight, if any, limitations to growth and yields.
Fair to Good (F-G)	Soils with moderate to slight limitations to growth and yields.
Fair (F)	Soils with moderate limitations to growth and yields.
Poor to Fair (P-F)	Soils with severe to moderate limitations to growth and yields.
Poor (P)	Soils with severe limitations to growth and yields.
Very Poor (VP)	Soils that have very severe limitations for crop growth.
Unsuitable (U)	Soils that have very severe limitations and are considered unsuitable for crop growth, even if drainage or irrigation are applied.

The following (Table 5) represents portions of Table 10 (the *Soils of Brant County*) Agricultural suitability ratings for special crops in Brant County.

Table 5 Agricultural Suitability Ratings for Special Crops in Brant County

Soil Name	Soil Code	Slope Class	A1	A2	B1	B2	B3	C1	C2	D1
Burford	BUF	A	P-F	P-F	F-G	F	F	P-F	F	F
		B,b	P-F	P-F	F-G	P-F	F	P-F	F	F
		C,c	P	P	F-G	P-F	P-F	P	P-F	F
		D,d	VP	VP	F	P	P	P	P	P-F
		E,e	U	U	VP	U	U	U	U	P
Fox	FOX	A	F-G	F-G	F-G	F-G	F	P-F	F	F
		B,b	F-G	F-G	F-G	F-G	F	P-F	F	F
		C,c	F	F	F-G	F	P-F	P	P-F	F
		D,d	P-F	P-F	F	P-F	P	P	P	P-F
		E,e	U	U	P	U	U	U	U	P

Table 5 represents, in general terms that the soils with higher sand and gravel content are less well suited to the production of the listed special crops. Steeply sloping lands are less well suited to the production of special crops. Soils with surface textures of Loamy Sands and Sandy Loams are better suited for the production of special crops than the soils with higher sand and gravel content.

5.0 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 12
Concession 5
County of Brant
1044 Colborne Street West
(Brant County Highway 53)
Brantford, ON

This area is comprised of one parcel identified as Roll Number 29200040200540000000 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 20.0 ha (49.4 acres) of which the majority of the lands are used for the production of common field crop (corn in the 2018 growing season). The lands are generally level to gently rolling; with the exception of a deep excavated area located roughly central to the property. A small wooded area (trees and brush) was observed in close proximity and around the perimeter of the deep excavated area.

These Subject Lands are roughly bounded: on the north by: Colborne Street, agricultural lands and the Brantford Airport lands; on the east by the existing Lafarge Brantford Pit; on the south by agricultural lands; and on the west by agricultural lands. A residential unit, machine shed, bank barn, shed and a small greenhouse were observed on the property.

In the local area context, the Subject Lands are located immediately adjacent to the west side of Brantford, and approximately 7.0 km south of Paris.

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. A proposed aggregate pit application necessitated this study. At the time of this survey it was not known if the proposed pit would be an above or below water table extraction operation.

The results of the Soil Survey assessment include the following:

- The majority of the Subject Lands are used for the production of common field crops. (Corn) in the 2018 growing season).

- A small portion of the Subject Lands comprises woods and brush areas (associated with the more steeply sloping areas associated with an excavated area located roughly centrally on the property).

- A residential unit, garage, machine shed, greenhouse and bank barn were located on the Subject Lands, immediately adjacent to Colborne Street.

- With the exception of the pond at the bottom of the steeply sloping excavated area located roughly central on the property, there were no open water, ponds or flowing streams were observed on the Subject Lands.

- Significant stone piles were noted around the excavated area in the central portion of the property.

- 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 94.2 percent of the Subject Lands is Canada Land Inventory (CLI) class 1 – 3 soils.

- The Soil Productivity Rating for the Subject Lands is 0.75 giving a CLI equivalent rating of class 2.

  A review of Special Crop ratings revealed that general terms that the soils with higher sand and gravel content are less well suited to the production of the listed special crops. Steeply sloping lands are less well suited to the production of special crops. Soils with surface textures of Loamy Sands and Sandy Loams are better suited for the production of special crops than the soils with higher sand and gravel content.

