AGRICULTURAL IMPACT ASSESSMENT (AIA)
JT EXCAVATING LTD – PROPOSED AGGREGATE PIT
LOT 22, CONCESSION 5
MUNICIPALITY OF WEST GREY, COUNTY OF GREY

DBH Soil Services Inc.

September 24, 2025

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JT EXCAVATING LTD – PROPOSED AGGREGATE PIT
LOT 22, CONCESSION 5
MUNICIPALITY OF WEST GREY
COUNTY OF GREY

Prepared for:

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September 24, 2025

Prepared by:

DBH Soil Services Inc.

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1 INTRODUCTION

DBH Soil Services Inc was retained to complete an Agricultural Impact Assessment (AIA) Report for JT Excavating Ltd for an aggregate pit application to be located at:

Lot 22, Concession 5
Geographic Township of Bentinck
Municipality of West Grey
County of Grey

This AIA was required as part of the aggregate pit application in the municipality of West Grey for a Class 'A' aggregate pit above the watertable with a proposed License Boundary area of approximately 26.97 ha, and with an area of extraction of approximately 17.38 ha.

This AIA identifies and assesses agricultural impacts based on roadside reconnaissance surveys and online resources and provides avoidance or mitigative measures as necessary to offset or lessen any impacts.

For the purposes of this AIA, the Primary Study Area (PSA) has been identified as Lot 22, Concession 5, Geographic Township of Bentinck, Municipality of West Grey, County of Grey. The PSA parcel is identified by roll # 420528000604300.

In the regional/city context, the PSA is bounded on the east and west by agricultural lands and woodlands, on the south by Concession Road 4 NDR, and on the north by woodlands. The PSA is approximately 3.1 km north of Allan Park, 6.3 km northeast of the urban area of Hanover, and approximately 8.2 km northwest of the urban area of Durham.

A Secondary Study Area (SSA) of 1000 m beyond the boundaries of the PSA was used for the characterization of the agricultural community and the assessment of potential impacts both on and in the immediate vicinity of the PSA.

Figure 1 illustrates the parcel associated with the PSA as a white outline, and the SSA as a dashed yellow line.

The PSA and the SSA comprise a mix of land uses including rural residential uses, agricultural lands, transportation corridors, and woodlands.

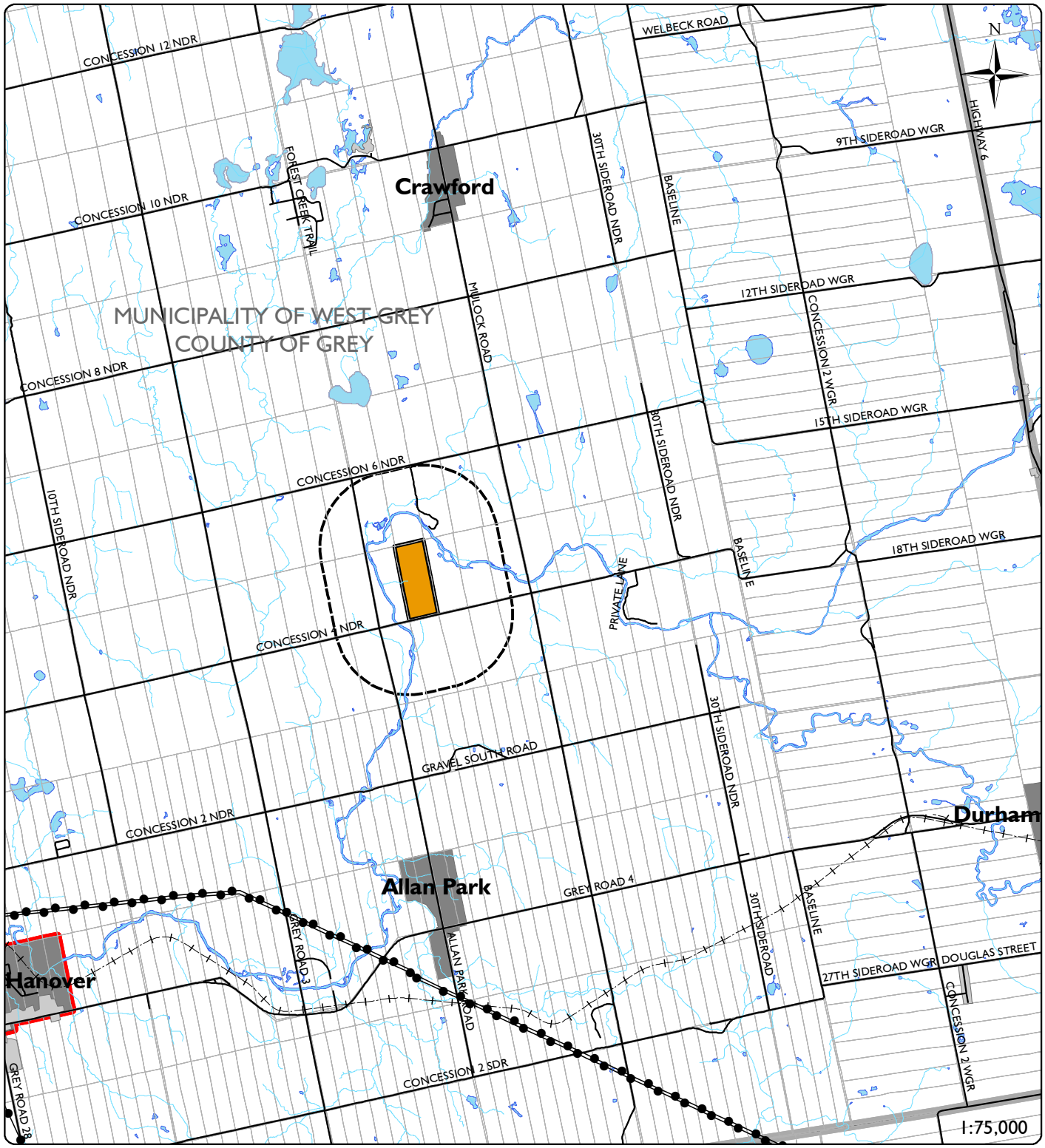
Figure 2 illustrates the relative location and shape of the PSA and SSA with respect to the above-mentioned geographical and community features.

Figure 1 Primary Study Area

Source: DBH Soil Services.

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

It is noted that the Ontario Ministry of Agriculture, Food, and Rural Affairs (OMAFRA) has recently been renamed to the Ontario Ministry of Agriculture, Food, and Agribusiness (OMAFA) which has led to some confusion as to referencing documents and/or data. The references in this report relate to the particular reference identified in the respective document/data set.



Legend

- Hydro Line
- Railway Inactive (MNR)
- Roads (MNR)
- Watercourse (MNR)
- Built Up (MNR)
- Lot Lines (MNR)
- Municipal Boundary Lower and Single Tier (MNR)
- Primary Study Area (PSA)
- Secondary Study Area (SSA) (1 km)
- Settlements (GC)
- Waterbody (MNR)

MNR - Ministry of Naturual Resources, GC - Grey County

Figure 2

Location

DBH Soil Services Inc.

August 2025

2 METHODOLOGY

A variety of data sources were evaluated to characterize the extent of agriculture resources and to assess any potential existing (or future) impacts to agriculture within the PSA and the surrounding SSA that may occur as a result of the proposed future development of the PSA.

In an effort to determine the requirements for completion of an AIA, a review of the *County of Grey Official Plan (Consolidated May 6, 2025)* and associated schedules was completed. The review of the *County of Grey Official Plan (Consolidated May 6, 2025)* identified the need to complete an AIA for new or expanded pits and quarries in Section 5.6.4.4i. The *County of Grey Official Plan (Consolidated May 6, 2025)* provides a definition of an AIA but does not provide further directions on how to complete an AIA.

A further review was completed to determine the extent of a township Official Plan. The review identified that the West Grey Official Plan applies to the settlement areas of Durham and Neustadt, while the *County of Grey Official Plan (Consolidated May 6, 2025)* covers the remainder of the municipality. Therefore, this AIA will refer to the *County of Grey Official Plan (Consolidated May 6, 2025)*.

The review on the existence and use of AIA Guidelines in Ontario was also completed. This review of the existence and use of AIA Guidelines in Ontario revealed that the Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA) had released draft Agricultural Impact Assessment guidelines in a document titled "*Draft Agricultural Impact Assessment (AIA) Guidance Document, March 2018*". This OMAFRA document is considered as "Draft for Discussion Purposes" and does not have status but is the basis for how OMAFRA addresses agricultural impacts and mitigation.

As a result of the review on the existence and use of AIA guidelines in Ontario, this AIA report has been completed with regard to the review/reference and requirements of the OMAFRA "*Draft Agricultural Impact Assessment (AIA) Guidance Document, March 2018*" and with regard to the requirements of the *County of Grey Official Plan (Consolidated May 6, 2025)*.

2.1 CONSULTATION

Agriculture is an important component of the economy in the County of Grey. As such, consultation with various agencies, provincial and municipal offices was completed as part of the planning process.

2.2 DATA COLLECTION

A variety of data sources were utilized in the assessment of agriculture in the PSA and SSA. Data was collected in a variety of formats including digital (shapefiles and imagery), paper copy, and through correspondence (telephone, meetings, email, etc), as necessary. A synopsis of the type of data and the collection of the relevant data is provided below.

2.2.1 POLICY

Relevant policy, by-laws and guidelines related to agriculture and infrastructure development were reviewed for this study.

The review included an examination of Provincial and Municipal policy as is presented in the *Provincial Planning Statement (PPS, 2024), the Greenbelt Plan (2017), the Oak Ridges Moraine Conservation Plan (2017), and* the *County of Grey Official Plan (Consolidated May 6, 2025)*.

The review also included a review of the *Municipality of West Grey Zoning By-law Number 37-2006 (April 1, 2017, Consolidation)*.

Further, the review included an assessment of *the Minimum Distance Separation (MDS) Document – Formulae and Guidelines for Livestock Facility and Anaerobic Digester Odour Setbacks. Publication 853. Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA, 2016)*. The MDS document was reviewed to determine the applicability of the document's use for this study.

An assessment of online data resources included OMAFRA, Geospatial Ontario (Ontario.ca), the County of Grey, and the Municipality of West Grey websites. Further, this assessment included telephone, email and in person communication/correspondence to derive a list of relevant policies, by-law and guidelines. Each relevant policy, by-law and guideline was collected in digital or paper format for examination for this study.

2.2.2 PHYSIOGRAPHY

A review of the *Physiography of Southern Ontario 3rd Edition, Ontario Geological Survey Special Volume 2, Ministry of Natural Resources (1984)* and the associated digital GIS shapefiles was completed to document the type(s) and depth of bedrock and soil parent materials, and how these materials, in conjunction with glacial landforming processes, have led to the development of the existing soil resources.

2.2.3 TOPOGRAPHY AND CLIMATE

Topographic information was reviewed from the 1:10000 scale Ontario Base Mapping, Ontario GeoHub (Ontario.ca) digital contour mapping and windshield surveys.

Climate data was taken from the OMAFRA document titled *Agronomy Guide for Field Crops –*

Publication 811 (June 2017) and online OMAFRA data sources. The use of this climate information is consistent with the description within the *Draft OMAFRA Agricultural Impact Assessment (AIA) Guidance Document (March 2018)* where there is a requirement to provide a general description of climatic features (crop heat units, frost free days, and general climatic patterns of the area).

The *Draft OMAFRA Agricultural Impact Assessment (AIA) Guidance Document (March 2018)* indicates the need to provide greater detail on climate only in specialty crop areas.

2.2.4 AGRICULTURAL LAND USE

Agricultural land use data was collected through observations made during roadside reconnaissance surveys and field surveys conducted on June 17, 2025. Data collected included the identification of land use (both agricultural and non-agricultural), the documentation of the location and type of agricultural facilities/services, the location of non-farm residential units and the location of non-farm buildings (businesses, storage facilities, industrial, commercial, and institutional usage).

Agricultural land use designations were correlated to the *Agricultural Resource Inventory* (ARI) and the information provided in the Agricultural System Portal (OMAFRA) for the purpose of updating the OMAFRA Land Use Systems mapping for both the PSA and SSA.

2.2.5 MINIMUM DISTANCE SEPARATION

Minimum Distance Separation (MDS) formulae were developed by OMAFRA to reduce and minimize nuisance complaints due to odour from livestock facilities and to reduce land use incompatibility.

A review of the OMAFRA document titled *The Minimum Distance Separation (MDS) Document: Formulae and Guidelines for Livestock Facility and Anaerobic Digester Odour Setbacks* (Publication 853, Ontario Ministry of Agriculture, Food and Rural Affairs. 2016) was completed.

It is stated under guideline #3:

> "Certain proposed uses are not reasonably expected to be impacted by existing livestock facilities or anaerobic digesters and as a result, do not require an MDS I setback. Such uses may include, but are not limited to:
>
> - extraction of minerals, petroleum resources and mineral aggregate resources;
> - infrastructure; and
> - landfills."

This AIA is based on a proposed mineral aggregate application in an agricultural area. Therefore, an assessment of MDS1 is NOT required.

Agricultural buildings in the PSA and SSA were assessed during a roadside reconnaissance survey

and through a review of online imagery. Agricultural building location and use have been identified within this AIA.

2.2.6 LAND FRAGMENTATION/SEVERANCE

Land fragmentation data was collected through a review of online interactive mapping on the Agmaps (OMAFRA) website, the Agricultural System Portal (OMAFRA), and the County of Grey websites. This data was used to determine the extent, location, and relative shape of each parcel/property within both the PSA and the SSA.

Land fragmentation can be defined as the increase in the number of smaller parcels, which are generally non-agricultural uses, within a predominantly agricultural area. Over time the increase in smaller non-agricultural land uses creates a patchwork-like distribution of rural land uses, resulting in lands lost to agricultural production. Generally, good productive areas of farmland are comprised of larger parcels with few (if any) smaller parcels interspersed.

The assessment of fragmentation looked at the size, shape and number of parcels within a given area, and provided comments on the potential effect on agriculture.

Land severance is the severing or dividing of a parcel into multiple sections. An assessment of land severance was completed to determine the extent of parcels that may be severed as a result of the proposed future development of the PSA.

2.2.7 SOIL SURVEY – PROVINCIAL DATA

Soil survey data and Canada Land Inventory (CLI) data was provided by OMAFRA in digital format through the Ontario Geohub Land Information Ontario (LIO) Warehouse Open Data website. The soils/CLI data is considered the most recent iteration of the soil information from OMAFRA.

The digital soil survey data was also correlated to the printed soil survey reports and maps (*Soil Survey of Grey County, Report No. 17 of the Ontario Soil Survey. (Gillespie, J.E. and N.R. Richards, 1954)*) to determine if the digital soils data has been modified from the original soil survey data.

Further, discussions with OMAFRA indicated that the Provincial soils database has been updated to include some slope information in an effort to provide the digital data at a scale of 1:50000. The original reports and associated mapping were generally completed to a scale of 1:63360 or 1 inch to 1 mile.

2.2.8 SOIL SURVEY - DETAILED

An onsite detailed soil survey was completed to determine the extent of the soil resources onsite, and to determine the relative soil capability for rehabilitation purposes.

2.2.9 AGRICULTURAL SYSTEM

The Ontario Ministry of Agriculture, Food and Rural Affairs online Agricultural Systems mapping was reviewed to determine the extent of agriculture in the PSA, in the SSA, the Municipality of West Grey, and the County of Grey in general.

OMAFRA identifies that the Agricultural System comprises two parts: Agricultural Land Base; and the Agri-Food Network.

The Agricultural Land Base illustrates the Prime Agricultural Areas (including specialty crop areas), while the Agri-Food Network illustrates regional infrastructure/transportation networks, buildings, services, markets, distributors, primary processing, and agriculture communities.

The review of the Agricultural Network included a visual assessment of any agricultural services and transportation networks identified during the roadside reconnaissance survey within the PSA and the SSA, and a review of the OMAFRA Agricultural Systems Portal mapping.

2.2.10 AGRICULTURAL STATISTICS

Agricultural statistics were provided by Statistics Canada and downloaded from the OMAFRA website for the County of Grey. The data sets provide information up to (and including) the 2021 Census.

The OMAFRA draft AIA Guidelines indicates that the background data collection and review should include:

> "Agricultural crop statistics, over several recent census periods (Statistics Canada, Census of Agriculture)."

It is understood that the Census of Agriculture data is very extensive and detailed. This AIA utilized the Census of Agriculture data to provide a review of basic crop statistics over a minimum of three census periods extending from 2011 to 2021.

It is noted that the Census of Agriculture data does not always provide the most recent or updated municipality name. For the purposes of this AIA the review and assessment of the Census of Agriculture made use of the municipality nomenclature as was stated in the Census of Agriculture data sets.

3 POLICY REVIEW

Clearly defined and organized environmental practices are necessary for the conservation of land and resources. The long-term protection of quality agricultural lands is a priority of the Province of Ontario and has been addressed in the *Provincial Planning Statement (PPS, 2024)*. Further, in an effort to protect agricultural lands, the Province of Ontario has adopted policy and guidelines to provide a framework for managing growth. These three provincial land use plans: *the Greenbelt Plan (2017 and updated mapping 2022); the Niagara Escarpment Plan (2017), and the Oak Ridges Moraine Conservation Plan (2017)* support the long-term protection of farmland. The provincial land use plans have policies that require the completion of AIA studies for changes in agricultural land use.

With this in mind, the *Provincial Planning Statement (PPS, 2024); the Greenbelt Plan (2017 and updated mapping 2022); the Niagara Escarpment Plan (2017); and the Oak Ridges Moraine Conservation Plan (2017)* were reviewed.

As per the *OMAFA Draft OMAFRA Agricultural Impact Assessment (AIA) Guidance Document (March 2018) w*ith respect to this AIA and the three provincial land use plans, a review of the boundaries of the Greenbelt Plan Area, the Niagara Escarpment Plan Area and the Oak Ridges Moraine Conservation Area was required and completed.

It was determined that the PSA and the SSA were located outside the boundaries of the *Greenbelt Plan* mapping, the Niagara Escarpment Plan mapping and the *Oak Ridges Moraine Conservation Plan* mapping, therefore those policy plans do not apply to this AIA.

Municipal Governments have similar regard for the protection and preservation of agricultural lands and address their specific concerns within their respective Official Plans on County/Regional level and Township level.

A review of municipal policy was based on an examination of the *County of Grey Official Plan (Consolidated May 6, 2025)*.

The review also included a review of the *Municipality of West Grey Zoning By-law Number 37-2006 (April 1, 2017, Consolidation)*.

It was determined through these reviews that no portions of the PSA or the SSA were located in a provincially or municipally designated specialty crop area.

The relevant policies from the above-mentioned documents are presented as follows.

3.1 PROVINCIAL AGRICULTURAL POLICY

The *Provincial Planning Statement (PPS, 2024)* was enacted to document the Ontario Provincial Governments development and land use planning strategies. The *Provincial Planning Statement (PPS, 2024)* provides the policy foundation for regulating the development and use of land. With respect to the potential future development of the PSA for an aggregate pit, the following policies may apply.

Agricultural policies with respect to extraction in prime agricultural areas are addressed within Sections 4.5.4 *of the Provincial Planning Statement (PPS, 2024)*. Select agricultural policies are provided as follows:

> "4.5.4 Extraction in Prime Agricultural Areas
>
> 1. In prime agricultural areas, on prime agricultural land, extraction of mineral aggregate resources is permitted as an interim use provided that:
>   a) impacts to the prime agricultural areas are addressed, in accordance with policy 4.3.5.2; and
>   b) the site will be rehabilitated back to an agricultural condition.
>
> 2. Despite policy 4.5.4.1.b), complete rehabilitation to an agricultural condition is not required if:
>   a) the depth of planned extraction makes restoration of pre-extraction agricultural capability unfeasible; and
>   b) agricultural rehabilitation in remaining areas is maximized."

PPS 2024 policy 4.3.5.2 states:

> "Impacts from any new or expanding non-agricultural uses on the *agricultural system* are to be avoided, or where avoidance is not possible, minimized and mitigated as determined through an *agricultural impact assessment* or equivalent analysis, based on provincial guidance."

Therefore, extraction in prime agricultural areas is permitted providing impacts to prime agricultural areas is addressed in accordance with policy 4.3.5.2, and that the site will be rehabilitated back to an agricultural condition.

An agricultural condition has been defined in the PPS 2024 as:

> "Agricultural condition: means in regard to *specialty crop areas*, a condition in which substantially the same areas and same average soil capability for agriculture are restored, the same range and productivity of specialty crops common in the area can be achieved, and, where applicable, the microclimate on which the site and surrounding area may be dependent for specialty crop production will be maintained, restored or enhanced; and in

regard to *prime agricultural land* outside of *specialty crop areas*, a condition in which substantially the same areas and same average soil capability for agriculture will be maintained, restored or enhanced."

3.2 PROVINCIAL AGRICULTURAL LAND BASE LEGACY MAPPING

Provincial policy requires that prime agricultural areas be protected for long-term use for agriculture. The province identified the agricultural land base through a Land Evaluation and Area Review (LEAR) assessment for the Greater Golden Horseshoe area to assist municipalities in making informed land-use planning decisions. Municipalities were required to review the agricultural land base mapping and provide refinements to the agricultural land base as part of Official Plan updates.

It is noted that neither the PSA nor the SSA are located within the boundaries of the Provincial Agricultural Land Base Legacy Mapping.

It is noted that the Provincial Land Base mapping is now considered a legacy map and is not being updated by the province. Further, the province has indicated on the Agricultural Systems Portal website that "For the most up-to-date prime agricultural area mapping, check the applicable, approved municipal official plan."

3.3 PROVINCIAL LAND USE PLAN POLICY

As indicated above, the *OMAFA Draft OMAFRA Agricultural Impact Assessment (AIA) Document (March 2018)* requires the review and evaluation of provincial and municipal policy. The PPS 2024 policies were provided previously in this AIA. This section provides comments on the three provincial land use plans and the relevance of each plan with respect to this AIA. A review of the boundaries of the Greenbelt Plan Area, the Niagara Escarpment Plan Area and the Oak Ridges Moraine Conservation Plan was required and completed.