6.0 REFERENCES

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 5500 47700
- 1:50000 scale NTS Map No 40 P/1. 1984. Ministry of Energy Mines and Resources, Canada,
- 1:50000 scale NTS Map No 40 P/1. 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,*
- *Greenbelt Plan* (2017),
- *Growth Plan for the Greater Golden Horseshoe (2017),*
  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,
- Official Plan of the County of Brant. 2012. Adopted by Council via By-law 50-15, April 29, 2014,
- 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,
- *Provincial Policy Statement, 2014,*
- *The Physiography of Southern Ontario 3rd Edition, Ontario Geological Survey Special Volume 2, Ministry of Natural Resources, 1984,*
- The Soils of Brant County (Vol 1 & 2). Report No. 55 of the Ontario Institute of Pedology. (C.J. Acton), 1989.
- Windshield *and field surveys by DBH Soil Services staff, September 18, 2018.*

APPENDIX A

Soil Inspection Site Characteristics

Soil Inspection Site Number	Horizon	Depth of Horizon (cm)	Soil Texture	Drainage Class	Soil Series
1	Ap Bm Bt Ck*	0 – 21 21 – 36 36 – 54 54 - 68	SiL/fSL SiL/fSL gL gLfS	Well	Burford
2	Ap Bm Bt Ck	0 – 20 20 – 65 65 – 87 87 - 100	fSL fSL L fS	Well/Rapid	Fox
3	Ap Bm Bt Ck	0 – 22 22 – 58 58 – 92 92 - 100	fSL fSL L fS	Well/Rapid	Fox
4	Ap Bm Bt Ck*	0 – 23 23 – 42 42 – 55 55 - 65	SiL/fSL SiL/fSL gL gLfS	Well	Burford
5	Ap Bm Bt Ck*	0 – 24 24 – 44 44 – 62 62 - 85	SiL/fSL SiL/fSL gL gLfS	Well	Burford
6	Ap Bm Bt Ck	0 – 23 23 – 71 71 – 85 85 - 100	fSL fSL L fS	Well/Rapid	Fox
7	Ap Bm Bt Ck	0 – 21 21 – 66 66 – 94 94 - 100	fSL fSL L fS	Well/Rapid	Fox
8	Ap Bm Bt*	0 – 23 23 – 41 41 - 60	L gL gSL	Well	Burford
9	Ap Bm Bt Ck*	0 – 21 21 – 38 38 – 62 62 - 70	SiL/fSL SiL/fSL gL gLfS	Well	Burford
10	Ap Bm Bt Ck*	0 – 20 20 – 45 45 – 61 61 - 74	SiL/fSL SiL/fSL gL gLfS	Well	Burford
11	Ap Bm Bt Ck*	0 – 22 22 – 39 39 – 51 51 - 68	SiL/fSL SiL/fSL gL gLfS	Well	Burford
12	Ap Bm Bt Ck*	0 – 20 20 – 44 44 – 59 59 - 65	SiL/fSL SiL/fSL gL gLfS	Well	Burford
13	Ap Bm Bt Ck*	0 – 22 22 – 36 36 – 50 50 - 64	SiL/fSL SiL/fSL gL gLfS	Well	Burford
14	Ap Bm Bt Ck	0 – 24 24 – 69 69 – 87 87 - 100	fSL fSL L fS	Well/Rapid	Fox