3.3.1 THE GREENBELT PLAN

A review of the Greenbelt Plan (2017); mapping indicated that no portions of the PSA nor the SSA are located within the boundaries of the Greenbelt Plan area. Therefore, the Greenbelt Plan policies do not apply to this AIA.

3.3.2 THE NIAGARA ESCARPMENT PLAN

A review of the boundaries of the Niagara Escarpment Plan (2017) (and associated digital mapping) was completed. The review indicated that no portions of the PSA or the SSA are located within the Niagara Escarpment Plan area. Therefore, the policies of the Niagara Escarpment Plan do not apply to this AIA.

3.3.3 THE OAK RIDGES MORAINE CONSERVATION PLAN

A review of the boundaries of the Oak Ridges Moraine Conservation Plan (and associated digital mapping) was completed. The review indicated that no portions of the PSA or the SSA are located within the Oak Ridges Moraine Conservation Plan (2017) area. Therefore, the policies of the Oak Ridges Moraine Conservation Plan do not apply to this project.

3.4 OFFICIAL PLAN POLICY

Official Plan policies are prepared under the Planning Act, as amended, of the Province of Ontario. Official Plans generally provide policy comments for land use planning while taking into consideration the economic, social, and environmental impacts of land use and development concerns. A review for Official Plan documents revealed that the West Grey Official Plan applies to the settlement areas of Durham and Neustadt, while the *County of Grey Official Plan (Consolidated May 6, 2025)* covers the remainder of the municipality. Therefore, this AIA will refer to the *County of Grey Official Plan (Consolidated May 6, 2025)*.

The review also included a review of the *Municipality of West Grey Zoning By-law Number 37-2006 (April 1, 2017, Consolidation)*.

3.4.1 COUNTY OF GREY OFFICIAL PLAN

The review of the *County of Grey Official Plan (Consolidated May 6, 2025)* Schedule A Land Use revealed that the majority of the PSA was comprised of lands designated as Agricultural area, while the remaining portion of the PSA was identified as Hazard Lands.

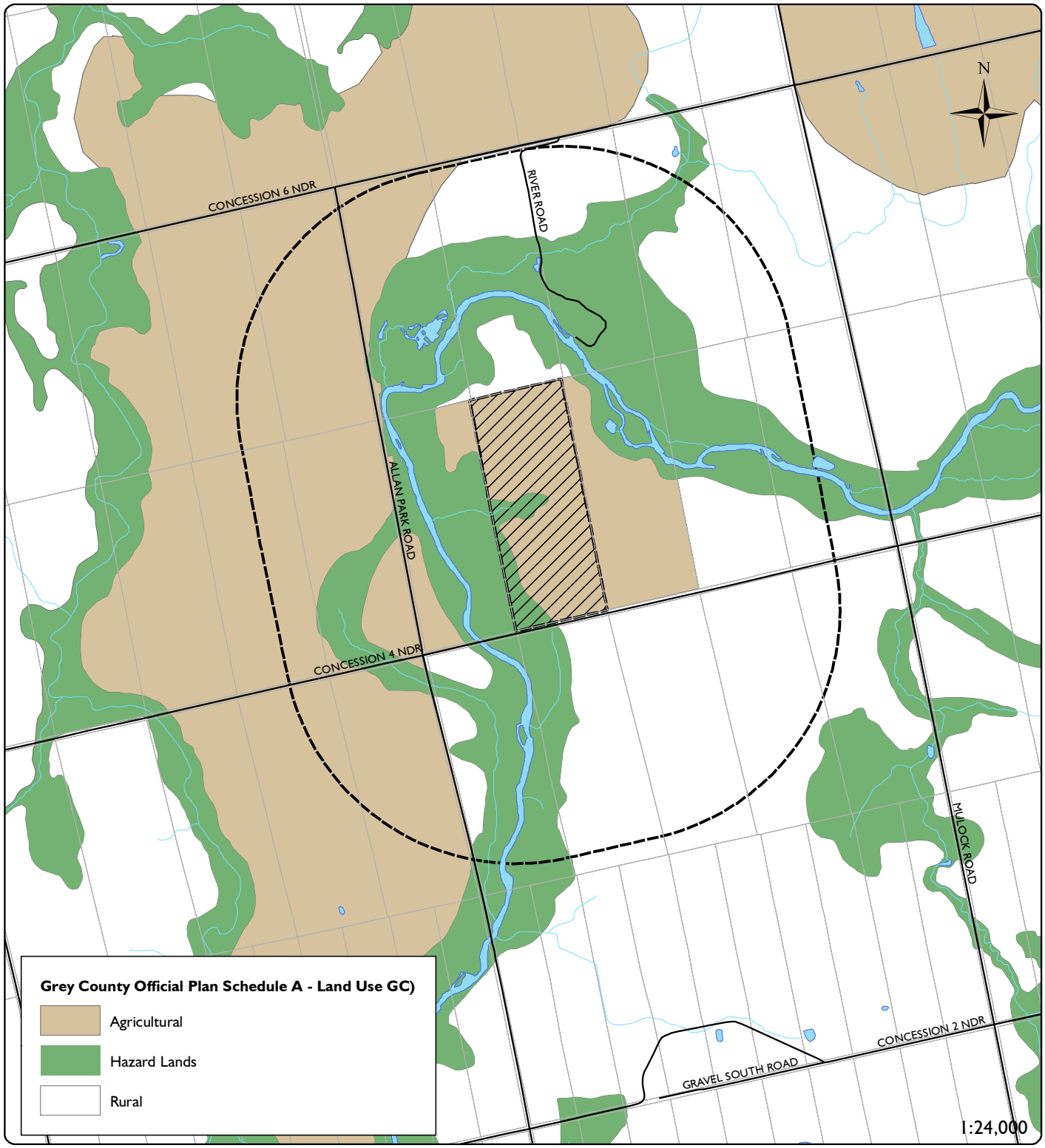
It was determined that the SSA comprised portions of Agricultural areas, Hazard Lands and Rural areas.

Figure 3 illustrates the PSA and SSA with respect to the online available version of the *County of Grey Official Plan (Consolidated May 6, 2025)* Schedule A Land Use mapping. The PSA is illustrated as a cross hatch, while the SSA is illustrated as a dashed black line.

The review of the *County of Grey Official Plan (Consolidated May 6, 2025)* identified that agricultural policies are provided in Section 5.2 – Agricultural Land Use Type, and aggregate policies are provided in Section 5.6 – Aggregate Resources Area and Mineral Resource Extraction Land Use Types:

Policy 5.2.1.1h states:

> "5.2.1 Uses Permitted Policies
> 1) Permitted uses in the *Agricultural land use type* include:
> h) Sand and/or gravel operations proposed within *Aggregate Resource Areas* on Schedule B to this Plan"



Legend

- Hydro Line
- Railway Inactive (MNR)
- Roads (MNR)
- Watercourse (MNR)
- Lot Lines (MNR)
- Primary Study Area (PSA)
- Secondary Study Area (SSA) (1 km)
- Waterbody (MNR)

MNR - Ministry of Natural Resources, GC - Grey County

Figure 3

Grey County
Official Plan
Schedule A - Land Use

DBH Soil Services Inc.

August 2025

Figure 4 illustrates the PSA and SSA with respect to the online available version of the *County of Grey Official Plan (Consolidated May 6, 2025)* Schedule B Aggregate Resource Area mapping. The PSA is illustrated as a cross hatch, while the SSA is illustrated as a dashed black line. It is noted that the PSA is located within a designated Aggregate Resource Area.

Development policies for the agricultural area are provided in Section 5.2.2 – Agricultural Development Policies. Section 5.2.2.4 states:

> *"Non-agricultural uses* are discouraged in the *prime agricultural areas*, and may only be permitted for:
> a)Extraction of *minerals*, *petroleum resources* and *mineral aggregate resources*; and shall be in accordance with section 5.6 of the Plan"

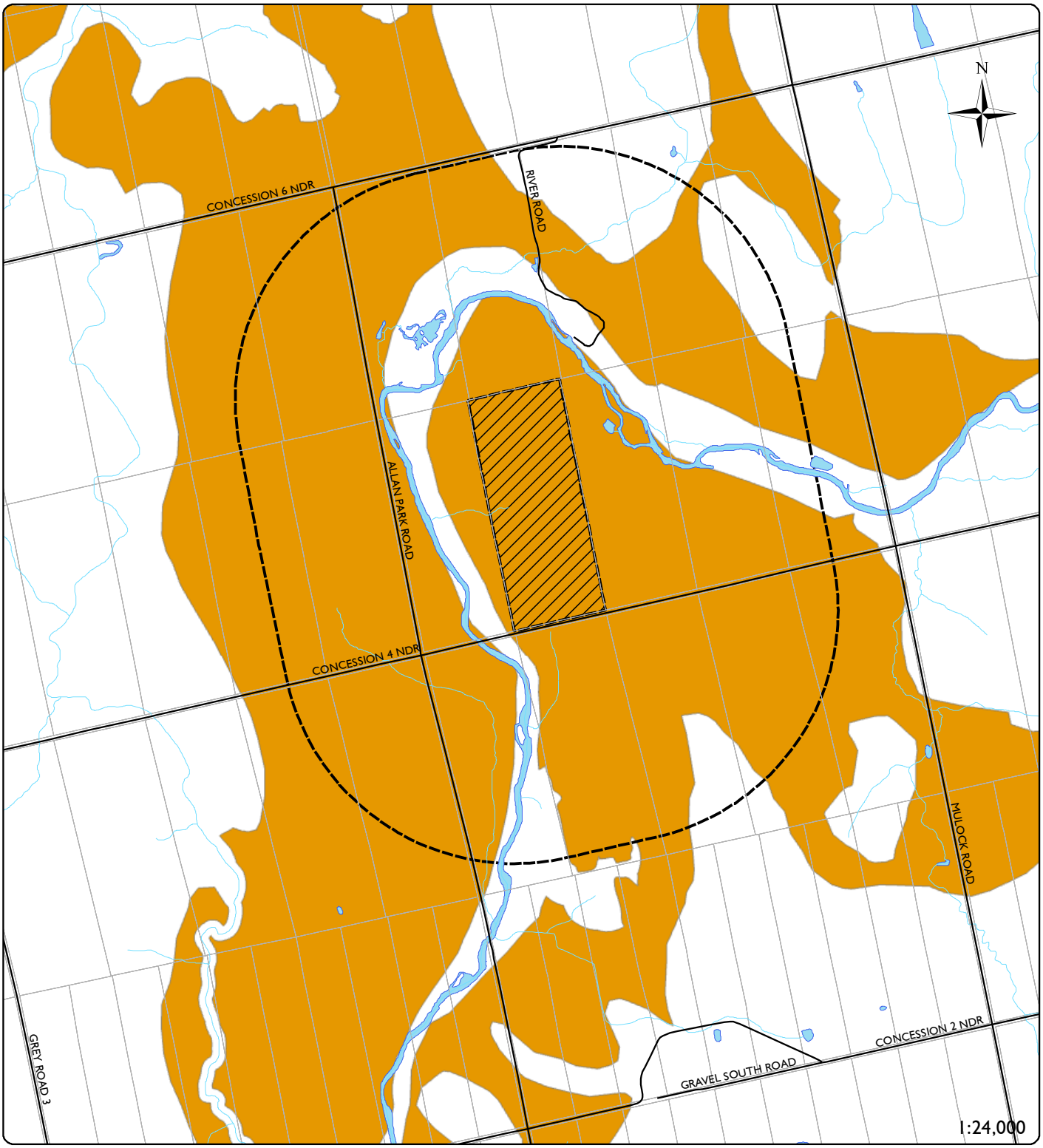
Section 5.6.4 – Policies for the Establishment of New Mineral Resource Extraction Land Use Types states in 5.6.4.4i:

> "The following studies/reports, prepared by *qualified individual*s, shall be provided to support applications for new or expanded pits or quarries. These studies/reports shall meet the requirements of the *Planning Act,* Provincial Policy Statement, Niagara Escarpment Plan (if within the Niagara Escarpment Plan area), *County* Official Plan, and municipal Official Plans (where applicable):
>
> i) An *Agricultural Impact Assessment*, if the proposed new or expanding extraction operation is within the *Agricultural* or *Special Agricultural land use type*s, that evaluates the potential impacts on agriculture, including agricultural operations, *agricultural uses,* and *prime agricultural areas* and recommends ways to avoid or, if avoidance is not possible, minimize and mitigate adverse impacts, as well as inform future rehabilitation of a proposed mineral aggregate operation"

The *County of Grey Official Plan (Consolidated May 6, 2025)* defines an Agricultural Impact Assessment as:

> *"AGRICULTURAL IMPACT ASSESSMENT* means a study that evaluates the potential impacts of non-agricultural uses on agriculture, including agricultural operations, *agricultural uses*, and *prime agricultural areas* and recommends ways to avoid or if not possible, minimize and mitigate adverse impacts."

Therefore, on review of the *County of Grey Official Plan (Consolidated May 6, 2025)* new aggregate extraction operations are permitted in prime agricultural areas provided an appropriate AIA has been completed to document any potential impacts, and to provide ways to avoid or to minimize and mitigate the adverse impacts. Further, the AIA is to inform future rehabilitation of the proposed mineral aggregate operation.



Legend

- Hydro Line
- Railway Inactive (MNR)
- Roads (MNR)
- Watercourse (MNR)
- Aggregate Resource Area
- Lot Lines (MNR)
- Primary Study Area (PSA)
- Secondary Study Area (SSA) (1 km)
- Waterbody (MNR)

MNR - Ministry of Natural Resources

Figure 4
Grey County Official Plan
Schedule B
Aggregate Resource Area

DBH Soil Services Inc.

August 2025

3.4.2 MUNICIPALITY OF WEST GREY ZONING BY-LAW

Official plans set out a municipality's general policies for existing and future land use. Zoning bylaws specify permitted uses and standards for each municipally designated zone. The specific requirements identified within a zoning bylaw are legally enforceable. Local municipalities are the approval authority for zoning bylaws. As such, this AIA study reviewed the *Municipality of West Grey Zoning By-law Number 37-2006 (April 1, 2017, Consolidation)*.

3.4.2.1 Municipality of West Grey Zoning By-law

The review of the *Municipality of West Grey Zoning By-law Number 37-2006 (April 1, 2017, Consolidation)* identified that the zoning for the PSA was provided in online mapping from Grey County. The PSA comprised A1 (Agricultural Zone) and NE (Natural Environment). Section 8 provided the zoning for A1 (Agricultural Zone), while Section 31 provided the zoning for the Natural Environment.

The SSA comprised zoning for A1 (Agricultural Zone), A2 (Agricultural Zone), M4 (Extractive Industrial Zone), NE (Natural Environment), and OS (Open Space),

Section 8 (Agricultural Zone) states

"8.2 PERMITTED USES

- Agricultural uses, buildings and structures
- Bed and Breakfast Establishment (Class 2)
- Equestrian center facilities
- Forestry
- Home Occupation
- Home Industry
- A detached dwelling
- Conversion of a single detached residential dwelling accessory to a farm for one additional residential dwelling unit in accordance with Section 6.29
- Wayside Pits
- Wayside Quarries
- Temporary Portable Asphalt Plant in a wayside pit or quarry
- Recreational Trails operated by a Public Agency
- An accessory apartment dwelling unit within a detached dwelling in accordance with Section 6.29
- A recreational trailer in accordance with Section 6.39
- Accessory uses, buildings and structures in accordance with Section 6.1

REGULATIONS 8.2.1 LOT AREA, Minimum 40 ha (100 ac)"

On review of the *Municipality of West Grey Zoning By-law Number 37-2006 (April 1, 2017, Consolidation)* section 6.35.2 Restricted Uses states:

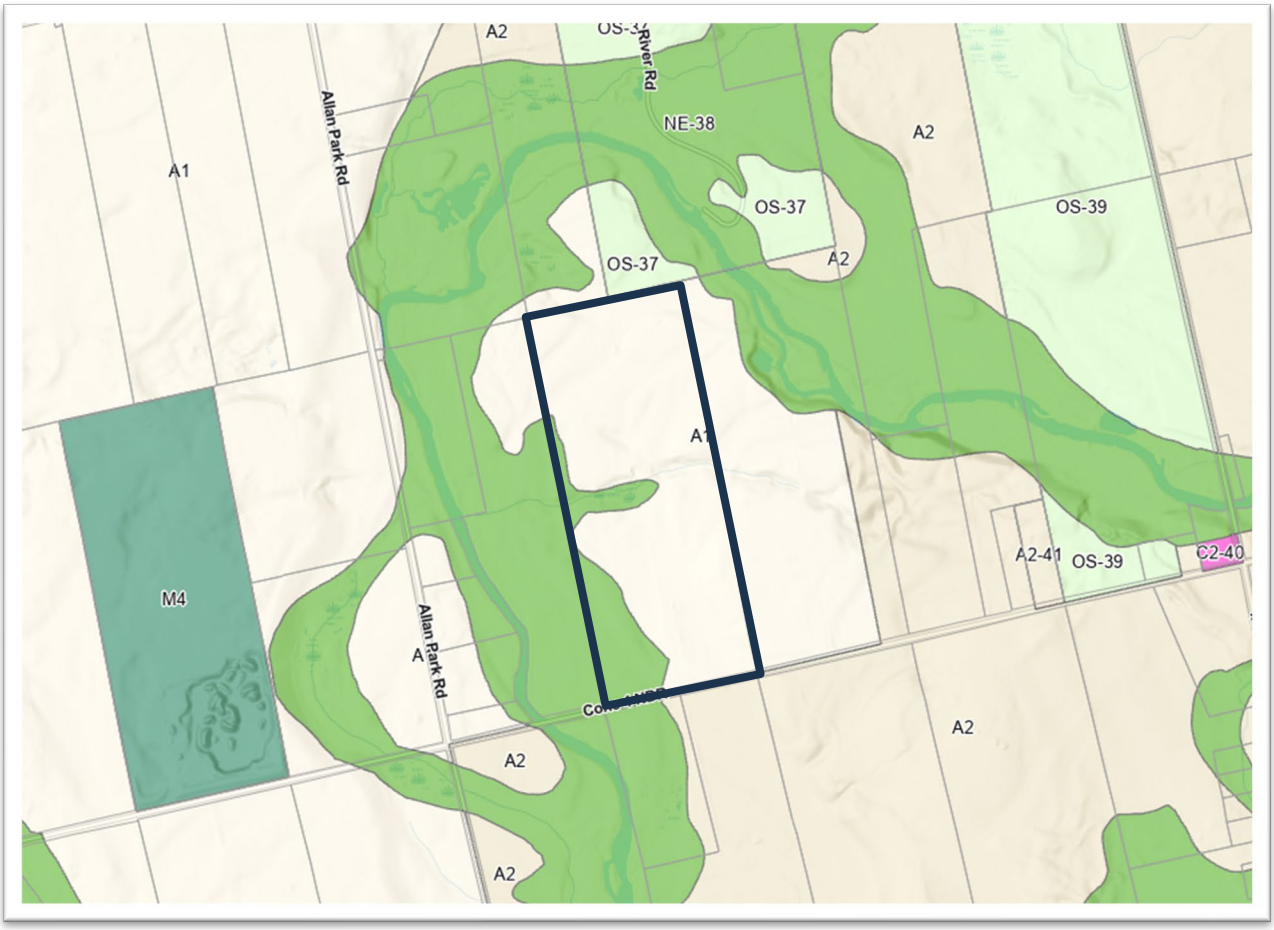
"The following uses are prohibited throughout the Municipality, either alone or in conjunction with other uses, unless such use is specifically permitted in a zone or by an amendment to this By-law:"

- "The establishment of pits and quarries, asphalt plants or concrete plants."

Therefore, there is a requirement to amend the *Municipality of West Grey Zoning By-law Number 37-2006 (April 1, 2017, Consolidation)* in order to develop the proposed aggregate pit.

Figure 5 illustrates a portion of the zoning information provided through the Grey County online mapping services. The PSA is illustrated as a solid black outline.

Figure 5 West Grey Zoning



Source: County of Grey online mapping

4 AGRICULTURAL RESOURCE POTENTIAL

4.1 PHYSICAL CHARACTERISTICS

The physiographic resources within the PSA and the SSA are described in this section. The physiographic resources identify the overall large area physical characteristics documented as background to the soils and landform features. These characteristics are used to support the description of the soils and agricultural potential of an area.

4.1.1 PHYSIOGRAPHY

On review of the Geohub digital physiographic region data, and *The Physiography of Southern Ontario 3rd Edition*, (Ontario Geological Survey Special Volume 2, Ministry of Natural Resources, 1984), it was determined that the PSA and the SSA are located within the Horseshoe Moraine physiographic region.

The Horseshoe Moraine Physiographic Region is a large, horseshoe shaped area that flanks the upland areas west of the highest portions of the Niagara cuesta. The chief landforms are irregular stony knobs and ridges that are composed of till, with some sand and gravel deposits, and sand/gravel terraces with swampy valley floors. The southern portion of the Horseshoe Moraine Physiographic Region near Paris comprised of moderately hilly areas that flatten out.

4.1.2 TOPOGRAPHY AND CLIMATE

Topographic information was reviewed and correlated to the 1:10000 scale Ontario Base Mapping, Land Information Ontario digital contour mapping, and aerial photo interpretation.

The PSA and the SSA are a complex mix of topography with gently undulating areas generally used for agricultural production, and steeper slopes along incised stream and river channels.