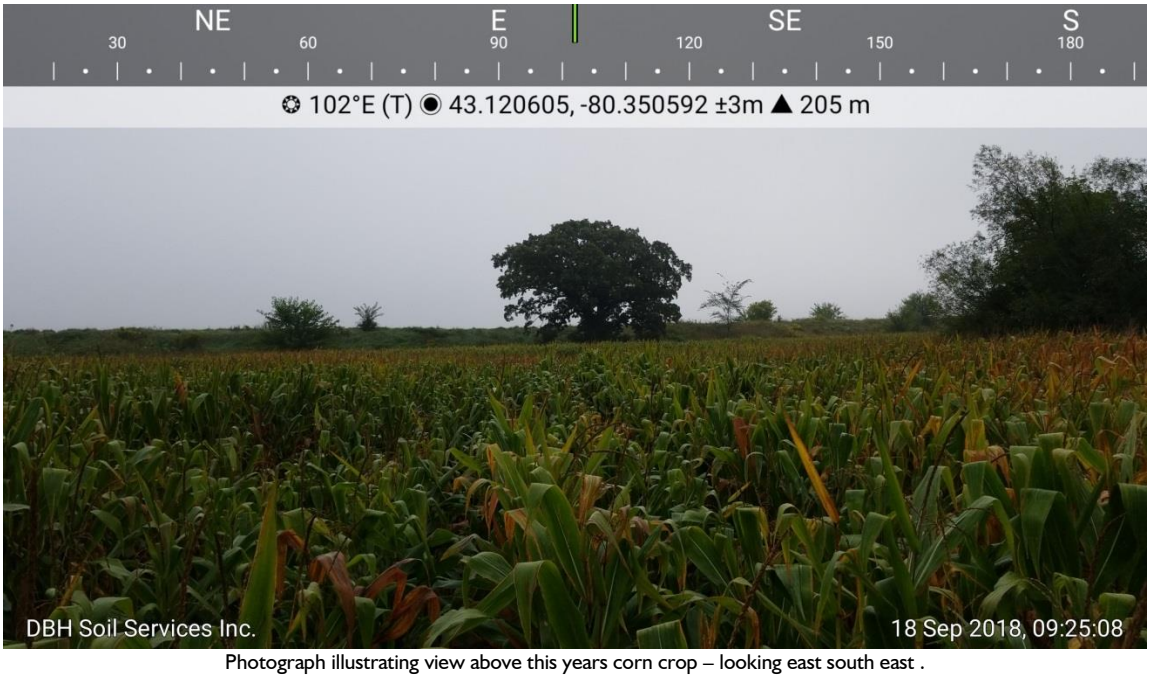
Soil Inspection Site Number	Horizon	Depth of Horizon (cm)	Soil Texture	Drainage Class	Soil Series
15	Ap Bm Bt Ck	0 – 20 20 – 59 59 – 76 76 - 100	fSL fSL L fS	Well/Rapid	Fox
16	Ap Bm Bt Ck	0 – 21 21 – 65 65 – 80 80 - 100	fSL fSL L fS	Well/Rapid	Fox
17	Ap Bm Bt Ck*	0 – 23 23 – 45 45 – 61 61 - 100	SiL/fSL SiL/fSL gL gLfS	Well	Burford
18	Ap Bm Bt Ck*	0 – 23 23 – 39 39 – 55 55 - 82	SiL/fSL SiL/fSL gL gLfS	Well	Burford
19	Ap Bm Bt Ck*	0 – 21 21 – 42 42 – 58 58 - 65	SiL/fSL SiL/fSL gL gLfS	Well	Burford
20	Ap Bm Bt Ck*	0 – 20 20 – 46 46 – 67 67 - 85	SiL/fSL SiL/fSL gL gLfS	Well	Burford
21	Ap Bm Bt Ck*	0 – 24 24 – 40 40 – 55 55 - 76	SiL/fSL SiL/fSL gL gLfS	Well	Burford
22	Ap Bm Bt Ck*	0 – 20 20 – 47 47 – 61 61 - 75	SiL/fSL SiL/fSL gL gLfS	Well	Burford

Notes:
L = Loam, SL = Sandy Loam, fSL = fine Sandy Loam, g= gravelly, LFH – Organic leaf litter
- 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 (excessive stoniness)