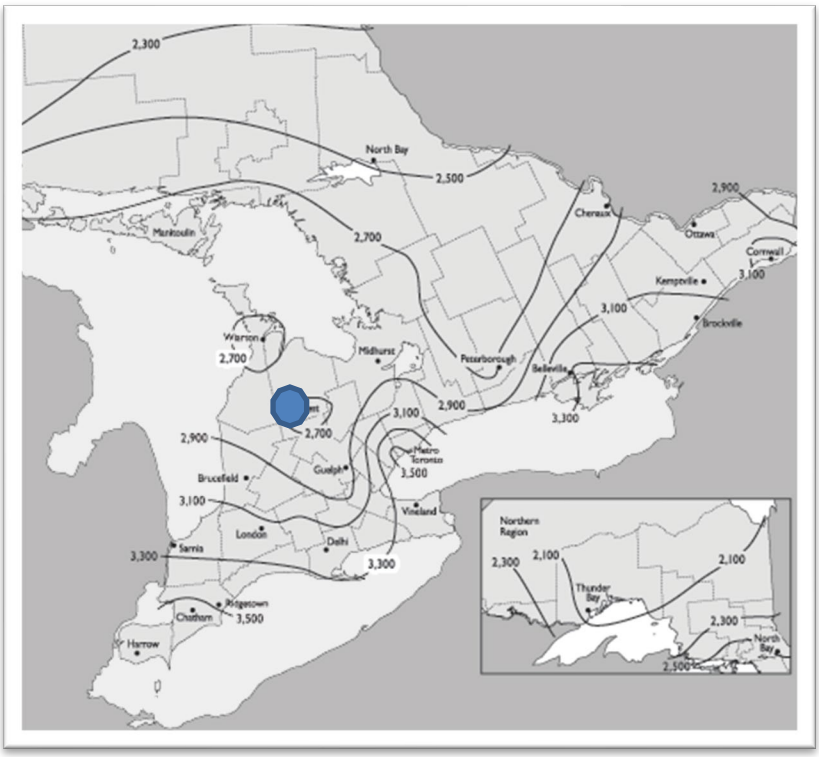
Climate data was taken from the OMAFRA document titled *Agronomy Guide for Field Crops – Publication 811 (June 2017)* and the *Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA) Factsheet – Crop Heat Units for Corn and Other Warm Season Crops in Ontario, 1993.*

The PSA and SSA are located between the 2700 and 2900 Crop Heat Units isolines (CHU-M1) available for corn production in Ontario. The Crop Heat Units (CHU) index was originally developed for field corn and has been in use in Ontario for 30 years. The CHU ratings are based on the total accumulated crop heat units for the frost-free growing season in each area of the province. CHU averages range between 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, 2017)) map is illustrated on Figure 6. The approximate location of the PSA and SSA was marked with a blue circle.

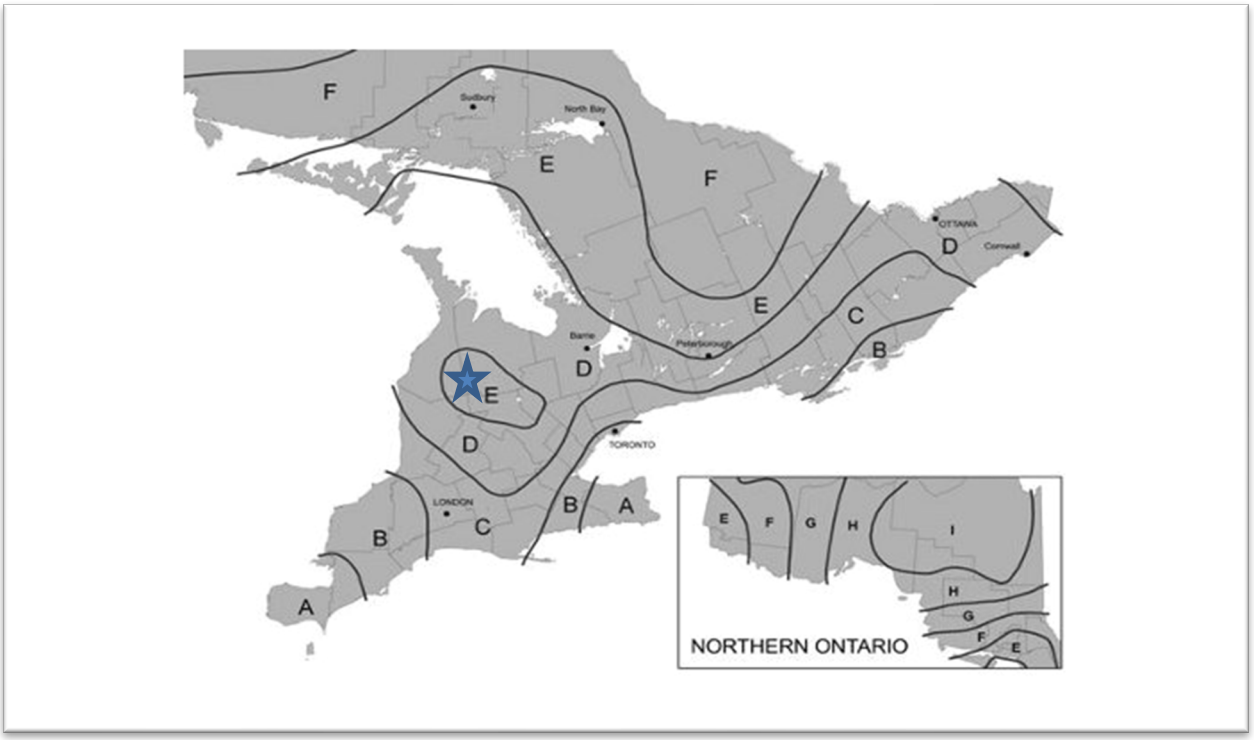
A review of OMAFRA Climate Zone Mapping revealed that the PSA and the SSA are located in Zone E. Figure 7 from the OMAFRA website illustrates the Climate Zone Map of Ontario. The approximate location of the PSA and SSA was marked with a blue star.

Figure 6 Crop Heat Units Map



Source: Figure 1-1 Crop Heat Units – Agronomy Guide for Field Crops (Publication 811)

Figure 7 OMAFRA Climate Zone Map



Source: OMAFRA Climate Zone Mapping

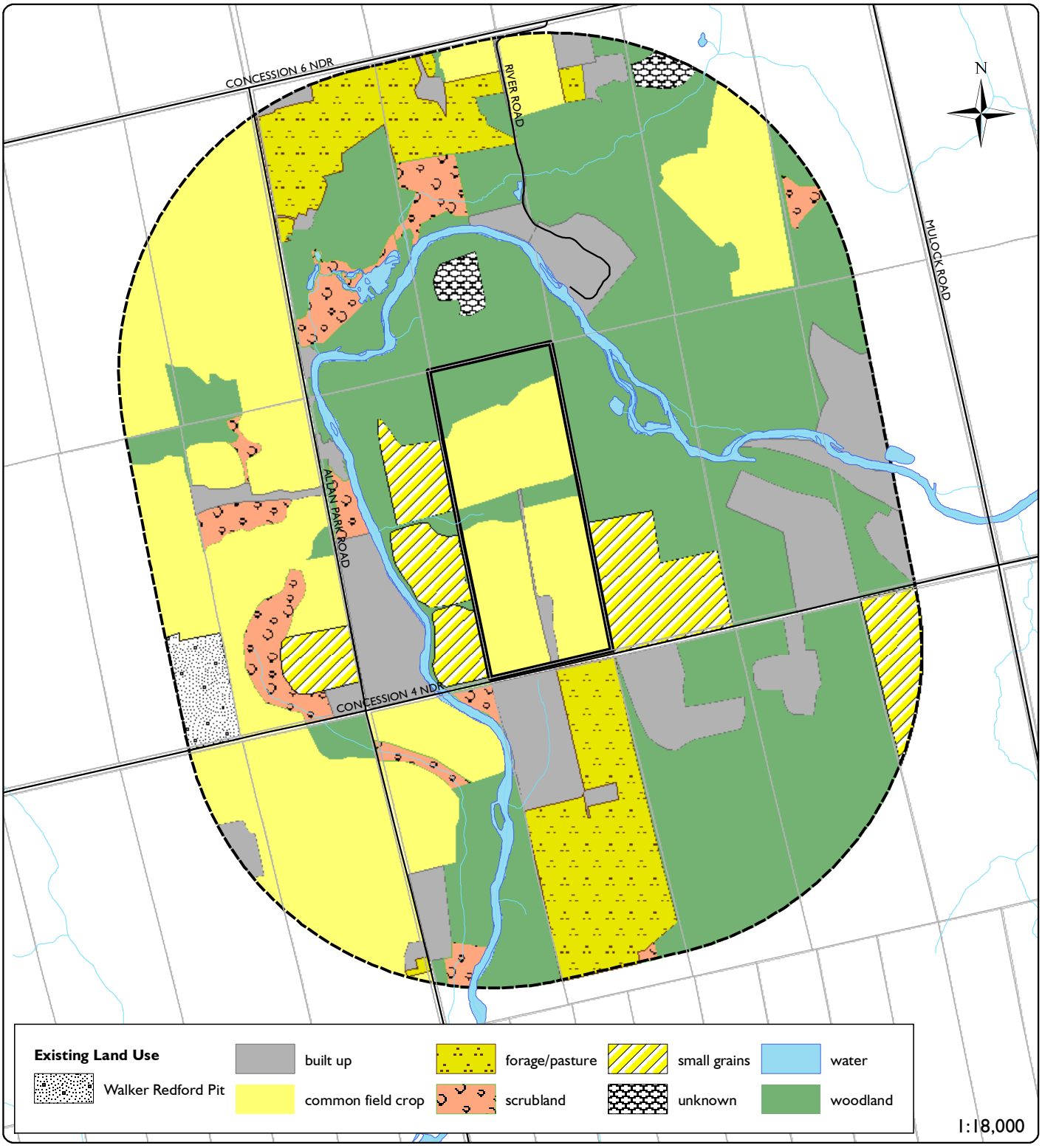
Zone E has an average Frost-Free period of 125-145 days, an Average Date of Last Spring Frost of May 17, and an Average Date of First Fall Frost of September 26.

4.2 LAND USE

The land use for both the PSA and the SSA was completed through a roadside reconnaissance survey (July 17 and July 24, 2025), and a review of recent aerial photography, Google Earth Imagery, Bing Imagery, the County of Grey online imagery, and correlation to the OMAFRA Land Use Systems mapping. Agricultural and non-agricultural land uses are illustrated in Figure 8.

The terms used in the Agricultural Land Use assessment were derived from the OMAFRA Agricultural Resource Inventory (ARI) 1983 Coverage. It should be noted that not all terms were relevant or used. Only the terms that were appropriate for this area were utilized. For the purposes of this AIA additional terms or more relevant terms such as 'common field crop' were used. As an example, 'common field crop' indicates crop production that includes corn and soybean. The ARI 1983 Coverage land use terms include:

- Built up
- Cherries
- Corn System
- Extraction Pits and Quarries



Legend

- Roads (MNR)
- Watercourse (MNR)
- Lot Lines (MNR)
- Primary Study Area (PSA)
- Secondary Study Area (SSA) (1 km)
- Waterbody (MNR)

Figure 8

Existing Land Use

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MNR - Ministry of Naturual Resources

- Grazing System
- Hay System
- Idle Agricultural Land (5 - 10 years)
- Idle Agricultural Land (> 10 years)
- Market Gardens/Truck Farms
- Mixed System
- Nursery
- Orchard
- Pasture System
- Recreation
- Reforestation
- Sod Farm
- Swamp/Marsh/Bog
- Unknown
- Vineyard
- Vineyard-Orchard
- Water
- Woodlands

Agricultural cropping patterns were identified and mapped. Corn and soybean crops were mapped as common field crops. Small grains are typically characterized as including winter wheat, barley, spring wheat, oats and rye. Forage/pasture crops may include mixed grasses, clovers and alfalfa as well as other areas used for pasture, haylage or hay.

The roadside reconnaissance survey identified these types of land uses including farm and non-farm uses (built up areas, commercial, and roads).

Non-farm (built up or disturbed areas) uses may include non-farm residential units, commercial, recreational, estate lots, services (utilities), industrial development and any areas that have been man-modified and are unsuitable for agricultural land uses (cropping).

It should be noted that the roadside reconnaissance survey is based on a line-of-sight assessment process. Therefore, dense brush, woodlands, and topography can prevent an accurate assessment of some fields. In those instances, measures are taken to try to identify the crop through conversations with landowners (if applicable) or review of aerial photography and online imagery. In some instances, no information is available. In those instances, the field polygon will be identified as 'unknown crop'.

Land use information was digitized in Geographic Information System (GIS – Arcmap/ARCGIS Pro) to illustrate the character and extent of the existing land use in both the PSA and the SSA. Area calculations for each land use polygon (area) were calculated within the GIS software and exported as tabular data. The data is presented as follows. Land use designations and land use definitions are provided in Table 1.

Table 1 Typical Land Use Designations

Land Use Designation	Land Use Definitions
Built Up/Disturbed Areas	non-farm residential units, commercial, recreational, estate lots, services (utilities), industrial development, areas that have been man-modified and are unsuitable for cropping
Common Field Crop	corn, soybean
Cultivated	recently planted
Forage/Pasture	mixed grasses, clovers, alfalfa, pasture, haylage, hay, paddocks, outdoor riding area
Plowed	prepared for planting
Scrubland	unused field (>5 years) – woody vegetation regrowth
Small Grains	winter wheat, barley, spring wheat, oats, rye
Sod	sod production
Water	waterbodies, waterways
Woodland	forested areas

4.2.1 EXISTING LAND USE – PSA

The PSA consisted of a variety of land uses including, but not limited to built-up/disturbed areas, common field crops, and forage/pasture areas.

The PSA comprised land use of approximately 2.8 percent as built up/disturbed areas, 74.8 percent as common field crops, and 22.4 percent as woodland.

On review of the existing land use data, it was observed that the predominant land use in the PSA included the production of common field crops.

The proposed future development of the PSA will result in the loss of these lands for agricultural production in the interim basis until such time as progressive rehabilitation is completed.

4.2.2 EXISTING LAND USE – SSA

The SSA consisted of a variety of land uses including, but not limited to built-up/disturbed areas, common field crops, forage/pasture lands, scrubland, small grains, water (waterbodies, waterways), and woodland areas.

The SSA comprised land use of approximately 12.5 percent as built up/disturbed areas, 23.7 percent as common field crop, 8.6 percent as forage/pasture lands, 4.1 percent as scrubland, 6.5 percent as small grains, 1.0 percent as the Walker Redford Pit, 2.3 percent as water, 40.7 percent as woodland areas and 0.7 percent as unknown.

On review of the existing land use data, it was observed that the predominant land uses in the

SSA include common field crops, built up/disturbed areas, and woodland areas.

Table 2 illustrates the percentage occurrence of the land uses for both the PSA and SSA.

Table 2 Land Use – PSA and SSA

Land Use Designation	PSA Percent Occurrence	SSA Percent Occurrence
Built Up/Disturbed Areas	2.8	12.5
Common Field Crop	74.8	23.7
Forage/Pasture	-	8.6
Scrubland	-	4.1
Small Grains	-	6.5
Walker Redford Pit	-	1.0
Water	-	2.3
Woodland	22.4	40.6
Unknown	-	0.7
Totals	100.0	100.0

There will be no loss of agricultural lands in the SSA as a result of the proposed development of the PSA.

4.3 AGRICULTURAL INVESTMENT

Agricultural investment is directly associated with the increase in capital investment to agricultural lands and facilities/buildings. In short, the investment in agriculture is directly related to the money used for the improvement of land through tile drainage or irrigation equipment, and through the improvements to the agricultural facilities/buildings (barns, silos, manure storage, sheds, processing, and storage).

As a result, the lands and facilities that have increased capital investment are often considered as having greater affinity for preservation than similar capability lands and facilities that are undergoing degradation and decline. Investment in agriculture is often readily identifiable through observations of the condition and type of the facilities, field observations and a review of OMAFRA artificial tile drainage mapping.

4.3.1 AGRICULTURAL BUILDINGS

Agricultural buildings (including buildings that may be capable of housing livestock), barns, storage and processing facilities were identified through a combination of aerial photographic interpretation, a review of online digital imagery (Google Earth Pro, Bing Mapping, Provincial and municipal online imagery, and Birds Eye Imagery), a review of Ontario Base Mapping and a roadside reconnaissance survey. The agricultural facilities or potential livestock facilities that were identified on mapping and imagery prior to conducting the roadside reconnaissance survey included buildings used for the active housing of livestock, barns that were empty and not used

to house livestock, barns in poor structural condition, barns used for storage and any other large building that had the potential to house livestock.

Field investigations revealed the extent of the capability of the existing agricultural buildings and assisted in the determination of the use of buildings for livestock, cash crops, commercial or other activities. The roadside reconnaissance survey can also reveal that some of the buildings identified from the preliminary mapping and imagery no longer existed (torn down), or were not agricultural, and used for other purposes (commercial/industrial) operations or activities. Further, the roadside reconnaissance survey can identify a new barn building not available on aerial photography.

Farms were identified as livestock or cash crop. Livestock operations were further differentiated to the type of livestock based on the livestock seen at the time of the roadside reconnaissance survey, through a review of on farm infrastructure (type of buildings, manure system, feed (bins, bales), and types of equipment) or through any signage associated with the respective agricultural operation.

It should be noted that the roadside survey is based on a line-of-sight assessment process. Therefore, dense brush, woodlands, and topography can prevent an accurate assessment of some buildings. In those instances, measures are taken to try to identify buildings through conversations with landowners (if applicable) or review of aerial photography and online imagery. In some instances, no information is available. In those instances, the building will be identified as 'unknown building use or type'.

Agricultural activities such as livestock rearing usually involve an investment in agricultural facilities. Dairy operations require extensive facilities for the production of milk. Poultry and hog operations require facilities specific for those operations. Beef production, hobby horse and sheep operations usually require less investment capital (when compared to dairy operations or other high valve operations).

Some cash crop operations are considered as having a large investment in agriculture if they have facilities that include grain handling equipment such as storage, grain driers and mixing equipment that is used to support ongoing agricultural activities.

For the purposes of this AIA, all agricultural buildings that were identified in the PSA and the SSA were illustrated in Figure 9.

A total of 16 agricultural buildings were identified. There was 1 agricultural building within the PSA, with the remaining 15 agricultural buildings observed in the SSA. It is assumed that the agricultural building located within the PSA will be removed as part of the proposed development of the PSA.

A listing of the agricultural buildings is provided in Appendix A.

Photographs and/or aerial photography/satellite imagery of the respective agricultural buildings is provided in Appendix B.

4.3.2 ARTIFICIAL DRAINAGE

An evaluation of artificial drainage in the PSA and within the SSA was completed through a review of online aerial photographic/aerial imagery interpretation and a review of the Ontario Ministry of Agriculture and Food (OMAF) Artificial Drainage System Mapping.

Visual evidence supporting the use of subsurface tile drains included 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, often referred to as a 'herring bone' pattern. 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 downloaded from the Geohub website in June 2025 and were reviewed to determine if an agricultural tile drainage system had been registered anywhere in the PSA, or in the SSA. The OMAFRA Artificial Drainage System data illustrates the location and type of tile drainage systems. The type of tile drainage system is defined as either 'random' or 'systematic'. A random tile drainage system is installed to drain only the low areas or areas of poor drainage within a field. A systematic tile drainage system refers to a method of installing drain tiles at specific intervals across a field, in an effort to drain the entire field area. From a cost perspective, a systematic tile drainage system would be a greater cost, or investment in agriculture when compared to a random tile drainage system.

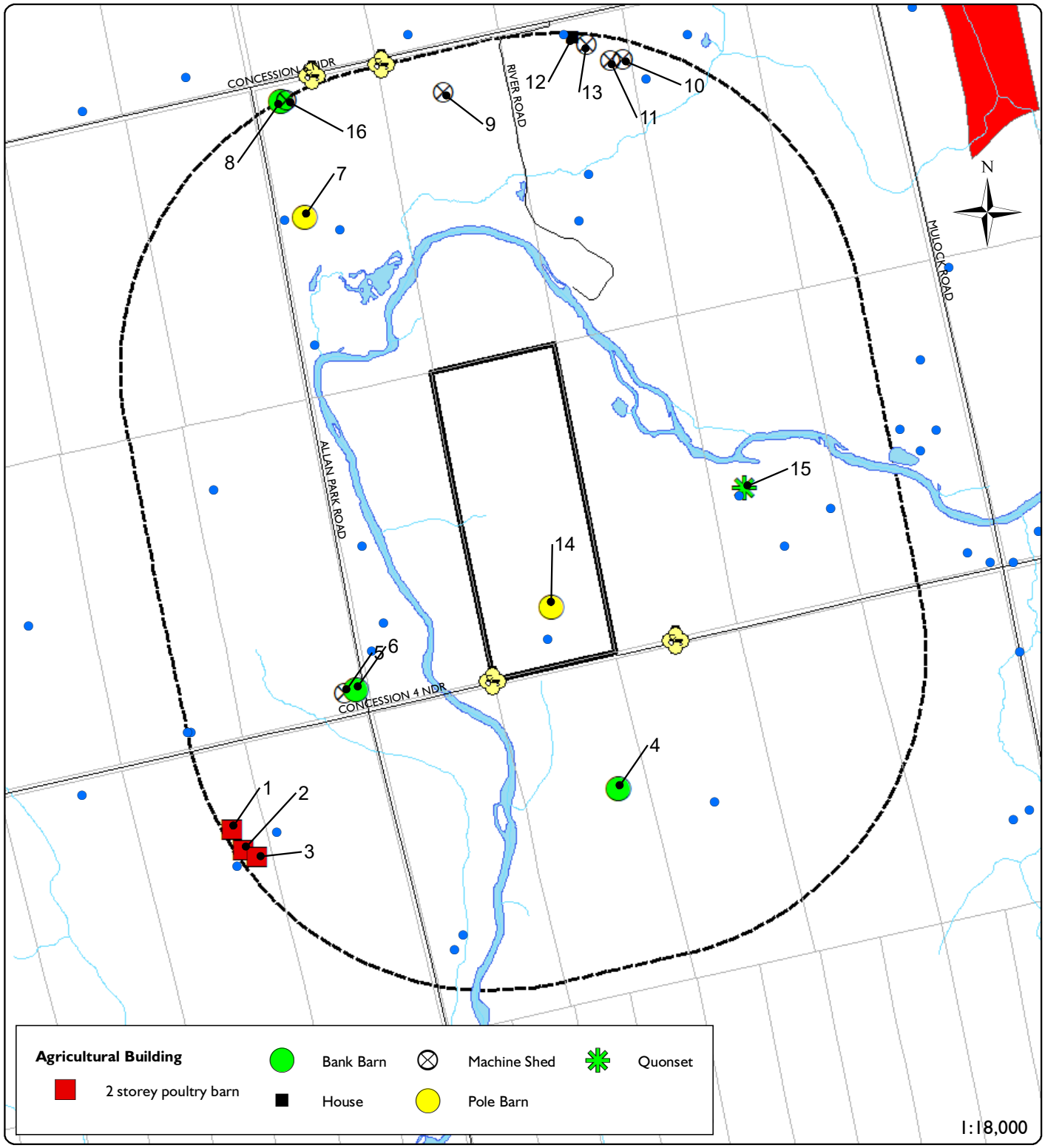
Figure 9 illustrates the OMAFRA Artificial Drainage Systems Mapping for the PSA, SSA, and the adjacent surrounding areas.

The review of the OMAFRA Artificial Tile Drainage revealed that there are no tile drainage systems identified in the PSA or the SSA. A small area of Systematic Tile drainage was noted to the northeast of the PSA, beyond the SSA.

There will be no loss of or impact to the tile drainage systems in the SSA as a result of the proposed development of the PSA.

4.3.3 WATER WELLS

A review was completed of the MECP Water Well records to determine the extent of water wells in the PSA and the SSA. The review of water well records involved a download of the latest version of the Water Well Records for Ontario. The water well locations are identified in



Legend

- Field Access
- Water Wells (MOECP)
- Roads (MNR)
- Watercourse (MNR)
- Lot Lines (MNR)
- Primary Study Area (PSA)
- Secondary Study Area (SSA) (1 km)
- Waterbody (MNR)

Tile Drainage (OMAFA)

- Random
- Systematic

Figure 9

Agricultural Investment

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MNR - Ministry of Naturual Resources, MOECP - Ministry of the Environment, Conservation and Parks,
OMAFA - Ontario Ministry of Agriculture, Food, and Agribusiness

Figure 9. As illustrated in Figure 9, a single water well was noted in the PSA. A number of water wells are located within SSA.

The review of water well records was completed to determine the location and extent of water wells in the area, and to identify any potential concerns or impacts that may occur as a result of the proposed future development of the PSA. Generally, many livestock operations and some crop farms (nursery stock farms) use ground water for their livestock or crops, and any disruption to the water in terms of quality and/or quantity could have a significant impact on the operation.

There appears to be capital investment in water wells in the PSA and the SSA, as based on the review of the online water well record data. It is unknown if these wells are used in livestock production, or possibly for irrigation purposes.

4.3.4 IRRIGATION

Visual evidence supporting the use of irrigation equipment would include the presence of the irrigation equipment (piping, water guns, sprayers, tubing/piping, etc), the presence of a body of water (pond, lake, water course) capable of sustaining the irrigation operation and lands that are appropriate for the use of such equipment (large open and level fields).

A review of online data and roadside reconnaissance survey did not identify any irrigation systems within the PSA or the SSA.

4.3.5 LANDFORMING

Landforming is the physical movement of soil materials to create more uniformly sloped lands for the ease of mechanized operations. The costs associated with landforming can be exorbitant, depending on the volume of soils moved.

No landforming for the purposes of enhancing an agricultural operation was noted in the review of online imagery or during the roadside reconnaissance survey for the PSA or the SSA.

4.4 MINIMUM DISTANCE SEPARATION (MDS1)

In order to confirm/establish the need for an MDS1 assessment, a review was completed of various provincial and municipal policies and documents. For this assessment the review included the *Provincial Planning Statement (PPS 2024),* and the *County of Grey Official Plan (Consolidated May 6, 2025).*

A review of the OMAFRA document titled The Minimum Distance Separation (MDS) Document: Formulae and Guidelines for Livestock Facility and Anaerobic Digester Odour

Setbacks (Publication 853, Ontario Ministry of Agriculture, Food and Rural Affairs. 2016) was also completed.

It is stated under guideline #1:

"In accordance with the Provincial Policy Statement, 2014, this MDS Document shall apply in prime agricultural areas and on rural lands."

It is stated under guideline #3:

"For What, and When, is an MDS Setback NOT Required?

Certain proposed uses are not reasonably expected to be impacted by existing livestock facilities or anaerobic digesters and as a result, do not require an MDS I setback. Such uses may include, but are not limited to:

- extraction of minerals, petroleum resources and mineral aggregate resources;
- infrastructure; and
- landfills

In accordance with the Provincial Planning Statement, 2014, this MDS Document shall apply in prime agricultural areas and on rural lands."

Therefore, the proposed aggregate pit application for the PSA does not require MDS1 assessment and calculations as stated in Guideline #3 of the document titled *The Minimum Distance Separation (MDS) Document: Formulae and Guidelines for Livestock Facility and Anaerobic Digester Odour Setbacks* (Publication 853, Ontario Ministry of Agriculture, Food and Rural Affairs. 2016).

4.5 FRAGMENTATION

Assessment data was evaluated to determine the characteristics and the degree of land fragmentation in the PSA and the SSA.

In order to evaluate land fragmentation, the most recent Assessment Roll mapping and Assessment Roll information from the County of Grey was referenced on a property-by-property basis (for the PSA and the SSA) to determine the approximate location, shape and size of each parcel. The assessment of fragmentation looked at the relative numbers of and proximity of properties within the PSA and the SSA.

While a minimum size for an agricultural property is not specified in the *Provincial Planning Statement (PPS, 2024),* the PPS does state in Section 4.3.2.2 that:

> "In *prime agricultural areas*, all types, sizes and intensities of *agricultural uses* and *normal farm practices* shall be promoted and protected in accordance with provincial standards."

A review of the *County of Grey Official Plan (Consolidated May 6, 2025)* defines a minimum lot size for an agricultural property as 40 ha.

The review of the *Municipality of West Grey Zoning By-law Number 37-2006 (April 1, 2017, Consolidation)* identified a minimum lot area of 40.0 ha (100.0 acres) for an Agricultural zoning.

Historically, Statistics Canada Census of Agriculture (2011) indicated that the average farm size in Ontario was 98.7 ha (244 acres). This average size is based on the number of Census farms divided by the acreage of those Census farms (Total Farm Area). The Total Farm Area is land owned or operated by an agricultural operation and includes cropland, summer fallow, improved and unimproved pasture, woodlands and wetlands, and all other lands (including idle land, and land on which farm buildings are located) (Statistics Canada, 2017). It should be noted that the average farm size is based on farmland holdings, which may include more than one parcel (property). Further, the Census of Agriculture (2011) indicated that the average farm size in Grey County is 88.3 ha (218.3 acres).

Further, the historical Census of Agriculture (2016) data indicated that the average farm size in Ontario (for Census farms) was 100.8 ha (249) acres. Again, the Census of Agriculture (2016) average farm size is based on farmland holdings, which may include more than one parcel (property). The Census of Agriculture (2016) indicated that the average farm size in Grey County is 87.0 ha (215.1 acres).

The more recent Census of Agriculture (2021) data indicated that the average farm size in Ontario (for Census farms) was 98.3 ha (243 acres). Again, the Census of Agriculture (2021) average farm size is based on farmland holdings, which may include more than one parcel (property). Further, the Census of Agriculture (2021) indicates that the average farm size in Grey County is 83.3 ha (205.8 acres).

It is noted, based on the 2011, 2016, and 2021 Census, that the average farm size has been decreasing since the 2011 census.

Figure 10 illustrates the complexity of the land fragmentation within the PSA and SSA.

The Census data provides detailed information on Census farms. Census data is provided in the unit format of acres, with the splits in the data at 0.0 – 9.9, 10.0 – 69.9, 70.0 – 129.9, 130.0 – 179.9 and greater than 180.0 acres. For the purposes of this AIA, similar splits in acre data were used for the comparison.

Statistics Canada defines a Census Farm as:

> *"a unit that produces agricultural products and reports revenues or expenses for tax purposes to the Canada Revenue Agency.*
> - *Agricultural products include the following:*

    - *crops: grains, oilseeds, leguminous crops, potatoes, vegetables, fruits, berries, greenhouse products, mushrooms, sod, nursery products, Christmas trees, maple tree taps, hay and fodder crops, hemp, and other crops*
    - *livestock: dairy and beef cattle (including feedlots), pigs, poultry and eggs (including hatcheries), turkeys, ducks, geese, sheep, goats, horses and other equines, bison (buffalo), elk (wapiti), deer, llamas and alpacas, rabbits, mink, bees, and other animals.*
- *Not included are forestry and logging, hunting and trapping, fishing and aquaculture, support activities for agriculture and post-harvest activities, horse boarding and riding lessons, and operations making products that are not for human consumption (e.g., genetic operations, insect farms for pet food)."*

The PSA comprised a single parcel of 41.2 ha (101.7 acres) which was in the range of 70.0 – 129.9 acres.

The review of parcel data as a means of determining the existing fragmentation of the PSA and the SSA revealed that the SSA comprised numerous parcels of varying sizes. Table 3 provides a comparison between the parcel count of the Census farm data. The parcel count for Grey County reflects the Census Farms from the 2021, 2016, and 2011 census. It is evident from the Census data that there has been an increase in fragmentation whereby larger farms have been divided into smaller farming parcels.

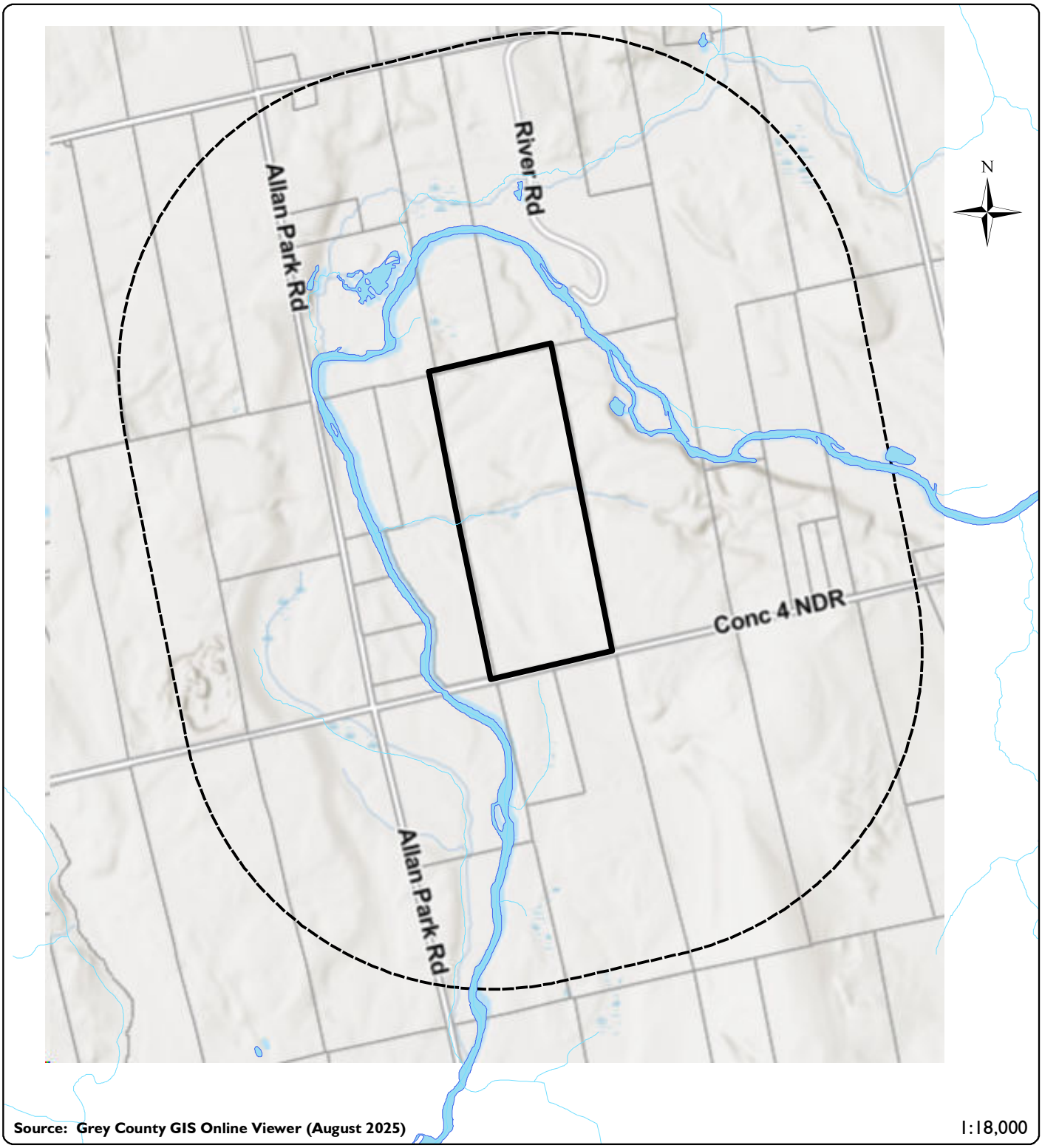
Table 3 Parcel Size and Parcel Count

Parcel Size Range (Acre)	Grey County (2021 Census)	Grey County (2016 Census)	Grey County (2011 Census)
0.0 – 9.9	102	83	54
10.0 – 69.9	559	528	456
70.0 – 129.9	584	583	630
130.0 – 179.9	247	261	251
>180	686	849	857

The proposed development of the PSA will not result in an increase in fragmentation in the PSA and will not result in an increase in fragmentation in the SSA.

4.6 SOILS AND CANADA LAND INVENTORY (CLI)

A review was completed of the soils and Canada Land Inventory (CLI) data base for the PSA and the SSA. The review was completed to determine the extent and location of the high capability soils. Digital soils data was retrieved from Ontario Geohub in July 2025. It should be noted that the original soils report and mapping was created for the *Soil Survey of Grey County, Report No. 17 of the Ontario Soil Survey, 1954. Gillespie, J.E. and N.R. Richards)*. The *Soil Survey of Grey County, Report No. 17 of the Ontario Soil Survey* report and mapping were reviewed as part of this AIA.



Source: Grey County GIS Online Viewer (August 2025)

1:18,000

Legend

- Watercourse (MNR)
- Primary Study Area (PSA)
- Secondary Study Area (SSA) (1 km)
- Waterbody (MNR)
- Property Line

Figure 10

Fragmentation

DBH Soil Services Inc.

August 2025

MNR - Ministry of Naturual Resources

The data within the original soils report (including mapping) has since been digitized by OMAFA and is available through the Land Information Ontario Website.

The review included a download of the latest version of the soils data from the Ontario Geohub website and discussions with OMAFA staff to determine if the downloaded data set is the latest iteration of the soils data.

Due to the continual updates to the soil survey complex datasets, it is prudent to verify or at least confirm that the soil series data and Canada Land Inventory (CLI) information within the datasets is accurate across Grey County. In an effort to confirm the correctness of the soils and the Canada Land Inventory data on a soil series basis, the dbase data file that is associated with the Grey County soil survey complex file was exported to excel to run a unique symbols list based on Soil Series, topography (slope), CLI class and CLI subclass.

The soils database for Grey County comprised approximately 3532 individual soil polygons.

The unique symbols list (based on the SYMBOL1 column) provided 56 unique symbols combined with the associated slope and CLI class and CLI subclass (CLI_1 and CLI_2). The unique symbols list is provided in Appendix C. A review of this list indicated that there were no issues with the soils and the respective CLI class and/or subclass.

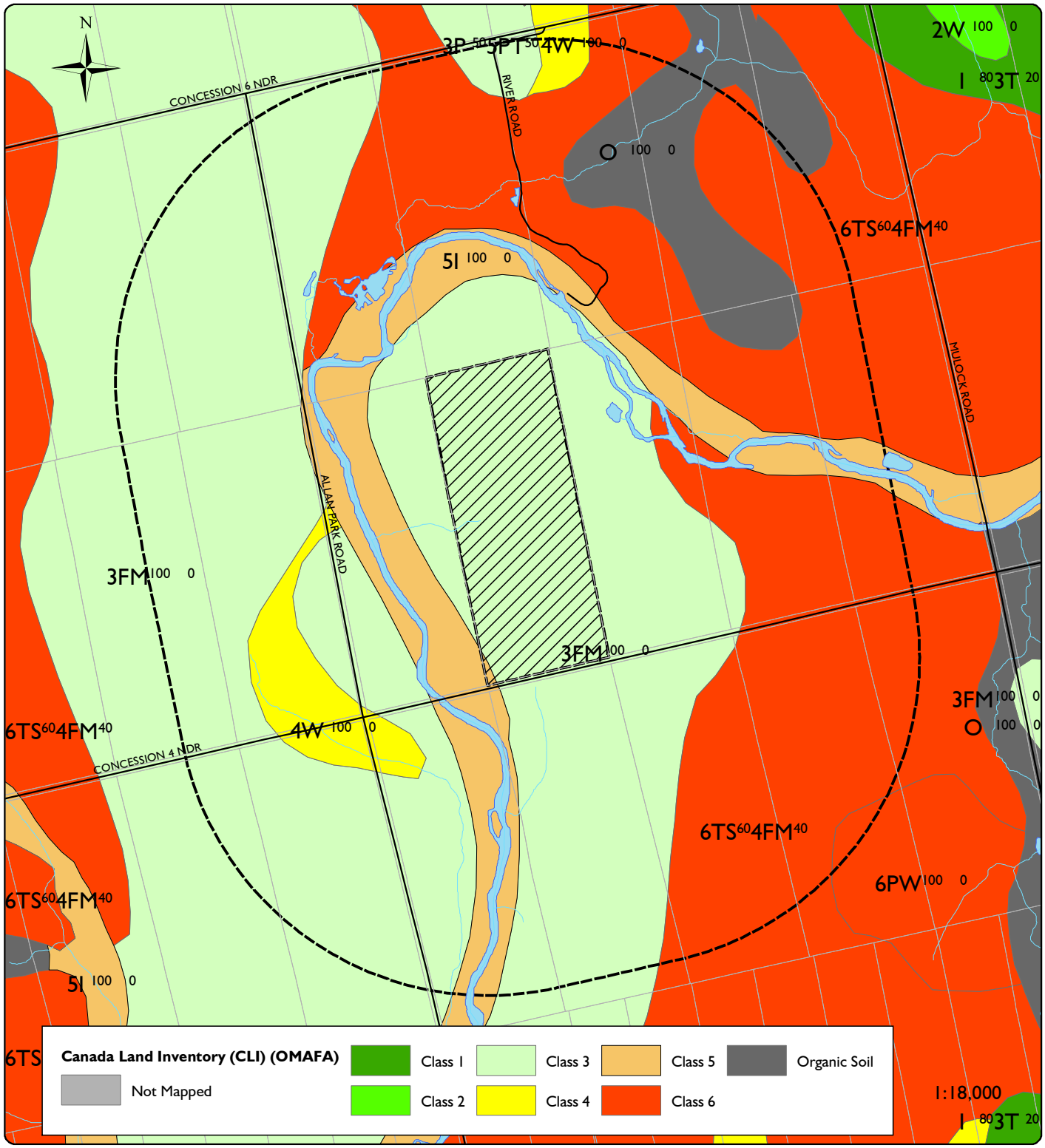
For the purposes of this AIA, the soil and CLI data presented on Figure 11 is considered appropriate in soil code and CLI rating at a county level.

A detailed onsite soil survey was also completed for this AIA. The detailed soil survey provides a more accurate assessment of soil capability onsite. The detailed soil survey information is provided in the following sections.

4.6.1 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 (O) or Muck (M) soils are not classified under this system. Disturbed Soil Areas are not rated under this system.



Legend

- Roads (MNR)
- Watercourse (MNR)
- Lot Lines (MNR)
- Primary Study Area (PSA)
- Secondary Study Area (SSA) (1 km)
- Waterbody (MNR)

Figure 11
Canada Land Inventory
(CLI)
OMAFA

DBH Soil Services Inc.

August 2025

MNR - Ministry of Naturual Resources, OMAFA - Ontario Ministry of Agriculture, Food, and Agribusiness

4.6.1.1 Canada Land Inventory (CLI) Class

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."*

4.6.1.2 Canada Land Inventory (CLI) Subclass

With respect to the soils and Canada Land Inventory (CLI) identified in the PSA and SSA, 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*
> *Subclass F denotes soils having low fertility that is either correctable through fertility management or is difficult to correct in a feasible way. Low fertility may be due to low cation exchange capacity, low pH, presence of elements in toxic concentrations (primarily iron and aluminum), or a combination of these factors.*
>
> *Subclass I – Inundation by Streams or Lakes*
> *This subclass limitation is applicable to soils subject to periodic flooding by streams and lakes which causes crop damage or restricts agricultural use.*
>
> *Subclass M – Moisture Deficiency*
> *Subclass M denotes soils which have low moisture holding capacities and are more prone to droughtiness.*
>
> *Subclass P – Stoniness*
> *Subclass P is broken down as follows:*
> *Class 2P: Surface stones cause some interference with tillage, planting and harvesting; stones are 15-60 cm in diameter, and occur in a range of 1-20 m apart, and occupy <3% of the surface area. Some stone removal is required to bring the land into production.*
> *Class 3P: Surface stones are a serious handicap to tillage, planting, and harvesting; stones are 15-60 cm in diameter, occur 0.5-1m apart (20- 75 stones/100 m), and occupy 3-15% of the surface area. The occasional boulder >60 cm in diameter may also occur. Considerable stone removal is required to bring the land into production. Some annual removal is also required.*
> *Class 4P: Surface stones and many boulders occupy 3-15% of the surface. Considerable stone and boulder removal is needed to bring the land into tillable production. Considerable annual removal is also required for tillage and planting to take place.*
> *Class 5P: Surface stones 15-60 cm in diameter and/or boulders >60 cm in diameter occupy 15-50% of the surface area (>75 stones and/or boulders/100 m).*
> *Class 6P: Surface stones 15-60 cm in diameter and/or boulders >60 cm in diameter occupy>50% of the surface area.*
>
> *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 fertility (F) and moisture (M) when these are present with a third limitation such as topography (T) or stoniness (P).*

Subclass T - Topography
The steepness of the surface slope and the pattern or frequency of slopes in different directions are considered topographic limitations if they: 1) increase the cost of farming the land over that of level or less sloping land; 2) decrease the uniformity of growth and maturity of crops; and 3) increase the potential of water and tillage erosion.