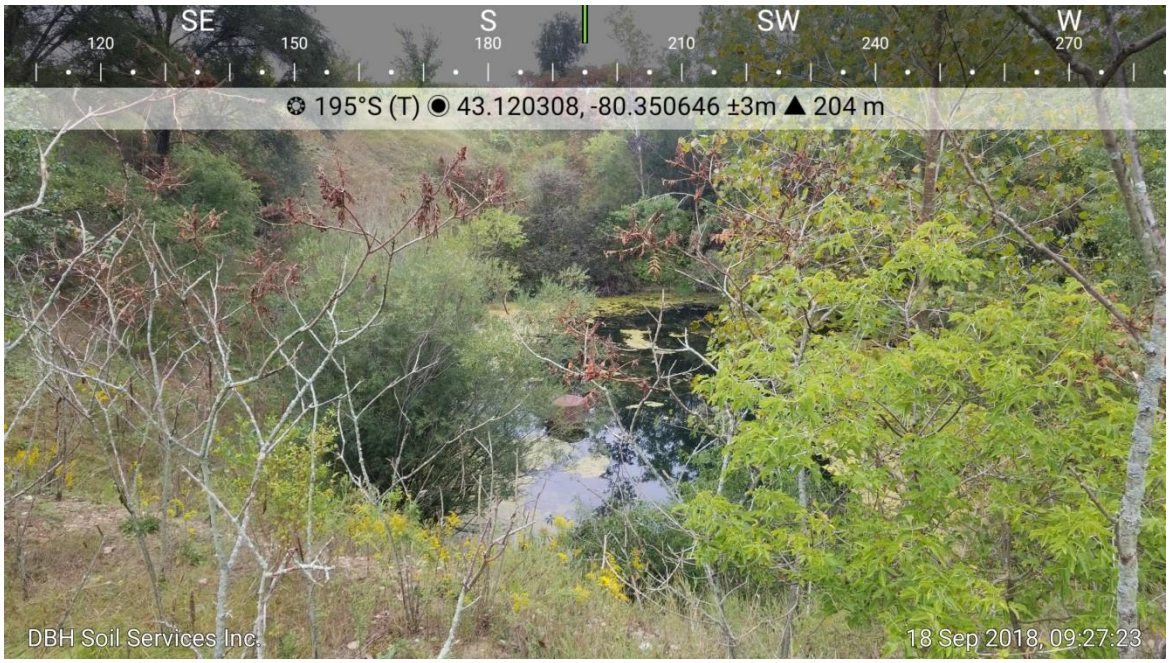
APPENDIX B

Photographs

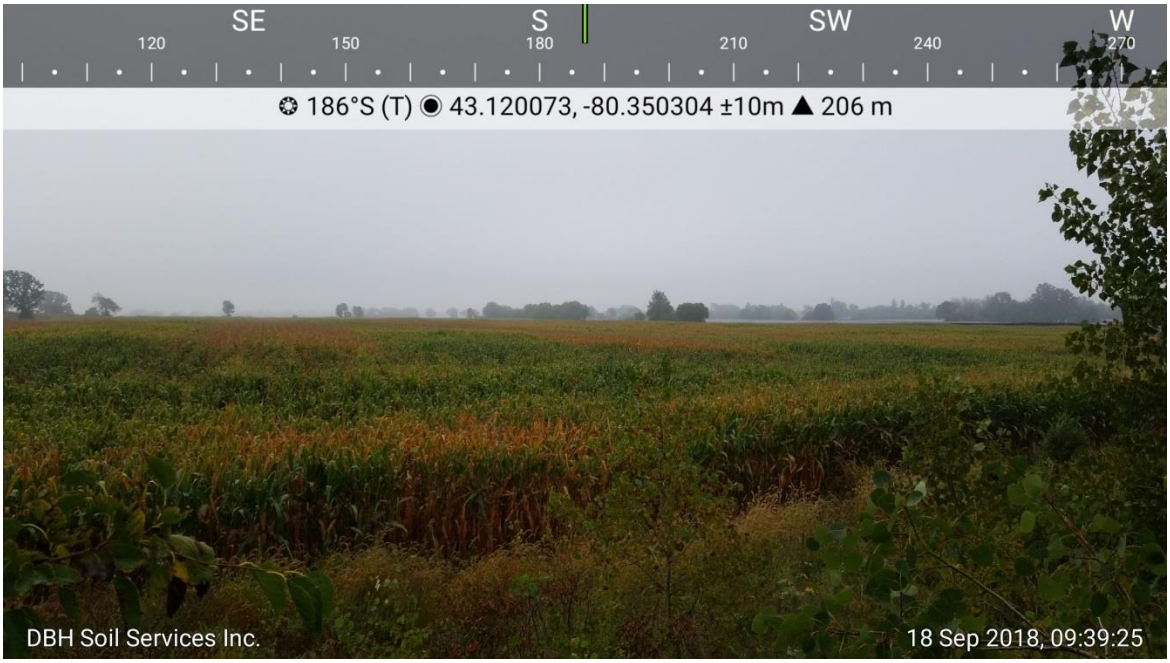
Photograph illustrating stone piles near the excavated area.



Photograph illustrating view above this years corn crop – looking east south east .



Photograph illustrating area of steeply sloping excavated area with woods and brush.



Photograph looking to the south above the corn crop to the southern extent of the property.

APPENDIX C

Curriculum Vitea

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DAVID B. HODGSON, B.Sc., P.Ag.
SENIOR PEDOLOGIST/PRESIDENT

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 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.

1988 to 1992 **Project Manager/Soils Specialist. Ecological Services for Planning Limited, Guelph, Ontario.**

As project manager/soils specialist, Mr. Hodgson provided expertise in the management and technical aspects of pedological studies. As well, Dave was involved with the technical inputs to a variety of planning, environmental assessment, agricultural research, waste management, linear transmission and various site selection studies. These studies involved co-ordination of resources, logistics concerns and the management of multidisciplinary teams.