Subclass W – Excess Water
The presence of excess soil moisture (other than that from inundation) may result from inadequate soil drainage, a high water table, seepage, or runoff from surrounding areas. This limitation only applies to soils classified as poorly drained or very poorly drained."

Disturbed soil areas (built up or developed areas) are considered as Not Rated within the Canada Land Inventory (CLI) classification system. Muck (organic soils) are not rated in the Canada Land Inventory (CLI) classification system.

Figure 11 – Canada Land Inventory (CLI) illustrates the OMAFA digital soils data for the PSA and the SSA. The OMAFA soils database has not removed or discounted soils from roads, railways, urban or developed areas.

Table 4 illustrates the soils data as derived by percent occurrence within the respective polygons and summarizes the relative percentage area occupied by each capability class for the PSA and SSA.

Table 4 Canada Land Inventory – Percent Occurrence

Canada Land Inventory Class (CLI)	PSA Percent Occurrence	SSA Percent Occurrence
Class 1	-	-
Class 2	-	-
Class 3	99.5	48.8
Class 4	-	15.8
Class 5	0.5	11.4
Class 6	-	19.2
Class 7	-	-
Not Rated	-	-
Organic Soil	-	4.8
Water	-	-
Totals	100.0	100.0

Based on the OMAFRA soils data the PSA comprised approximately 99.5 percent Canada Land Inventory (CLI) capability Class 1 – 3, with approximately 99.5 percent as Class 3. The remainder of the PSA comprised CLI Class 5 lands.

Again, based on the OMAFRA soils data the SSA comprised approximately 48.8 percent Canada Land Inventory (CLI) capability Class 1 – 3, with approximately 48.8 percent as Class 3, 15.8 percent as Class 4, 11.4 percent as Class 5, 19.2 percent as Class 6, and 4.8 percent as Organic Soils.

The proposed development will result in the loss of the use of the PSA for agricultural production in the interim basis until rehabilitation has occurred. The proposed development will not alter the soils or soil capability in the SSA.

4.7 DETAILED ONSITE SOIL SURVEY

A detailed on-site soil survey was conducted to more accurately map and classify the soil resources of the soil materials in the PSA. The soil survey included the following tasks:

- Completion of a review of published soil information *Soil Survey of Grey County, Report No. 17 of the Ontario Soil Survey, 1954. Gillespie, J.E. and N.R. Richards),*
- 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 (PSA), the occurrence of soil polygons and appropriate CLI capability ratings,
- Completion of a report outlining the methodologies employed, findings (including a discussion of relevant identified features and a conclusion as to the relevance of the CLI classifications for the soil polygons on the property.

The detailed soil survey of the PSA was conducted on July 24, 2025. Aerial photographic interpretation and an online imagery review were used to delineate soil polygon boundaries by comparing areas, on stereoscopic photographs (and in online imagery), for similar tone and texture. Delineated soil polygons were evaluated for the purpose of verifying soil series and polygon boundaries. The evaluation was completed through an examination of the existing soil conditions to a minimum depth of 100 cm or to refusal. A handheld Dutch soil auger and/or Dutch stone auger was used to extract the soil material to a minimum depth of one metre (or to refusal).

Each soil profile (inspection site) was examined to assess inherent soil characteristics. Soil attributes were correlated with The Canadian System of Soil Classification (3rd ed.) (1998) Agriculture and Agri-Food Canada Publication, and the Field Manual for Describing Soils in Ontario (4th ed.) (1993), Ontario Centre for Soil Resource Evaluation. A handheld clinometer was used to assess percent slope characteristics. Slope characteristics were also assessed by a review of contour lines provided in AgMaps online mapping from OMAFA.

For the purposes of this AIA, the soil polygon boundaries were created on referencing the contour data and through an onsite assessment of slope using a handheld clinometer and handheld GPS device. A total of 31 soil inspection sites were evaluated. A summary description of the basic soil characteristics at each inspection site is included in Appendix D.

Soils were assigned to a soil map unit (series) based on soil texture (hand texturing assessment), soil drainage class and topography (position and slope).

Depth to free water within one metre of the soil surface was also recorded at inspection sites located on lower slope positions (where applicable). Names for the soil series and the Canada Land Inventory (CLI) ratings were assigned to each soil polygon by correlating the soil series with soils information presented in the *Soil Survey of Grey County, Report No. 17 of the Ontario Soil Survey, 1954. Gillespie, J.E. and N.R. Richards)*, the online digital soils data from OMAFRA and with the CLI information presented in the 1:50000 scale manuscript mapping.

Observations noted during the detailed onsite soil survey of the PSA revealed that much of the soil surface of the agricultural lands was loamy, and that the dry surface soil materials (in open field areas) were prone to wind erosion. Eroded side slopes and slope shoulders were noted in the steeper areas. Stone (gravel and cobble size) was noted on the surface of many areas of the property. Numerous stone piles were noted along the periphery of the agricultural fields.

Photograph 1 illustrates the boulder piles outside active agricultural areas.

Photograph 1 Stone and Cobble Piles

The weather conditions on the day of the onsite survey were predominantly sunny with temperatures near 32 degrees Celsius in the afternoon. Winds were continuous and moderate with gusts up to 40 kph in the afternoon.

The surface soil conditions were predominantly dry. Soils with higher moisture content were observed on lower slope and depressional positions.

Photograph 2 illustrates steeply sloping topography and a lower position area of woodlands in the central area of the property.

Photograph 2 Steeply Sloping Topography

Surface stone (gravel and cobble sized) was observed at numerous locations on the property. Photograph 3 illustrates an old wayside pit in the central section of the PSA.

Photograph 3 The Old Wayside Pit

Photograph 4 illustrates the general stoniness of the surface materials in the PSA. Photograph 5 illustrates the smooth, gently rolling topography associated with the southeast portion of the PSA.

Photograph 4 General Stoniness

Photograph 5 Smooth, Gently Rolling Topography

The soil inspection information was correlated with soil descriptions in the *Soil Survey of Grey County, Report No. 17 of the Ontario Soil Survey, 1954. Gillespie, J.E. and N.R. Richards)* and the OMAFRA digital soils data (2025), prior to the production of the soils map in Figure 12. Soil names used in the identification of the soil series on Figure 12 were taken from *Soil Survey of Grey County, Report No. 17 of the Ontario Soil Survey, 1954. Gillespie, J.E. and N.R. Richards)*.

The onsite soil survey identified one soil series and one miscellaneous landscape unit. The soil series was identified as Sargent Loam. The one miscellaneous landscape unit was identified as the area around the farm building (disturbed soils and not rated soils).

The Sargent Loam soils developed from calcareous well sorted sands and gravel. These soils are considered as well drained. These soils are found on smooth, very gently sloping topography, and may be found on irregular very gently sloping lands. The soils are moderately stony and usually require frequent stone picking.

Due to the high gravel/cobble content across the property, every soil inspection site was considered a 'refusal' at the bottom of the A horizon (topsoil layer). Neither the Dutch auger nor the stony auger could extract a soil core in these gravel/cobble conditions.

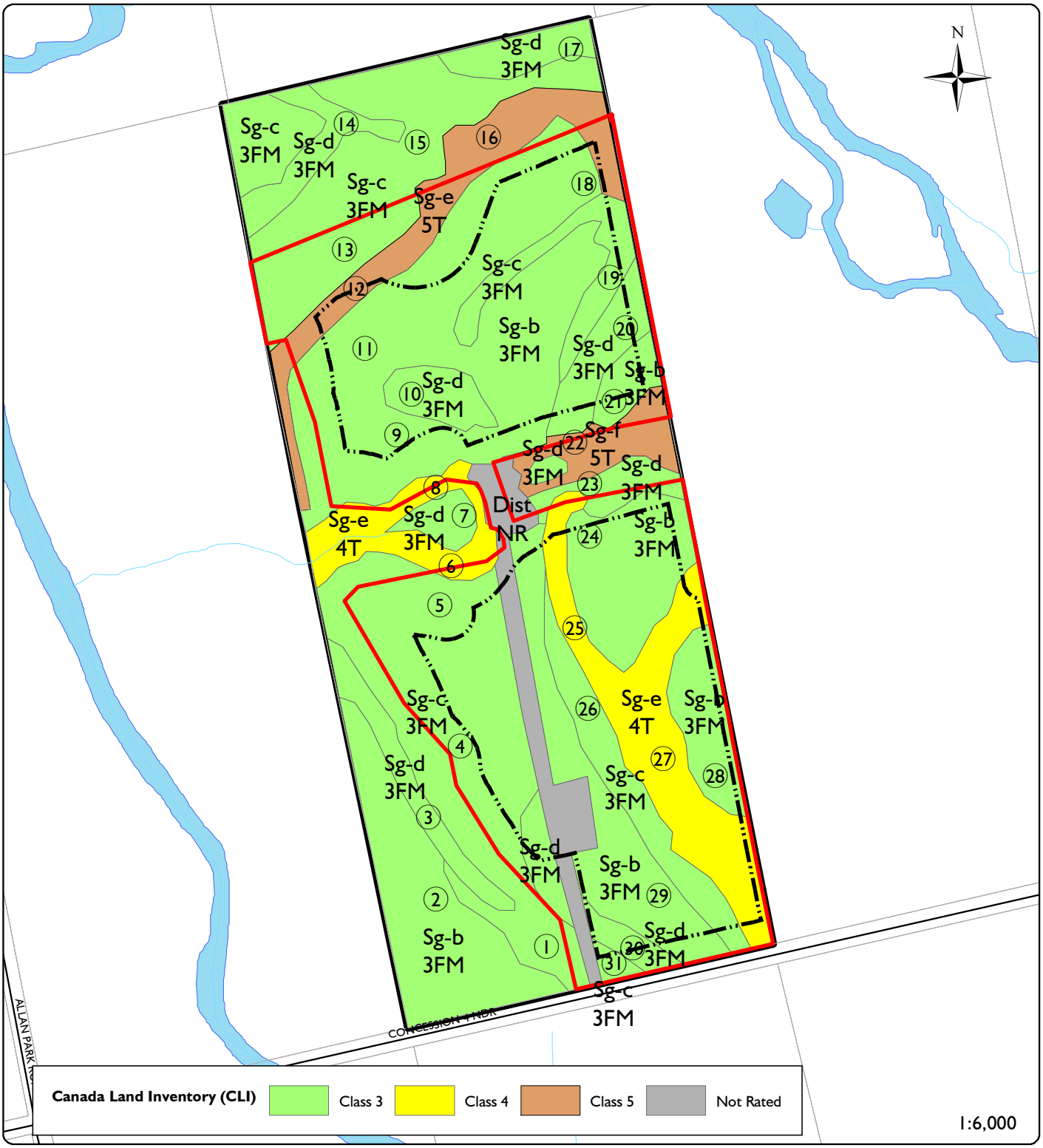
Figure 12 illustrates the detailed soils found on the PSA.

Table 5 provides a listing of CLI as based on the detailed soil survey.

Table 5 Canada Land Inventory Detailed Soil Survey

Canada Land Inventory Class (CLI)	PSA Percent Occurrence	Limit of Extraction Percent Occurrence	License Area Percent Occurrence
Class 1	-	-	-
Class 2	-	-	-
Class 3	79.2	80.2	77.8
Class 4	9.9	14.2	11.2
Class 5	7.2	0.9	6.1
Class 6	-	-	-
Class 7	-	-	-
Not Rated	3.7	4.7	4.9
Organic Soil	-	-	-
Water	-	-	-
Totals	100.0	100.0	100.0

Based on the onsite detailed soil survey the PSA comprised approximately 79.2 percent Canada Land Inventory (CLI) capability Class 1 – 3, with approximately 79.2 percent as Class 3. The remainder of the PSA comprised approximately 9.9 percent CLI Class 4, 7.2 percent CLI Class 5, and 3.7 percent Not Rated land.



Legend

- Soil Inspection Location
- Roads (MNR)
- Watercourse (MNR)
- License Area
- Limit of Extraction
- Lot Lines (MNR)
- Primary Study Area (PSA)
- Waterbody (MNR)

Soil Code — Sg-d 3FM — Slope Code; CLI Class and Subclass

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%
Gg = 30.0 - 60.0%
Slope length < 50 m
Slope length > 50 m

Soil Code - Soil Name
Sg - Sargent Loam
Dist - Disturbed Soils

CLI Subclass Limitation
I - Inundation
T - Topography
W - Excess Water

MNR - Ministry of Natural Resources

Figure 12

Detailed Soil Survey

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August 2025

Based on the onsite detailed soil survey the Limit of Extraction Area comprised approximately 80.2 percent CLI Class 1 – 3 lands, with approximately 80.2 percent as CLI Class 3 soils. The remainder of the Limit of Extraction Area soils included approximately 14.2 percent CLI Class 4 soils, 0.9 percent CLI Class 5 soils, and approximately 4.7 percent as Not Mapped.

The License Boundary Area comprised approximately 77.8 percent CLI Classes 1 – 3, with approximately 77.8 percent as CLI Class 3 soils. The remainder of the License Boundary Area soils included approximately 11.2 percent CLI Class 4 soils, 6.1 percent CLI Class 5 soils, and approximately 4.9 percent as Not Mapped.

4.7.1 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 (1971)* 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 to 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.

In developing the HPI, it was determined that a CLI class 2 land produced approximately 80 % of the yield that would be associated with a CLI class 1 land. Further that a CLI class 3 land produced approximately 64 % of the yield that would be associated with a CLI class1 land, while a CLI 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 6.

Table 6 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

Soil Productivity Index Ratings	
CLI Class	**Soil Productivity Index**
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 7) illustrates the range of values which can be directly correlated to the equivalent CLI class.

Table 7 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 PSA Lands, an HPI calculation was completed. The HPI value and subsequent CLI class are provided in Table 8.

Table 8 Soil Productivity Rating and Equivalent CLI

	Soil Productivity Rating	Corresponding CLI Class
Primary Study Area	0.579	4
License Boundary Area	0.573	4
Limit of Extraction Area	0.586	3

The calculated Soil Productivity Rating for the PSA was 0.579 or a CLI Class 4 equivalent. The Soil Productivity Rating for the License Boundary Area was 0.573 or a CLI Class 4 equivalent. The Soil Productivity Rating for the Limit of Extraction Area was 0.586 or a CLI Class 3 equivalent.

Therefore, the final rehabilitated area within the License Boundary Area should be a minimum of a CLI class 4 equivalent.

4.8 REHABILITATION

This AIA is provided as part of the document set for the application to establish an above water table aggregate pit on the PSA. A requirement of the application is that the application must include a rehabilitation plan.

The basic process of the soil rehabilitation for the PSA involves the sequential stripping of topsoil, subsoil, and any overburden as is necessary to access the aggregate resource. In the initial stages of operation, this stripped material is typically used to construct perimeter berms, which have practical purposes of noise attenuation and/or visual screening. Once the surficial materials have been stripped and stockpiled or utilized in berm construction, the aggregate will then be extracted to an estimated depth of a minimum of 1.5 m above the water table. The rehabilitation will create a final pit floor graded to provide gently sloping lands to allow for subtle surface water drainage and reduced opportunity for water erosion on these lands. As the extraction operations progress, the subsoil and topsoil will be progressively removed from the advancing aggregate pit area and reapplied to the mined out and prepared pit floor (progressive rehabilitation).

The final rehabilitation will ensure a minimum of 2.0 metres of soil cover over the water table. The re-establishment of overburden, subsoil and topsoil (in the appropriate sequence and under appropriate conditions) for a combined total of approximately 0.5 metres of soil on top of the minimum 1.5 metre above water table excavation depth. Thereby providing a minimum final depth of 2.0 metre cover above the water table depth.

The final land use will be agricultural, with no restrictions on agricultural use on the land. The final rehabilitation will result in a large open field (with no fencing or other encumbrances) with uniform simple slope, ideal for mechanized agricultural activities. The creation of this large field during rehabilitation after extraction will result in the removal of the existing topography. The resulting large open field will eliminate the typical mechanized farming challenges associated with steep slopes (tractors and equipment working on steep side slopes), water erosion, channelized runoff, and gully formation.

With respect to the PPS (2024) section 4.5.4.1

> "1. In prime agricultural areas, on prime agricultural land, extraction of mineral aggregate resources is permitted as an interim use provided that:
>
> a) impacts to the prime agricultural areas are addressed, in accordance with policy 4.3.5.2; and
>
> b) the site will be rehabilitated back to an agricultural condition.
>
> 2. Despite policy 4.5.4.1.b), complete rehabilitation to an agricultural condition is not required if:

a) the depth of planned extraction makes restoration of pre-extraction agricultural capability unfeasible; and
b) agricultural rehabilitation in remaining areas is maximized."

This aggregate pit application has identified a requirement for rehabilitation back to an agricultural after use. The majority of the licensed area will be returned to agriculture, with the exception of the 3:1 slope area along the sides of the licensed area.

As a result of utilizing slopes of 3:1 the maximum agricultural field area has been created, satisfying the PPS policies identified as Policies 4.5.4.1a and b. The remaining side slope areas and woodland areas will be enhanced to provide connectivity with adjacent environmental features.

On completion of rehabilitation, approximately 17.38 ha of the parcel will have been rehabilitated. The majority of the rehabilitated area will be returned to an agricultural after use (pit floor). The remaining areas associated with the 3:1 side slope area will not returned to an agricultural after use. This rehabilitation process has maximized the amount of land that will be available for an agricultural after use.

A 3:1 side slope is identified in the OMAFRA Draft AIA Guidance document as the legislative requirement to minimize non-agricultural side slope areas in a pit. The use of a 3:1 side slope allows for a large, open, gently sloped field that is well suited for modern mechanized farming. Discussions with local landowners/farmers indicated that through experience, the use of a steeper 2:1 side slope on similar sandy materials, resulted in significant erosion issues and limitations in vegetation growth. As a result, with a rehabilitated side slope of 3:1, the maximum land available for agricultural after use has been established.

4.8.1 GENERAL REHABILITATION PLAN

Sand and gravel pit restoration/reclamation is defined as the stabilization of areas from which aggregate has been extracted. The purpose is to provide stabilization of the soil, prevention of erosion and improvements to the site to restore the land to agricultural operations.

A 'progressive' rehabilitation plan is proposed for the PSA. In general terms, this type of rehabilitation involves the sequential removal of topsoil and subsoil materials from the developing areas of the pit and reestablishing these same soil materials (in the appropriate sequence) into the excavated (mined out) areas.

Successful rehabilitation of the pit areas to agriculture after uses may be accomplished by following a series of established steps. The basic steps are listed as follows:

1) Strip the topsoil, subsoil and overburden separately. Each soil material should be stripped, moved and stored separately. Intermixing of the soil materials should not occur or be kept to a minimum.

2) Strip small areas as necessary for the advancement of the extraction operations. The stripping of the ground cover and surface soil materials leaves the exposed area prone to erosion.
3) Soil materials should be moved under appropriate weather conditions. Surface soils are easily damaged when wet.
4) Apply a progressive rehabilitation to prevent the degradation of the topsoil materials. Progressive rehabilitation allows for direct movement of soil from the natural state to an area of restoration, without the intermediate stockpiling step.
5) Grade and contour the pit floor as part of the progressive rehabilitation. The pit floor should be deep chisel plowed or ripped to release compaction that may have been created from the heavy equipment used in the extraction processes.
6) Reestablish the overburden, subsoil and topsoil in the appropriate sequence. There should be a minimum of 2.0 m (1.5 m left above water table plus 0.5 m of replacement soil (topsoil, subsoil)) of soil over the ground water levels to provide for an adequate rooting zone for plant growth. During the restoration of the soil profile, each horizon should be chisel plowed or deep ripped (as appropriate or necessary) to release soil compaction prior to the placement of the next horizon.
7) Use best management agricultural practices as are appropriate for the area, climate and conditions.

The most critical step to the success of rehabilitation to agriculture is the conservation of the topsoil material. The main reason for topsoil conservation is that these materials are high in organic matter (when compared to the underlying soil horizons/layers) which relates to higher natural fertility and water holding capacity. In an ideal progressive restoration plan, the topsoil materials are stripped from a natural area and moved directly to an area of rehabilitation, without a significant time spent in stockpile formation. If left in a berm, or stockpile formation, the quality of topsoil materials deteriorates over time in storage, due to changes in soil organisms (fungal and bacterial) as a result of the change of the soil environment from aerobic to anaerobic conditions. It is noted that in the initial stages of the pit start up and operation there are limited opportunities for soil rehabilitation. As a result, in the early stages of pit start up, soil materials will be used for longer term berm materials.

The reapplication of soil materials should be accomplished in dry soil conditions and through the use of equipment that does not cause excessive soil compaction. Ideally, the soil materials should be reapplied with wide tracked crawler bulldozers. Rubber tired equipment should be avoided as it causes significant soil compaction as compared to tracked equipment.

Once the soil materials have been replaced, it may be necessary to chisel plow and stone pick the field prior to seeding the first crops. Stone picking should be conducted with the purpose to remove larger stone (cobble size or larger) that may interfere with future crop production by causing damage to agricultural equipment.

4.8.2 CROPS

In the early stages of site restoration, the choice of crops for use in reestablishing the site back to agriculture should be related to the reinstatement of the soil organic matter and soil structure.

On completion of reapplication of the soil materials, the area should be seeded to a cover crop to control surface soil erosion. On slopes of 5:1 or steeper, the use of hydroseeding and mulch materials may be required. Oats or rye grasses are appropriate cover crops to use while establishing a legume/grass cover. Cover crops will be disc plowed in the spring as a green plow down crop to add organic matter to the surface soils.

Grass and legume cropping should continue for 3 to 4 years to improve soil structure and add to the natural soil fertility.

When dealing with poorly structured or compacted soil horizons by attempting to improve soil structure and soil fertility, it is important to use a cropping program that initially includes a leguminous crop such as alfalfa, or legume/grass mixtures. Alfalfa is often preferred due to its deep penetrating taproots. These roots aid in breaking up the poorly structured layers and add organic matter, and nitrogen to the soil as well as improving the general soil structure. Further, the roots aid in creating pores and channels in the underlying soils, which will result in improved water penetration and movement through the soil profile.

Table 9 provides a typically suggested cropping sequence and crop types for the rehabilitation of an aggregate pit to an agricultural after use. It is suggested that a similar cropping sequence should be utilized and established as part of the rehabilitation plan.

Table 9 Typical Cropping Sequence

Time Frame	Crop	Comments
Year 1	Cover crop (Oats or Rye Grass)	Control of erosion
Years 2 – 4	Legume or legume/grass mixture	Improve general soil conditions
Years 5 +	Row crops in rotation with legume, legume/grass mixtures	Typical crop rotations

Table 10 identifies typical crop types that have been used in aggregate pit rehabilitation in Ontario. Aggregate producers in Ontario often make use of these suggested crop types and sequences and modify them as is necessary to achieve agricultural productivity.

Table 10 Crop Types

Legumes
Alfalfa (Medicago sativa)
Birdsfoot Trefoil (Lotus corniculatus)
Alsike Clover (Trifolium hbridum)
Red Clover (Trifolium pretense)
Sweet Clover (Melilotus alba)
White Clover (Trifolium repens)
Crownvetch (Coronilla varia)
Soybean (Glycine max)
Grasses
Bromegrass (Bromus inermis)
Tall Fescue (Festuca)
Orchard Grass (Dactylis glomerata)
Timothy (Phleum pretense)
Perennial Ryegrass (Lolium perenne)
Grains
Spring Barley (Hordeum vulgare)
Oats (Avena ativa)
Winter Barley (Hordeum vulgare)
Winter Rye (Secale cereale)
Winter Wheat (triticum aestivum)

4.8.3 REHABILITATION PLAN NOTES

The following represent the progressive and final rehabilitation notes for agriculture that should align with the site plan notes and be included on the final site plans.

PROGRESSIVE AND FINAL REHABILITATION NOTES

Progressive Rehabilitation:

A progressive' rehabilitation plan is proposed for the proposed aggregate pit. In general terms, this type of rehabilitation involves the sequential removal of topsoil and subsoil materials from the developing areas of the pit and reestablishing these same soil materials (in the appropriate sequence) into the excavated areas. Successful rehabilitation of the pit areas to agriculture after uses shall be accomplished by following a series of established steps as follows:

1) Strip the topsoil, subsoil and overburden separately. Each soil material shall be stripped, moved and stored separately. Intermixing of the soil materials shall not occur or be kept to a minimum.

2) Strip small areas as necessary for the advancement of the extraction operations. The stripping of the ground cover and surface soil materials leaves the exposed area prone to erosion.
3) Soil materials shall be moved under appropriate weather conditions. Surface soils are easily damaged when wet.
4) Apply a progressive rehabilitation strategy to prevent the degradation of the topsoil materials. Progressive rehabilitation allows for direct movement of soil from the natural state to an area of restoration, without the intermediate stockpiling step.
5) Grade and contour the pit floor as part of the progressive rehabilitation. The pit floor shall be deep chisel plowed or ripped to release compaction from the extraction heavy equipment.
6) Reestablish the overburden, subsoil, and topsoil in the appropriate sequence. There shall be a minimum of 2.0 m (1.5 m left above water table plus 0.5 m of replacement soil) of soil over the ground water levels to provide for adequate plant growth. During the restoration of the soil profile, each horizon shall be chisel plowed to release soil compaction prior to the placement of the next horizon.
7) Use best management agricultural practices as are appropriate for the area, climate and conditions. The most critical step to the success of rehabilitation to agriculture is the conservation of the topsoil material. The main reason for topsoil conservation is that these materials are high in organic matter (when compared to the underlying soil horizons/layers) which relates to higher natural fertility and water holding capacity. In an ideal progressive restoration plan, the topsoil materials are stripped from a natural area and moved directly to an area of rehabilitation, without a significant time spent in stockpile formation. The quality of topsoil materials deteriorates over time in storage, due to changes in soil organisms (fungal and bacterial). It is noted that in the initial stages of the pit start up and operation there are limited opportunities for soil rehabilitation. As a result, in the early stages of pit start up, soil materials will be used for longer term berm material.
8) The reapplication of soil materials shall ideally be accomplished in dry soil conditions and through the use of equipment that does not cause excessive soil compaction. Ideally, the soil materials will be reapplied with wide tracked crawler bulldozers. Rubber tired equipment will be avoided as it causes significant soil compaction as compared to tracked equipment. Once the soil materials have been replaced, it shall be determined if it is necessary to chisel plow and stone pick the field prior to seeding the first crops.
9) As illustrated on the site plans, as extraction is completed in each phase, the following progressive rehabilitation actions will occur:
    i. Side slopes shall be backfilled using on-site overburden or imported clean inert fill. The side slopes will be created at a minimum slope of 3:1.
    ii. Excess soil, as defined in Ontario Regulation 406/19 under the *Environmental Protection Act*, shall only be permitted to be imported to this site for the following rehabilitation purposes:

i) Creation of 3:1 slopes,
ii) Top dressing to establish vegetation

Excess soil imported for the rehabilitation purposes described above shall meet the soil quality standards set out in Table 1: "Full Depth Background Site Condition Standards", of the Rules for Soil Management and Excess Soil Quality Standards published by the Ministry of Environment, Conservation and Parks, as amended from time to time.

The licensee shall ensure that the acceptance and reuse of excess soil imported for rehabilitation purposes is compliant with Part I: Rules for Soil Management of the "Rules for Soil Management and Excess Soil Quality Standards published by the Ministry of Environment, Conservation and Park and as amended from time to time.

vi. On-site topsoil/subsoil/overburden shall be placed across the prepared pit floor and side slopes. The material is permitted to be stripped from the next extraction phase or depending on location and timing, from the perimeter berms. Material replaced shall be similar in depth to that removed (i.e., 0.15 - 0.2 metres topsoil and 0.3 metres subsoil) thereby providing a minimum final depth of 2.0 metre cover above the high groundwater table and generally as shown on the Progressive and Final Rehabilitation Plan.

vii. Earth scrapers, bulldozers, excavators and trucks shall be used to replace the on-site subsoil and topsoil, subject to Note 8 above.

viii. Once the pit floor has been rehabilitated, the lands will be seeded to a cover crop of oats and rye grasses to control surface erosion. Cover crops will be disc plowed in the spring to add organic matter. A grass/legume mixture will be established to improve soil structure and add fertility. Grass and legume cropping shall continue for several based on the following cropping sequence:

Time Frame	Crop	Comments
Year 1	Cover Crops (Oats or Rye Grass)	Control of erosion
Year 2-4	Legume or legume/grass mixture	Improve general soil conditions
Year 5+	Row crops in rotation with legume, legume/grass mixture	

<u>Maintenance:</u>

1. If any significant portions of the planted vegetation die out, it will be replaced immediately during the proper planting season.
2. If any significant erosion or gullying occurs at any time during the progressive and final rehabilitation, the Licensee will repair the area and re-seed as necessary.

<u>Final Rehabilitation</u>

3. Fencing: Once the site has been fully rehabilitated, the perimeter post and wire fence shall be retained.

4. Internal Haul Routes: Once the site has been fully rehabilitated, all internal haul roads will be removed.
5. Final Contours: Final contours are interpolated from available information at the time of preparation of these Site Plans and actual post-extraction slopes may vary, however, the final pit floor elevations as noted by the spot elevations shall be achieved, but the final direction of surface water flow as shown shall be met.

Final Land Use

1. The final land use for the majority of the PSA shall be agriculture (except the 3:1 side slope areas).
2. The total area to be rehabilitated is 17.38 hectares.

4.8.4 REHABILITATION LIMITATIONS

It is noted that the progressive rehabilitation provided in this report and referenced to the OMAFRA *Draft Agricultural Impact Assessment (AIA) Guidance Document, March 2018*, illustrate the State-of-the-Art, best management practices for rehabilitation.

This section, Rehabilitation Limitations, noted that the rehabilitation of this proposed pit will be completed by following the State-of-the-Art, best management practices for rehabilitation, as are the standards used in Ontario. The rehabilitation of this proposed pit will follow the appropriate policy and guidelines for aggregate pit rehabilitation.

The assumption is that in using these State-of-the-Art, best management practices technics, that the soils can and will be rehabilitated back to an equivalent Canada Land Inventory (CLI) rating as were determined for the lands prior to the extraction and rehabilitation processes. A final assessment of Canada Land Inventory (CLI) can only be completed after rehabilitation through the use of site-specific crop yield analysis data that compares pre-extraction crop yields to post rehabilitation condition crop yields. The use of "State of the Art" rehabilitation practices currently utilized by the aggregate industry and other similar industries, has allowed for successful rehabilitation back to agricultural uses at a variety of aggregate sites.

The standard approach to determining the equivalent CLI rating for post rehabilitation lands, has been to assume that on completion of extraction, decompaction and placement of soils, that a final grade has been established. A comparison of the final grade of the rehabilitated soils to the OMAFRA document *Classifying Prime and Marginal Agricultural Soils and Landscapes: Guidelines for Application of the Canada Land Inventory in Ontario* to section Subclass T – Topography Tables 9 and 10, has been used to determine the final potential CLI rating. This has been the standard for determining a rehabilitated area CLI rating.

The rehabilitation of this proposed pit will be completed by utilizing the State-of-the-Art, best management practices for rehabilitation, as are the standards used in Ontario. The rehabilitation of this proposed pit will follow the appropriate policy and guidelines for aggregate pit rehabilitation.

4.9 PARCEL OR LAND SEVERANCE

A parcel or land severance is defined as an authorized separation of a piece of land to form a new lot or parcel of land.

The PSA has well defined boundaries on all sides. The proposed aggregate application is restricted within the boundaries of the PSA. Therefore, there is no opportunity for land severance in the PSA.

No parcels will be severed in the SSA as a result of the proposed future development of the PSA.

4.10 AGRICULTURAL SYSTEMS PORTAL

A review of the OMAFA Agricultural System Portal online resource for agricultural services/agricultural network (markets, abattoirs, renderers, livestock auctions, investment, warehousing and storage, wineries and breweries) was completed for the PSA and SSA.

The review of the online Agricultural System Portal indicated that there were no registered farmers markets, pick your own operations, nurseries, frozen food manufacturing, refrigerated warehousing/storage, livestock assets, abattoirs, or other agricultural services in the PSA.

Figure 13 provides an illustration of the agricultural resources (OMAFA Livestock, Fish and Poultry) for the PSA and the SSA. Figure 14 provides an illustration of the agricultural resources (OMAFA Field Crop). Figure 15 provides an illustration of the Food and Beverage Manufacturing for the PSA and SSA.

The closest transportation network (major roadway) is Grey County Road 4 located to the south of the PSA.

As noted in Figures 14, 15 and 16, there were no agricultural services or food manufactures identified in the PSA based on the OMAFA Agricultural Systems Portal mapping and online data.

4.11 AGRICULTURAL SYSTEM AND AGRICULTURAL NETWORK

The PPS (2024) required the implementation of an agricultural system. The Agricultural System comprises two parts: Agricultural Land Base; and the Agri-Food Network. The Agricultural Land Base was evaluated through a review of Canada Land Inventory (CLI) in Section 4.1 of this AIA.

This AIA has determined that both the PSA and the SSA comprised portions of Prime Agricultural Area and were comprised of portions of high capability soil resources as based on the OMAFA digital soils data.

Figure 13 OMAFA Agricultural Systems Portal Mapping Livestock, Fish and Poultry

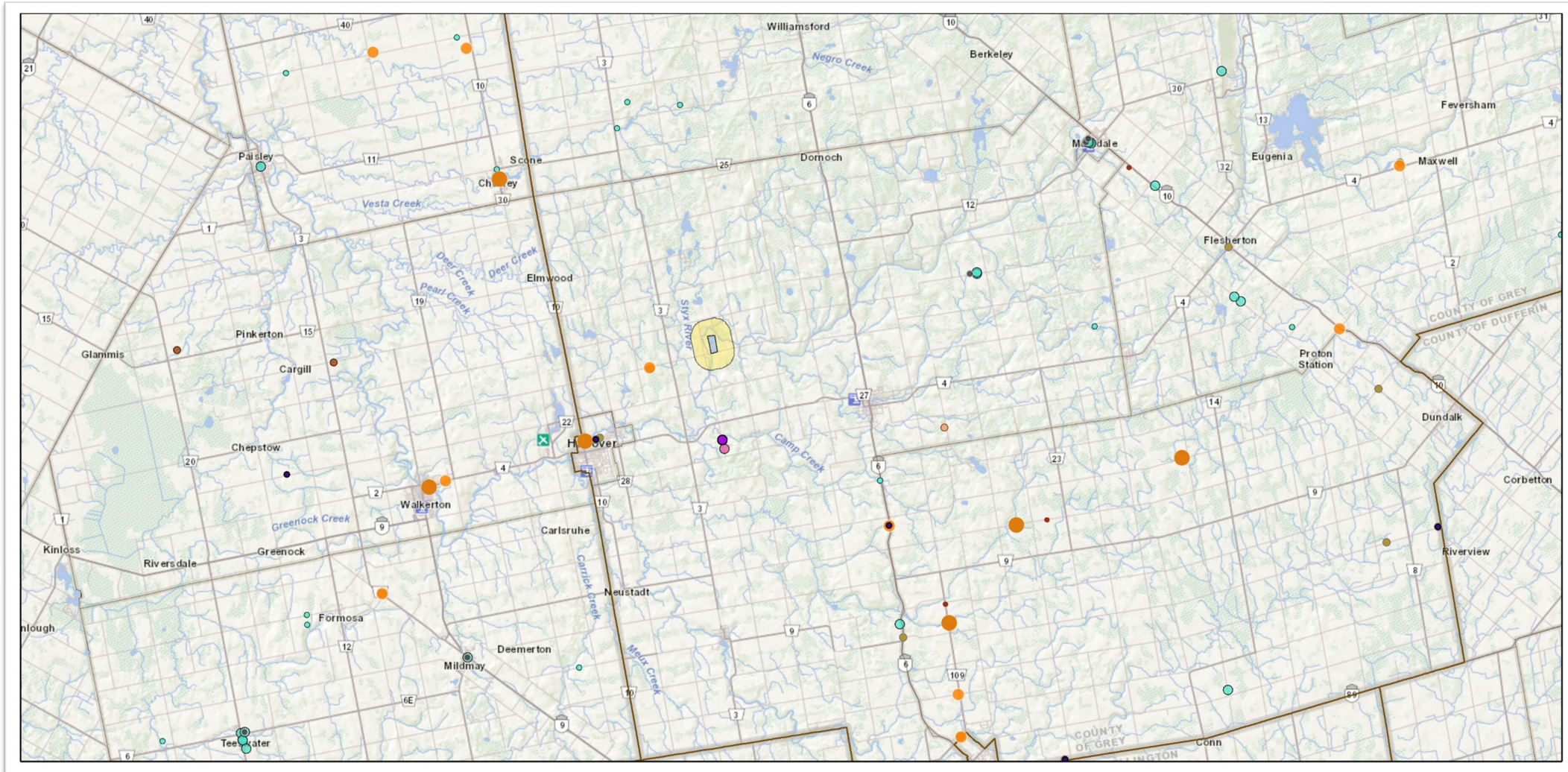


Figure 14 OMAFA Agricultural Systems Portal Mapping Field Crops

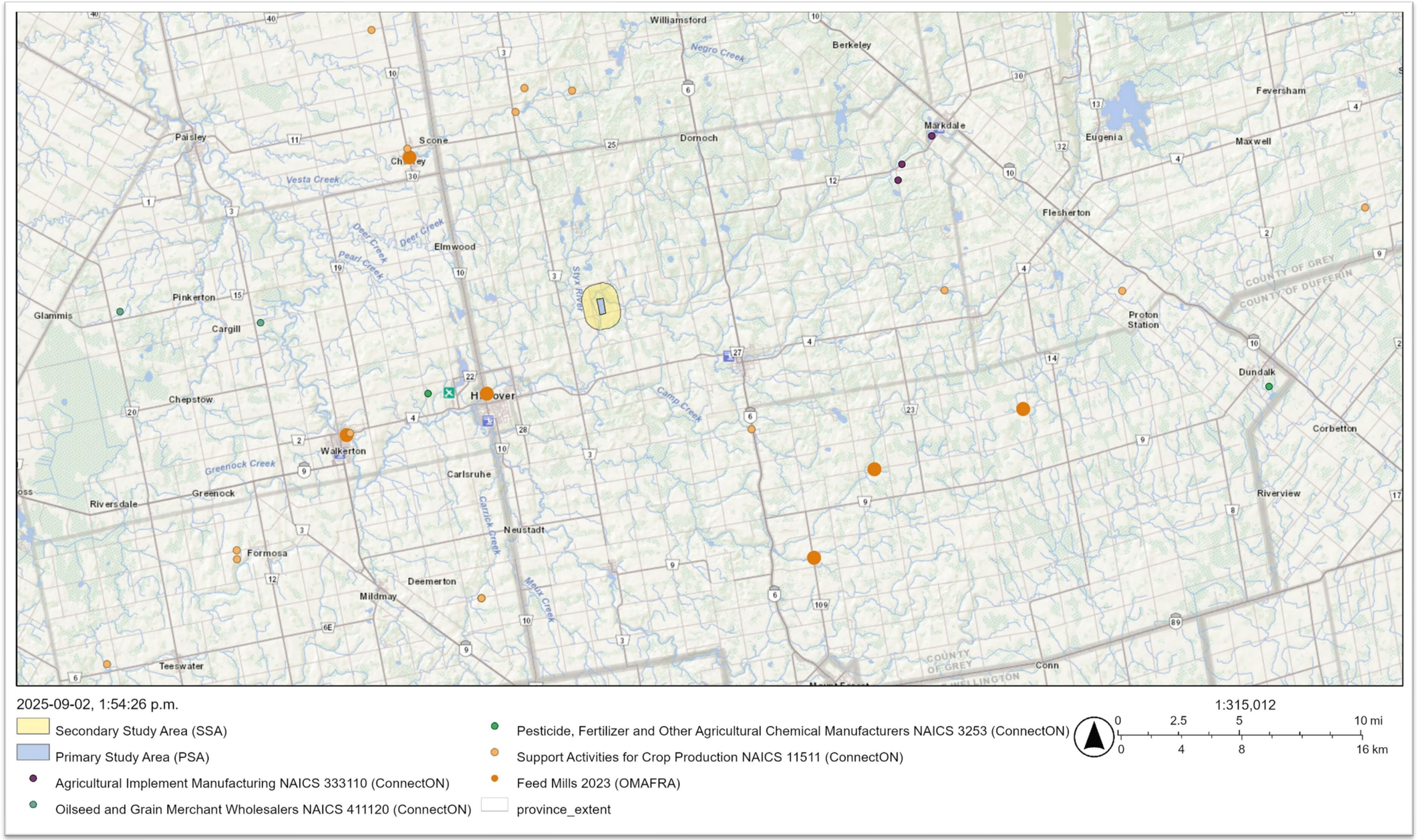
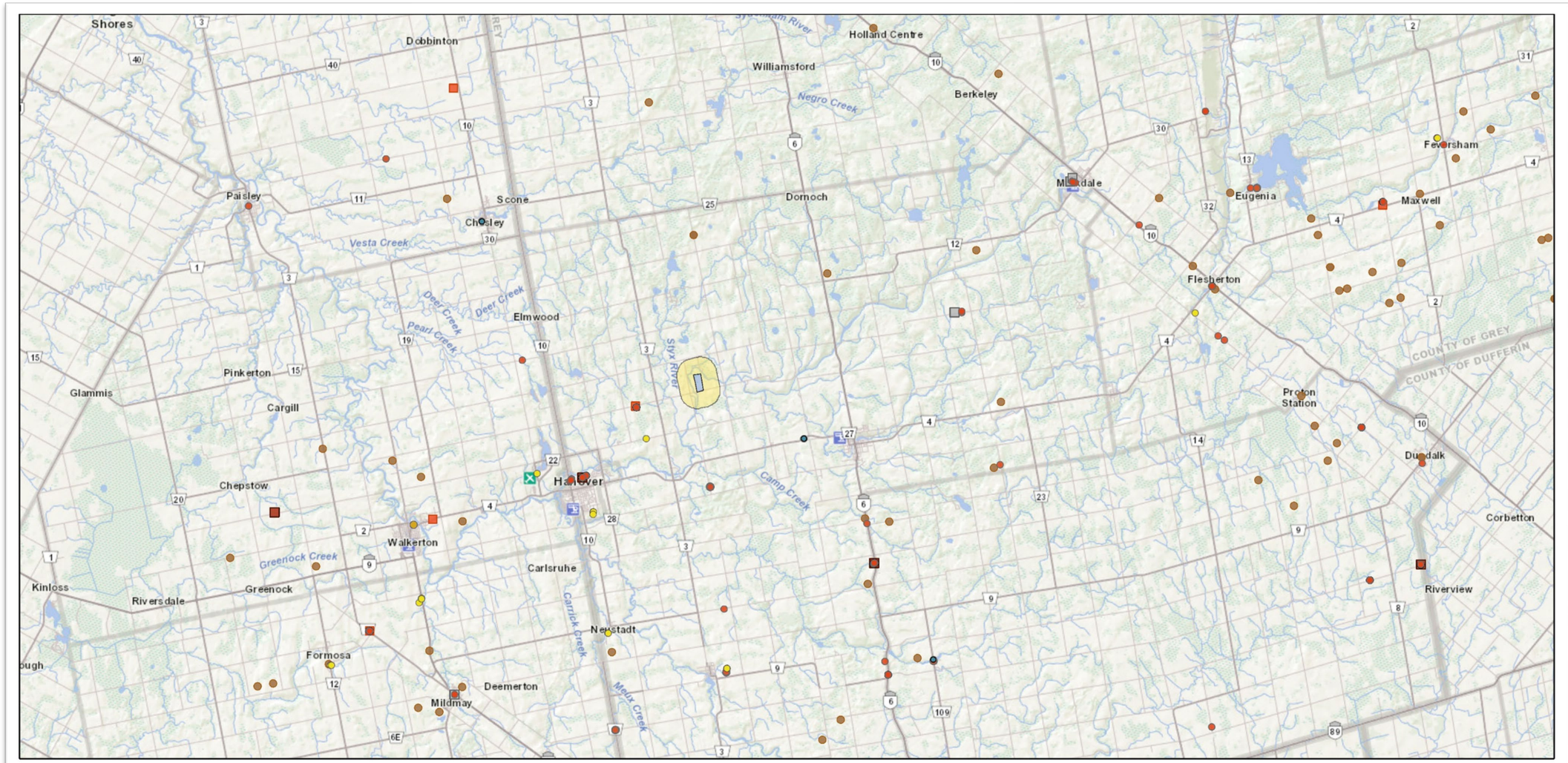


Figure 15 OMAFA Agricultural Systems Portal Mapping Food and Beverage Manufacturing



The Agricultural Network includes the services and infrastructure that are important components of the agricultural industry. Section 4.5 of this AIA provided comments on the agricultural services and infrastructure in the surrounding area. It was noted that there are no services or infrastructure in the PSA.