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SELECTED PROJECT EXPERIENCE

Environmental Assessment Studies

- Agricultural Component for the High Speed Rail Kitchener to London –Terms of Reference, 2018 – On-going,
- 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 – On-going.
- 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 1).
- Agricultural Component of the Niagara to GTA Planning and Environmental Assessment Study, 2007 – 2013.
- Agricultural Component of the Highway 401 widening, Chatham, 2006 - 2007.
- Peer Review Agricultural Component of the Union Gas Dawn Corridor Expansion, 2006.
- 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 Studies

- Town of Wilmot, Agricultural Impact Assessment (AIA) Aggregate Pit Study, 2018, On-going.
- Courtice Area South East Secondary Plan (Clarington) Agricultural Impact Assessment (AIA), 2018 – On-going,
- Town of Halton Hills, Minimum Distance Separation (MDS 1), August 2018,
- Cedar Creek Pit/Alps Pit (North Dumfries), Agricultural Impact Assessment (AIA), 2018 – On-going,
- Belle Aire Road (Simcoe County) Agricultural Impact Assessment (AIA) Study, May 2018 – On-going,
- 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, Glen Morris Pit, Lafarge Canada, On-going,
- Soil Survey and Canada Land Inventory Evaluation, Brantford Pit Extension, Lafarge Canada, On-going,
- 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 – On-going.

- 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.
- Soil Survey and Canada Land Inventory Evaluation, Official Plan Amendment, Township of Essa, County of Simcoe, 2014.
- Soil Survey and Canada Land Inventory Evaluation, Solar Feed-In Tariff (FIT Program Study), Stonescape, Buckhorn, 2013.
- Soil Survey and Canada Land Inventory Evaluation, Solar Feed-In Tariff (FIT Program Study), Hatch Engineering, 2013.
- Soil Survey and Canada Land Inventory Evaluation, Solar Feed-In Tariff (FIT Program Study), Stantec, 2013.
    - Thunder Bay – 3 Sites.
- Soil Survey and Canada Land Inventory Evaluation, Waterford Sand And Gravel Quarry, 2013.
- City of Kitchener, City Wide Urban Soils Evaluations, 2012 – 2013.
- City of Kitchener, Urban Soils Evaluations in Natural Areas and City Boulevards, 2010 – 2011.

Land Evaluation and Area Review Studies (LEAR)

- Land Evaluation and Area Review – Soils Component, in Association with AgPlan Ltd, Kanata/Munster. December 2017 – On-going.
- 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.
- Evaluation of Soil Resources - Land Evaluation and Area Review, City of Sudbury, 2003 - 2004.

Expert Witness

- 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
- CAEPLA – Union Gas 36" Gas Pipeline Construction Monitoring and Post Construction Clean Up – Agricultural Monitoring 2017 – On-going.
- CAEPLA – Union Gas 36" Gas Pipeline Construction Clearing – Agricultural Monitoring, 2017 (Feb-March).
- City of Kitchener, Soil Sampling and data set analysis, 2017 – On-going.
- GAPLO – Union Gas 48" Gas Pipeline Construction Soil and Agricultural Monitoring, 2016 – 2017.
- GAPLO – Union Gas 48" Gas Pipeline (Hamilton –Milton) Clearing – Agricultural Monitoring, 2016.
- City of Kitchener, Soil Sampling and Laboratory Analysis, Urban Silviculture, 2009 – 2012.
- Soils Resource Group Inc. – City of London Water Supply Aqueduct soil monitoring program, 2011.

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 **B**

MHBC
PLANNING
URBAN DESIGN
& LANDSCAPE
ARCHITECTURE

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

Pierre Chauvin joined the firm as a Planner in 1998. Mr. Chauvin provides urban 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 Guelph & District Homebuilders' Association Liaison Committee with the Grand River Conservation Authority

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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

Parks & Recreation

Project lead and consultant to the City of Port Colborne to complete a Parks and Recreation Master Plan (on-going).

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.

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

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.

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 (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.

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

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

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.

Special Studies & Other

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

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

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.

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CURRICULUM**VITAE**

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

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.

Research assistant/project planner, Town of Hawkesbury Downtown Enhancement Plan.

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, 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.

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.

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

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.

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