4.12 AGRICULTURAL CENSUS DATA

A review of the Census of Agriculture data (Census 2021 including 2016 and 2011) was completed to determine the agricultural characteristics of West Grey Township and Grey County, and to allow comparison to the agricultural characteristics in the PSA and SSA.

4.12.1 WEST GREY TOWNSHIP

Table 11 provides Census 2021 data for agricultural land use in West Grey Township and provides a comparison from the Provincial Census 2021 agricultural data to the 2016 and 2011 agricultural data. As indicated in the Census data, West Grey Township comprised approximately 0.75 percent of the total area of farms in Ontario (Census 2021).

A review of Census 2021 data for West Grey Township revealed that the total area in farms was 88,339 acres (Census Farms). Much of the farmed land was in crops with a total of 59,651 acres. The remaining lands were listed as summerfallow land, tame or seeded pasture, natural land for pasture, Christmas trees, woodland and wetland and all other land.

Table 11 West Grey Township Census 2021 Data – Land Use

Item	West Grey Township	Province	Percent of Province 2021	Percent of Province 2016	Percent of Province 2011
Land Use, 2021 Census (acres)					
Land in crops	59,651	9,051,011	0.66	0.57	0.47
Summerfallow land	98	13,964	0.70	0.70	1.02
Tame or seeded pasture	5,663	400,480	1.41	1.33	1.25
Natural land for pasture	4,041	626,366	0.65	0.54	0.43
Christmas trees, woodland & wetland	15,183	1,269,535	1.20	1.03	1.00
All other land	3,703	404,714	0.91	0.90	0.81
Total area of farms	88,339	11,766,071	0.75	0.67	0.59

Table 11 illustrated that increases in acreage were noted in all land uses except summerfallow land and tame and seeded pasture in West Grey Township over the last 15 years with the general trend being an increase in acreage over the last 5 years (based on Census 2021 farm data).

Table 12 provides a more detailed inventory of agricultural lands and a percent of Province for West Grey Township and provides a comparison from Provincial Census 2021 to the Provincial Census 2016 and 2011.

Table 12 West Grey Township Census 2021 Data – Crops

Item	West Grey Township	Province	Percent of Province 2021	Percent of Province 2016	Percent of Province 2011
Major Field Crops, 2021 Census (acres)					
Winter wheat	8,257	1,144,406	0.72	0.48	0.25
Oats for grain	1,247	84,320	1.48	0.85	0.61
Barley for grain	1,325	68,756	1.93	2.03	1.43
Mixed grains	1,706	59,961	2.85	2.84	2.69
Corn for grain	8,787	2,202,465	0.40	0.29	0.22
Corn for silage	2,515	289,678	0.87	0.66	0.69
Hay	20,257	1,704,017	1.18	1.20	0.97
Soybeans	13,104	2,806,255	0.47	0.36	0.24
Potatoes	1	39,193	0.00	0.02	0.01
Major Fruit Crops, 2021 Census (acres)					
Total fruit crops	67	48,661	0.14	0.15	0.09
Apples	63	16,008	0.39	-	-
Sour Cherries	0	1,383	0.00	-	0.00
Peaches	0	4,608	0.00	0.00	0.00
Grapes	0	18,432	0.00	0.00	0.00
Strawberries	2	2,633	0.08	-	0.24
Raspberries	1	438	0.23	-	0.44
Major Vegetable Crops, 2021 Census (acres)					
Total vegetables	37	127,893	0.03	0.07	0.02
Sweet Corn	3	20,518	0.01	-	-
Tomatoes	0	14,614	0.00	0.02	0.01
Green Peas	1	14,044	0.01	0.01	0.01
Green or Wax Beans	1	8,709	0.01	0.01	-

From 2011 to 2021, fluctuations were noted for West Grey Township in its share of provincial acreage for barley for grain, corn for silage and hay. Crops such as winter wheat, oats for grain, mixed grains and soybeans experienced moderate increases in their proportional representation over the last 15 years. Overall, the trend over the last 5 years reflects an increase in West Grey Township's contribution to provincial crop production.

Between 2011 and 2021, West Grey Township's major fruit crop acreage displayed a pattern of fluctuations. The emergence of apples in 2021 suggests a slight diversification in fruit crop production.

From 2011 to 2021, total vegetable crops in West Grey Township showed fluctuations in acreage. West Grey Township contributes 37 acres of vegetables to the provincial totals. It is worth noting that West Grey Township produced 10 acres of asparagus in 2021, representing the introduction of this crop to the area.

Table 13 illustrates the Census 2021 data for livestock. West Grey Township's livestock sector has shown notable growth in its provincial contribution from 2011 to 2021, with increases in total cattle and calves (0.89% to 1.31%) and steers (0.94% to 2.52%), reflecting expanded production. The township also maintained strong shares in beef cows and sheep and lambs, with both categories consistently contributing over 1.5% and nearly 2% respectively to the provincial totals by 2021.

In 2021, West Grey Township reported a contribution of 292,327 hens and chickens and 108 turkeys to the provincial totals.

Table 13 West Grey Township Census 2021 Data – Livestock

Item	West Grey Township	Province	Percent of Province 2021	Percent of Province 2016	Percent of Province 2011
Livestock Inventories, 2021 Census(number)					
Total cattle and calves	21,065	1,604,810	1.31	1.25	0.89
Steers	7,556	299,540	2.52	2.01	0.94
Beef Cows	3,553	224,194	1.58	1.58	1.22
Dairy Cows	2,180	327,272	0.67	0.61	0.46
Total Pigs	22,103	4,071,902	0.54	0.22	0.30
Total sheep and lambs	6,195	322,508	1.92	1.85	1.57
Poultry Inventories, 2021 Census (number)					
Total hens and chickens	292,327	53,802,772	0.54	1.77	1.59
Total turkeys	108	2,453,126	0.00	-	-

4.12.2 GREY COUNTY

In 2021, Grey County reported a total farm area of 448,197 acres, with the largest portion, 295,038 acres, dedicated to crop production. The remaining lands were listed as summerfallow land, tame or seeded pasture, natural land for pasture, Christmas trees, woodland, wetland and all other land.

Table 14 provides Census 2021 data for agricultural land use in Grey County and provides a percent comparison from the Provincial Census 2021 agricultural data to Census 2016 and 2011 agricultural data. As indicated in the Census data, Grey County comprises approximately 3.26 percent of the land in crops for Census farms in Ontario (Census 2021).

From 2011 to 2021, the county's share of provincial land use saw growth in land in crops and natural land for pasture. Fluctuations were noted in summerfallow land, Christmas trees, woodland and wetland and all other land. Decreases in acreage occurred for tame or seeded pasture.

Table 14 Grey County Census 2021 Data – Land Use

Item	Grey County	Province	Percent of Province 2021	Percent of Province 2016	Percent of Province 2011
Land Use, 2021 Census (acres)					
Land in crops	295,038	9,051,011	3.26	3.22	3.14
Summerfallow land	555	13,964	3.97	6.34	4.97
Tame or seeded pasture	34,234	400,480	8.55	9.59	9.89
Natural land for pasture	30,512	626,366	4.87	4.03	3.94
Christmas trees, woodland & wetland	69,122	1,269,535	5.44	5.73	5.19
All other land	18,736	404,714	4.63	5.35	4.78
Total area of farms	448,197	11,766,071	3.81	4.01	3.87

Table 15 provides a more detailed inventory of the major field crops in Grey County and illustrates a percent of Province comparison from 2021, 2016 and 2011. In 2021, Grey County dedicated land to major field crops, including 108,892 acres for hay, 55,120 acres for soybeans, and 40,757 acres for corn for grain. Over the decade from 2011 to 2021, the county's share of provincial production increased for most crops—such as winter wheat, oats for grain, corn for grain and silage, soybeans and potatoes. Grey County produces 11.97% of the provincial total for barley for grain and 12.80% of the provincial total for mixed grains.

Table 15 also includes Census data on major fruit and vegetable crops. In 2021, some of Grey County's contributions included 3,769 acres of apples (23.54% of the provincial totals), 65 acres of grapes, 5 acres of strawberries and 9 acres of raspberries to the province's overall totals.

Grey County's vegetable production, particularly sweet corn, showed a strong positive trend, increasing its share of the provincial total from 0.21% in 2016 to 0.46% in 2021. While overall vegetable acreage saw a slight decrease in provincial contribution, the township maintained steady production in crops like green peas and green beans, supporting crop diversification.

Table 15 Grey County Census 2021 Data – Crops

Item	Grey County	Province	Percent of Province 2021	Percent of Province 2016	Percent of Province 2011
Major Field Crops, 2021 Census (acres)					
Winter wheat	36,945	1,144,406	3.23	2.45	1.71
Oats for grain	4,897	84,320	5.81	4.95	4.47
Barley for grain	8,231	68,756	11.97	15.10	12.41
Mixed grains	7,674	59,961	12.80	15.83	14.62
Corn for grain	40,757	2,202,465	1.85	1.54	1.09
Corn for silage	14,288	289,678	4.93	4.87	4.31
Hay	108,892	1,704,017	6.39	7.01	6.61

Item	Grey County	Province	Percent of Province 2021	Percent of Province 2016	Percent of Province 2011
Soybeans	55,120	2,806,255	1.96	1.71	1.27
Potatoes	604	39,193	1.54	0.28	0.10
Major Fruit Crops, 2021 Census (acres)					
Total fruit crops	3,908	48,661	8.03	6.82	7.06
Apples	3,769	16,008	23.54	21.09	22.51
Sour Cherries	0	1,383	0.00	0.19	0.09
Peaches	0	4,608	0.00	-	-
Grapes	65	18,432	0.35	0.14	0.18
Strawberries	5	2,633	0.19	1.10	1.07
Raspberries	9	438	2.05	2.94	2.33
Major Vegetable Crops, 2021 Census (acres)					
Total vegetables	246	127,893	0.19	0.24	0.25
Sweet corn	95	20,518	0.46	0.21	0.40
Tomatoes	9	14,614	0.06	0.10	0.18
Green Peas	7	14,044	0.05	-	0.05
Green or Wax Beans	4	8,709	0.05	-	-

Table 16 provides the Census 2021 data for livestock for Grey County. From 2011 to 2021, Grey County's livestock sector showed fluctuations in all livestock inventories. Over the past five years, Grey County has generally seen a decline in its share of provincial livestock inventories. However, pig inventories have risen significantly from 1.09% in 2016 to 1.84% in 2021, highlighting growth in this sector. Grey County's contribution to poultry inventories include 738,200 hens and chickens and 12,602 turkeys.

Table 16 Grey County Census 2021 Data – Livestock

Item	Grey County	Province	Percent of Province 2021	Percent of Province 2016	Percent of Province 2011
Livestock Inventories, 2021 Census (number)					
Total cattle and calves	107,167	1,604,810	6.68	7.76	6.39
Steers	32,599	299,540	10.88	13.82	9.61
Beef cows	18,465	224,194	8.24	8.68	8.41
Dairy cows	8,704	327,272	2.66	2.98	2.26
Total pigs	74,730	4,071,902	1.84	1.09	1.10
Total sheep and lambs	28,502	322,508	8.84	9.57	7.14
Poultry Inventories, 2021 Census (number)					
Total hens and chickens	738,200	53,802,772	1.37	2.65	2.51
Total turkeys	12,602	2,453,126	0.51	1.84	3.23

Table 17 provides a side-by-side comparison of West Grey Township and Grey County Census 2021 data for crops. Table 17 also provides this comparison as a percent

calculation of the contribution from West Grey Township to Grey County (2021, 2016 and 2011).

As illustrated in Table 17, from 2011 to 2021, West Grey Township showed notable contributions to Grey County's major field crops, particularly in soybeans (23.77%) and winter wheat (22.35%). West Grey Township maintained a positive contribution to Grey County across all crops.

From 2011 to 2021, West Grey Township made strong contributions to Grey County's fruit crop production, with high contributions in strawberries (40.00%) and raspberries (11.11%).

Table 17 Comparison of West Grey Township and Grey County Census 2021 Data – Crops

Item	West Grey Township	Grey County	Percent of Grey County 2021	Percent of Grey County 2016	Percent of Grey County 2011
Major Field Crops, 2021 Census (acres)					
Winter wheat	8,257	36,945	22.35	19.58	14.79
Oats for grain	1,247	4,897	25.46	17.22	13.53
Barley for grain	1,325	8,231	16.10	13.44	11.55
Mixed grains	1,706	7,674	22.23	17.92	18.40
Corn for grain	8,787	40,757	21.56	19.04	19.75
Corn for silage	2,515	14,288	17.60	13.57	16.02
Hay	20,257	108,892	18.60	17.20	14.67
Soybeans	13,104	55,120	23.77	21.05	19.25
Potatoes	1	604	0.17	7.29	10.26
Major Fruit Crops, 2021 Census (acres)					
Total fruit crops	67	3,908	1.71	2.23	1.21
Apples	63	3,769	1.67	-	-
Sour Cherries	0	0	-	-	-
Peaches	0	0	-	-	-
Grapes	0	65	-	-	-
Strawberries	2	5	40.00	-	22.86
Raspberries	1	9	11.11	-	19.05
Major Vegetable Crops, 2021Census (acres)					
Total vegetables	37	246	15.04	27.74	7.74
Sweet Corn	3	95	3.16	-	-
Tomatoes	0	9	-	18.75	3.45
Green peas	1	7	14.29	-	14.29
Green or Wax Beans	1	4	25.00	-	-

West Grey Township accounted for over 15% of Grey County's total vegetable acreage in 2021, demonstrating a solid contribution to the county's production. While total vegetable acreage has declined since 2016, West Grey maintained a presence in diverse crops such as green peas and green or wax beans, which made up over 14% and 25% of the county's totals in those categories, respectively.

Table 18 provides a comparison of West Grey Township and Grey County Census 2021 data for livestock inventories. West Grey Township's livestock inventories accounted for over 23% of Grey County's totals in 2021. Notable strength in specific areas, particularly pigs, account for 29.58% of Grey County's total in 2021. West Grey Township maintains a strong presence in dairy cow production (25.05%) and steers (23.18%).

West Grey Township contributes to Grey County's poultry sector with 292,327 hens and chickens, making up 39.6% of the county's total in 2021. Turkey contribution numbers make up 0.86 percent of the county's total in 2021.

Table 18 Comparison of Township and County Census 2021 Data – Livestock

Item	West Grey Township	Grey County	Percent of Grey County 2021	Percent of Grey County 2016	Percent of Grey County 2011
Livestock Inventories, 2021 Census (number)					
Total cattle and calves	21,065	107,167	19.66	16.73	13.86
Steers	7,556	32,599	23.18	17.89	9.76
Beef cows	3,553	18,465	19.24	17.32	14.50
Dairy cows	2,180	8,704	25.05	23.49	20.26
Total pigs	22,103	74,730	29.58	57.33	27.20
Total sheep and lambs	6,195	28,502	21.74	20.14	21.93
Poultry Inventories, 2021 Census (number)					
Total hens and chickens	292,327	738,200	39.60	66.76	63.30
Total turkeys	108	12,602	0.86	-	-

The proposed development of the PSA will have minimal impact on the overall agricultural production in the West Grey Township in Grey County. Further, the proposed development of the PSA is considered an interim use, with the land being returned to an agricultural use.

5 RESOURCE ALLOCATION AND CONFLICT POTENTIAL

Land use planning decisions involve trade-offs among the competing demands for land. The fundamental base used for the evaluation of agricultural lands is land quality, i.e. CLI soil capability ratings. Within the rural/urban interface, there are a number of other factors which contribute to the long-term uncertainty of the economic viability of the industry and these, in turn, are reflected in the lack of investments in agricultural facilities, land and infrastructure and changes to agricultural land use patterns in these areas. Several of these factors include, but are not limited to, the presence of rural non-farm residents, land fragmentation, intrusions of non-agriculture land uses, non-resident ownership of lands and inflated land values. This section summarizes the impact of these factors on agriculture in the area.

5.1 IMPACTS, ASSESSMENT AND COMPATABILITY WITH SURROUNDING LAND USES

The identification and assessment of potential impacts is paramount to determining potential mitigation measures to either eliminate or offset the impact to the extent feasible. The following list includes potential impacts to agriculture that were identified in the OMAFRA 2018 draft AIA Guidance Document, and includes other impacts identified by farmers and landowners. This list is a basis for documenting potential impacts within AIAs and can be modified as necessary to suit the local agricultural community, operations, and services. The determination of impacts due to the proposed future development of the PSA related to this list of potential impacts to infrastructure development projects on agricultural lands may include the following:

- Interim or permanent loss of agricultural lands
- Fragmentation of agricultural lands and operations
- The loss of existing and future farming opportunities
- The loss of infrastructure, services, or assets
- The loss of investments in structures and land improvements
- Disruption or loss of functional drainage systems
- Disruption or loss of irrigation systems
- Changes to soil drainage
- Changes to surface drainage
- Changes to landforms
- Changes to hydrogeological conditions
- Disruption to surrounding farm operations
- Effects of noise, vibration, dust
- Potential interim compatibility concerns
- Traffic concerns
- Changes to adjacent cropping due to light pollution

It should be noted that this AIA report should be read in conjunction with any and all other discipline reports in an effort to provide an adequate evaluation of the above-mentioned potential impacts.

The agricultural character of both the PSA and the SSA have been documented in this AIA. It has been determined that the PSA comprised portions of active agricultural land uses, and disturbed areas. It was also determined that the SSA comprised portions of active agricultural land uses (including livestock, and cash crop operations), built up areas, rural residential use, woodlands, and scrublands.

With respect to the potential impacts as listed on the previous page of this report, and the proposed future development of the PSA lands, Table 19 provides some context as to the extent of the potential impacts.

Table 19 Potential Impacts

Potential Impact	Impacts Associated with the Proposed Future Development of the PSA Lands Before Mitigation
Interim or permanent loss of agricultural lands	There will be an interim loss of the use of agricultural lands within the PSA. There will be no loss of agricultural lands in the SSA. The impact is applicable for the extraction of the aggregate material.
Fragmentation, severing or land locking of agricultural lands and operations	This project is a proposed aggregate pit application of the PSA lands which will not fragment the land base in the PSA. There will be no severing or landlocking of agricultural lands or operations.
The loss of existing and future farming opportunities	There will be an interim loss of existing and future farming opportunities on portions of the PSA lands during the extraction of the aggregate material.
The loss of infrastructure, services or assets	There will be no loss of infrastructure or services as a result of the project.
The loss of investments in structures and land improvements	There will be a net loss of investment in the agricultural building in the PSA. The impact is applicable during the extraction of the aggregate materials and the future use of the PSA.
The loss of use of ground water wells	There exists the potential for impact from the loss of the use of the onsite groundwater well.

Potential Impact	Impacts Associated with the Proposed Future Development of the PSA Lands Before Mitigation
	The impact is applicable for the extraction of the aggregate material and the future use of the PSA.
Disruption or loss of functional drainage systems	There will be no net loss of artificial tile drainage on the PSA, and there is no net loss or disruption to artificial tile drainage systems in the SSA.
Disruption or loss of irrigation systems	There is no loss of irrigation systems in the PSA.
Changes to soil drainage	There will be no net change in soil drainage in the SSA as a result of future development of the PSA lands.
Changes to surface drainage	There will be no net change in surface drainage within the SSA as a result of future development of the PSA lands.
Changes to landforms	There will be no changes to landforms (with respect to agriculture) in the SSA as a result of future development of the PSA lands.
Changes to hydrogeological conditions	Any potential changes in hydrogeological conditions would need to be addressed under separate cover in future stages of the project.
Disruption to surrounding farm operations	There will be limited disruption for surrounding/adjacent farms. The impact is applicable for both the extraction of the aggregate material.
Effects of noise, vibration, dust	There will be potential for additional vibration and dust during the extraction of the aggregate materials.
Potential compatibility concerns	There should be limited potential for compatibility concerns with the proposed future extraction of the PSA and the adjacent agricultural lands in the SSA
Traffic concerns	It is noted that this project is the future development of an aggregate extraction operation on the PSA lands which will result in an increase in traffic.

Potential Impact	Impacts Associated with the Proposed Future Development of the PSA Lands Before Mitigation
Changes to adjacent cropping due to light pollution	A traffic study will address those concerns. There is limited potential for changes in cropping due to light pollution, as it is assumed that the proposed extraction of aggregate materials will occur primarily during daylight hours. Any use of lighting should take into consideration the impact on adjacent agricultural lands. The impact is applicable during the extraction of the aggregate material.

5.2 TRAFFIC, TRESPASS AND VANDALISM

Specific to agriculture, increased vehicle traffic along roadways can lead to safety issues with respect to the movement of slow moving, long, wide farm machinery and, as well, interrupt or alter farm traffic flow patterns.

Trespassing and vandalism are more often a concern with specialty crop operations and livestock operations. The location of the proposed future development of the PSA is not located in a provincially or municipally designated specialty crop area. The review of agricultural buildings in the SSA revealed that there were few barns in close proximity to the PSA.

Therefore, the proposed development of the PSA lands will have limited impact with respect to trespassing and vandalism on adjacent agricultural operations.

5.3 AGRICULTURAL INFRASTRUCTURE

The review of the OMAFRA Agricultural System Portal was completed to identify the presence of any registered livestock assets and services (renderers, meat plants, abattoirs), refrigerated warehousing and storage, frozen food manufacturing, farm markets, wineries, or cideries within the PSA. None of these features were identified within the PSA.

The proposed development of the PSA will not impact any registered agricultural assets and services (renderers, meat plants, abattoirs), refrigerated warehousing and storage, frozen food manufacturing, farm markets, wineries, or cideries.

5.4 MITIGATION MEASURES

The PPS 2024 defines an Agricultural Impact Assessment as:

"Agricultural impact assessment: means the evaluation of potential impacts of non-agricultural uses on the agricultural system. An assessment recommends ways to avoid or if avoidance is not possible, minimize and mitigate adverse impacts".

With respect to this AIA, the following sections provide comments with regard to the avoidance, minimization, and mitigation of any potential adverse impacts.

5.4.1 AVOIDANCE

Any change in land use within or adjacent to an identified or designated prime agricultural area will result in the potential for impacts to the adjacent agricultural area. The severity of the potential impacts is related to the type and size of the change in land use, and the degree of agricultural activities and operations in the surrounding area.

The first method of addressing potential impacts is to avoid the potential impact. The proposed future development of the PSA will be an interim aggregate extraction use in an agricultural area. As a result, there will be agricultural lands lost in the short term, until the lands have been rehabilitated to an agricultural use. This cannot be avoided.

5.4.2 MINIMIZING IMPACTS

When avoidance is not possible, the next priority would be to minimize impacts to the extent feasible. Mitigation measures should be developed to lessen the potential impacts. The minimization of impacts can often be achieved during the design process and through proactive planning measures that provide for the separation of incompatible land uses.

5.4.3 MITIGATING IMPACTS

Potential mitigation measures may include:

- The use of berms, vegetated features, or fencing, where feasible, between the different types and intensities of land uses to reduce the potential for trespassing and potential vandalism. These types of buffers reduce impacts by preventing trespassing and associated problems such as litter and vandalism.
- The use of buffers between agriculture and non-agricultural uses may combine a separation of uses, vegetation/plantings, windbreaks, and berms. Vegetated buffers should include the use of deciduous and coniferous plants, with foliage from base to crown to mitigate against dust, light trespass, and litter.
- The use of plantings/vegetation as screens and buffers to reduce visual impacts. Consideration of plantings/vegetation barriers within the PSA as visual screening where appropriate.
- Maintain local roads to allow access for the movement of oversized agricultural equipment.
- Field entrances and farm access should be maintained.

- Phased development may be utilized to allow for agricultural production to continue in undeveloped areas of the PSA while other areas are excavated.
- Design principles which accommodate agriculture to reduce negative impacts can minimize conflicts, noise, dust and odours through consideration of barriers, setbacks, buffers, road design and reduced speed limits.

This AIA has provided comments on avoidance, minimization of, and mitigation of potential impacts.

6 SUMMARY AND CONCLUSIONS

DBH Soil Services Inc was retained to complete an Agricultural Impact Assessment (AIA) Report for JT Excavating Ltd for an aggregate pit application to be located at:

Lot 22, Concession 5
Geographic Township of Bentinck
Municipality of West Grey
County of Grey

This AIA was required as part of the aggregate pit application in the municipality of West Grey for a Class 'A' aggregate pit above the watertable with a proposed License Boundary area of approximately 26.97 ha, and with an area of extraction of approximately 17.38 ha.

This AIA identified and assessed agricultural impacts based on roadside reconnaissance surveys and online resources and provides avoidance or mitigative measures as necessary to offset or lessen any impacts.

For the purposes of this AIA, the Primary Study Area (PSA) has been identified as Lot 22, Concession 5, Geographic Township of Bentinck, Municipality of West Grey, County of Grey. The PSA parcel is identified by roll # 420528000604300. A Secondary Study Area (SSA) of 1000 m was used for the characterization of the agricultural community and the assessment of potential impacts in the surrounding area.

In the regional/city context, the PSA is bounded on the east and west by agricultural lands and woodlands, on the south by Concession Road 4 NDR, and on the north by woodlands. The PSA is approximately 3.1 km north of Allan Park, 6.3 km northeast of the urban area of Hanover, and approximately 8.2 km northwest of the urban area of Durham.

A summary of the results of this AIA are presented below:

- **Geographical Limits**

  The PSA and the SSA are located within the Horseshoe Moraine physiographic region.

  The Horseshoe Moraine Physiographic Region is a large, horseshoe shaped area that flanks the upland areas west of the highest portions of the Niagara cuesta. The chief landforms are irregular stony knobs and ridges that are composed of till, with some sand and gravel deposits, and sand/gravel terraces with swampy valley floors. The southern portion of the Horseshoe Moraine Physiographic Region near Paris comprised of moderately hilly areas that flatten out.

The PSA and the SSA are a complex mix of topography with gently undulating areas generally used for agricultural production, and steeper slopes along incised stream channels.

The PSA and SSA are located between the 2700 and 2900 Crop Heat Units isolines (CHU-M1) available for corn production in Ontario.

A review of OMAFRA Climate Zone Mapping revealed that the PSA and the SSA are located in Zone E. Zone E has an average Frost-Free period of 125-145 days, an Average Date of Last Spring Frost of May 17, and an Average Date of First Fall Frost of September 26.

Based on the OMAFRA soils data the PSA comprised approximately 99.5 percent Canada Land Inventory (CLI) capability Class 1 – 3, with approximately 99.5 percent as Class 3. The remainder of the PSA comprised CLI Class 5 lands.

Again, based on the OMAFRA soils data the SSA comprised approximately 48.8 percent Canada Land Inventory (CLI) capability Class 1 – 3, with approximately 48.8 percent as Class 3, 15.8 percent as Class 4, 11.4 percent as Class 5, 19.2 percent as Class 6, and 4.8 percent as Organic Soils.

The onsite detailed soil survey determined that the PSA comprised approximately 79.2 percent Canada Land Inventory (CLI) capability Class 1 – 3, with approximately 79.2 percent as Class 3. The remainder of the PSA comprised approximately 9.9 percent CLI Class 4, 7.2 percent CLI Class 5, and 3.7 percent Not Rated land. The CLI related to a Hoffman Productivity Index of a CLI Class 4 Equivalent.

Further, based on the onsite detailed soil survey the Limit of Extraction Area comprised approximately 80.2 percent CLI Class 1 – 3 lands, with approximately 80.2 percent as CLI Class 3 soils. The remainder of the Limit of Extraction Area soils included approximately 14.2 percent CLI Class 4 soils, 0.9 percent CLI Class 5 soils, and approximately 4.7 percent as Not Rated. The CLI related to a Hoffman Productivity Index of a CLI Class 3 Equivalent.

Finally, the License Boundary Area comprised approximately 77.8 percent CLI Classes 1 – 3, with approximately 77.8 percent as CLI Class 3 soils. The remainder of the License Boundary Area soils included approximately 11.2 percent CLI Class 4 soils, 6.1 percent CLI Class 5 soils, and approximately 4.9 percent as Not Rated. The CLI related to a Hoffman Productivity Index of a CLI Class 4 Equivalent.

Therefore, the final rehabilitated area within the License Boundary Area should be a minimum of a CLI class 4 equivalent.

- **Agricultural Policy**

  A review of the Greenbelt Plan (2017) mapping indicated that no portions of the PSA or the SSA were located in the Greenbelt Plan Area. No portions of the PSA or the SSA were located in the Oak Ridges Moraine Conservation Plan area nor the Niagara Escarpment Plan area.

  The review of the *County of Grey Official Plan (Consolidated May 6, 2025)* Schedule A Land Use revealed that the majority of the PSA was comprised of lands designated as Agricultural area, while the remaining portion of the PSA was identified as Hazard Lands.

  It was determined that the SSA comprised portions of Agricultural areas, Hazard Lands and Rural areas.

  The review of *County of Grey Official Plan (Consolidated May 6, 2025)* revealed that sand and/or gravel operations proposed within the Aggregate Resource Areas on Schedule B are permitted. The PSA is located within an Aggregate Resource Area as defined by Schedule B, therefore an aggregate operation is permitted. Further, that an AIA is required as part of the application, and that future rehabilitation is required.

  No portions of the PSA or the SSA were within any provincially or municipally designated specialty crop area.

- **Agricultural Land Use**

  The PSA comprised land use of approximately 2.8 percent as built up/disturbed areas, 74.8 percent as common field crops, and 22.4 percent as woodland.

  The predominant land use in the PSA was the production of common field crops.

  The SSA comprised land use of approximately 12.5 percent as built up/disturbed areas, 23.7 percent as common field crop, 8.6 percent as forage/pasture lands, 4.1 percent as scrubland, 6.5 percent as small grains, 1.0 percent as the Walker Redford Pit, 2.3 percent as water, 40.7 percent as woodland areas and 0.7 percent as unknown.

  On review of the existing land use data, it was observed that the predominant land uses in the SSA include common field crops, built up/disturbed areas, and woodland areas.

- **Agricultural Investment**

  A total of 16 agricultural buildings were identified within the PSA and SSA. There

was 1 agricultural building within the PSA with the remaining 15 agricultural buildings observed in the SSA. It is assumed that the agricultural building located within the PSA will be removed as part of the proposed development of the PSA.

There is no investment in systematic artificial tile drainage in the PSA or the SSA.

There is no investment in landforming for agricultural purposes in either the PSA or the SSA.

Minimum Distance Separation 1 (MDS1) calculations were NOT required nor completed for this AIA.

A review of the online Agricultural System Portal (OMAFRA) indicated that there were no registered nurseries, specialty farms (crop or livestock), frozen food manufacturing, refrigerated warehousing/storage, livestock assets or abattoirs in the PSA.

There are no registered agricultural services within either the PSA or the SSA.

The closest transportation network (major roadway) is Grey County Road 4 located to the south of the PSA.

- **Land Fragmentation**

  A review of parcel data revealed that the PSA comprised one parcel. This parcel will not be fragmented or severed as part of the aggregate application or operation.

  The proposed development of the PSA will not result in an increase in fragmentation in the PSA and will not result in an increase in fragmentation in the SSA.

- **Rehabilitation**

  The proposed application to allow for an aggregate operation has a requirement under the Aggregate Resources Act (1990, as amended), the PPS (2024), and the *County of Grey Official Plan (Consolidated May 6, 2025)* that the lands are rehabilitated back to agricultural use.

  General rehabilitation guidelines and a rehabilitation plan have been included with this AIA.

The foregoing represents a comprehensive AIA with the purpose of evaluating the PSA and SSA to document the existing agricultural character and to determine any potential impacts to agriculture as a result of the proposed future development of the PSA.

Given the geographical location of the PSA lands it is the conclusion of this study that the proposed future development of the PSA would have minimal impact on the surrounding agricultural activities within the SSA.

Sincerely
DBH Soil Services Inc.

Dave Hodgson, P. Ag
President

7 REFERENCES

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APPENDIX A

Agricultural Building List

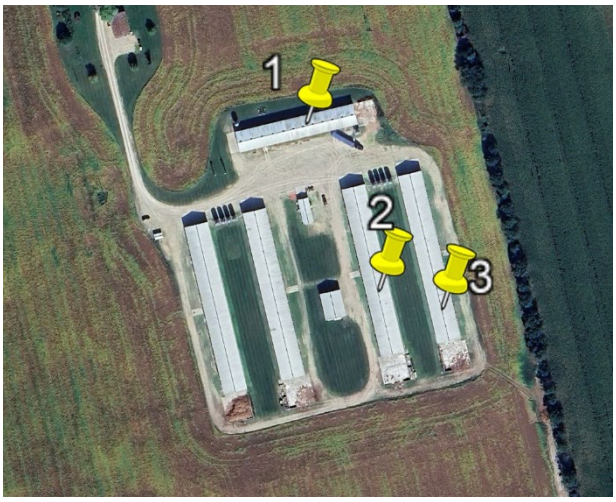
Property Information: 2025-27 Field Work Date:			Online Imagery Survey								Roadside Reconnaissance Survey					Assumptions	
Agricultural Building Number	Address	Roll Number	Residential Unit	Type of Building	"Line of Sight" Restriction	Additional Details	Evidence of Livestock	Type of Livestock	Evidence of Feed Storage	Evidence of Manure Storage	Findings	Visual Evidence of Livestock	Type of Livestock	Visual Evidence of Feed Storage	Visual Evidence of Manure Storage	Type of Operation	MDS1 Considerations
1	381766 Concession Rd 4 Ndr, West Grey, ON, N4N 3B9, CAN	420528000601400	Yes	2 Storey Poultry Barn	No	feed towers 3 of the 5 poultry barns in the study area	No	Chickens	Yes	Yes		No		No	No	Poultry	N/A
2	381766 Concession Rd 4 Ndr, West Grey, ON, N4N 3B9, CAN	420528000601400	Yes	2 Storey Poultry Barn	No		No	Chickens	Yes	Yes		No		No	No	Poultry	N/A
3	381766 Concession Rd 4 Ndr, West Grey, ON, N4N 3B9, CAN	420528000601400	Yes	2 Storey Poultry Barn	No		No	Chickens	Yes	Yes		No		No	No	Poultry	N/A
4	382064 Concession Rd 4 Ndr, West Grey, ON, N4N 3B9, CAN	420528000601800	Yes	Bank Barn	No	with extension/extensions	No		No	No		No		No	No	Cash Crop	N/A
5	133776 Allan Park Rd, Hanover, ON, N4N, CAN	420528000604100	Yes	Machine Shed	No	no street view with extension/extensions	No		No	No		No		No	No	N/A	N/A
6	133776 Allan Park Rd, Hanover, ON, N4N, CAN	420528000604100	Yes	Bank Barn	No	with extension/extensions	No		No	No		No		No	No	N/A	N/A
7	133937 Allan Park Rd, West Grey, ON, N0G, CAN	42052800060801	Yes	Pole Barn	No	No street view Lots of equipment stored around building with extension/extensions	No		No	No	Run-in shed, horse trailer	No		No	No	Horse	N/A

Property Information: 2025-27 Field Work Date:			Online Imagery Survey								Roadside Reconnaissance Survey					Assumptions	
Agricultural Building Number	Address	Roll Number	Residential Unit	Type of Building	"Line of Sight" Restriction	Additional Details	Evidence of Livestock	Type of Livestock	Evidence of Feed Storage	Evidence of Manure Storage	Findings	Visual Evidence of Livestock	Type of Livestock	Visual Evidence of Feed Storage	Visual Evidence of Manure Storage	Type of Operation	MDS1 Considerations
8	422050 Concession Rd 6 Ndr, West Grey, ON, N0G 1S0, CAN	420528000608001	Yes	Bank Barn	No		Yes	Beef	No	Yes		No		Yes	Yes	Beef	N/A
9	422050 Concession Rd 6 Ndr, West Grey, ON, N0G 1S0, CAN	420528000608200	Yes	Machine Shed	No		No		No	Yes		No		No	No	N/A	N/A
10	422110 Concession Rd 6 Ndr, Elmwood, ON, N0G 1S0, CAN	420528000608320	Unknown	Machine Shed	Yes	Millers Painting and Restoring	No		No	No		No		No	No	N/A	N/A
11	422110 Concession Rd 6 Ndr, Elmwood, ON, N0G 1S0, CAN	420528000608320	Unknown	Machine Shed	Yes		No		No	No		No		No	No	N/A	N/A
12	422110 Concession Rd 6 Ndr, Elmwood, ON, N0G 1S0, CAN	420528000608320	Unknown	House	Yes	with extension/extensions	No		No	No		No		No	No	N/A	N/A
13	422110 Concession Rd 6 Ndr, Elmwood, ON, N0G 1S0, CAN	420528000608320	Unknown	Machine Shed	No		No		No	No		No		No	No	N/A	N/A
14	382063 Concession Rd 4 Ndr, Hanover,	420528000604300	No	Machine Shed/Pole Barn	No	PSA	No		No	No		No		No	No	N/A	N/A

Property Information: 2025-27 Field Work Date:			Online Imagery Survey								Roadside Reconnaissance Survey					Assumptions	
Agricultural Building Number	Address	Roll Number	Residential Unit	Type of Building	"Line of Sight" Restriction	Additional Details	Evidence of Livestock	Type of Livestock	Evidence of Feed Storage	Evidence of Manure Storage	Findings	Visual Evidence of Livestock	Type of Livestock	Visual Evidence of Feed Storage	Visual Evidence of Manure Storage	Type of Operation	MDS1 Considerations
	ON, N4N 3B9, CAN																
15	382063 Concession Rd 4 Ndr, Hanover, ON, N4N 3B9, CAN	420528000604300	Yes	Quonset	Yes		No		No	No	Line of sight	l.o.s		l.o.s	l.o.s.	N/A	N/A
16	422006 Concession Rd 6 Ndr, West Grey, ON, N0G 1S0, CAN	420528000608001	Yes	Machine Shed	No	Roof collapsing	No		No	Yes		No		No	No	Beef	N/A

APPENDIX B

Agricultural Building Photographs



Agricultural Buildings 1, 2 and 3

Agricultural Building 4

Agricultural Buildings 5 and 6

Agricultural Building 7

Agricultural Buildings 8 and 16

Agricultural Building 9

Agricultural Buildings 10, 11, 12 and 13

Agricultural Building 14

Agricultural Building 15

APPENDIX C

Unique Soil Symbols and Canada Land Inventory (CLI) List

SOIL_NAME1	SYMBOL1	SLOPE1	CLASS1	STONINESS1	CLI1	CLI1_1	CLI1_2	SYMBOL2	SLOPE2	CLASS2	STONINESS2	CLI2	CLI2_1	CLI2_2
BOTTOM LAND	B.L.	3.5	C	0	5	I			0					
BROOKSTON CLAY LOAM	Bc	1.2	B	0	2	W			0					
BROOKSTON CLAY LOAM - BOULDERY PHASE	Bc-b	1.2	B	3	4	W	P		0					
BURFORD LOAM	Bg	7	D	1	2	F	M		0					
BREYPEN	Bp	3.5	C	3	7	R			0					
BRISBANE LOAM	Brl	1.2	B	1	2	F			0					
BRIGHTON SAND	Brs	3.5	C	0	3	F	M		0					
BRIGHTON SAND - GRAVELLY PHASE	Brs/g	3.5	C	0	3	F	M		0					
BRIGHTON SANDY LOAM - GRAVELLY PHASE	Brsl/g	3.5	C	0	3	F	M		0					
BRADY SANDY LOAM	Bsl	1.2	B	0	2	F			0					
CHESLEY SILTY CLAY LOAM	Csc	1.2	B	0	2	W			0					
DUNEDIN CLAY	Dc	12	E	1	6	T	S	Dc	7	D	1	4	F	M
DUNEDIN CLAY - ERODED PHASE	Dc-e	12	E	1	7	E	T		0					
DONNYBROOK SANDY LOAM	Dos	22.5	F	3	6	T	S	Dos	7	D	3	4	F	M
ELDERSLIE SILTY CLAY LOAM	Esc	3.5	C	0	1				0					
FARMINGTON LOAM	Fl	3.5	C	0	6	R			0					
FOX SANDY LOAM	Fsl	3.5	C	0	2	F	M		0					
GILFORD LOAM	Gil	1.2	B	1	4	W			0					
GRANBY SAND	Gs	1.2	B	0	5	W			0					
HARKAWAY LOAM	Hal	3.5	C	1	1			Hal	12	E	3	4	P	T
HARKAWAY LOAM - STONEY PHASE	Hal-st	7	D	3	5	P			0					
HARKAWAY SILT LOAM	Has	3.5	C	1	1			Has	12	E	3	4	P	T
HARKAWAY SILT LOAM - SHALLOW PHASE	Has-sh	7	D	2	5	R			0					
HARRISTON LOAM	Hl	3.5	C	1	1			Hl	7	D	1	3	T	
HARRISTON SILT LOAM	Hs	3.5	C	1	1			Hs	7	D	1	3	T	
UNCLASSIFIED - ISLAND	Island	-9	N	N	0				0					
KEMBLE SILTY CLAY	Ksc	3.5	C	1	1				0					
LEITH SILTY CLAY LOAM	Les	3.5	C	0	2	D			0					
LISTOWEL LOAM	Ll	3.5	C	1	1				0					
LISTOWEL SILT LOAM	Ls	3.5	C	1	1				0					
LILY LOAM	Lyl	1.2	B	3	6	P	W		0					
MUCK	M	0.2	A	0	O				0					
MARSH	Ma	0.2	A	0	7	I			0					
MARL	Marl	0.2	A	0	7	W			0					
MORLEY CLAY	Mc	1.2	B	1	4	D	W		0					
MORLEY CLAY - BOULDERY PHASE	Mc-b	1.2	B	4	6	P			0					
NOT MAPPED	NM	-9	N	N	0				0					
OSPREY LOAM	Ol	3.5	C	3	3	P		Ol	22.5	F	3	5	P	T
OSPREY LOAM - BOULDERY PHASE	Ol-b	7	D	4	6	P			0					

OSPREY SANDY LOAM	Osl	3.5	C		3		3	P		Osl	22.5	F		3	5	P	T
PEAT	P	0.2	A		0	O					0						
PIKE LAKE LOAM	P.L.I.	22.5	F		4		5	P	T	P.L.I.	7	D		3	3	P	
PARKHILL LOAM	Pal	1.2	B		1		2	W			0						
SARGENT LOAM	Sg	3.5	C		1		3	F	M		0						
SAUGEEN SILTY CLAY LOAM	Ssc	3.5	C		1		1				0						
SULLIVAN SAND	Sus	7	D		0		3	F	M		0						
TOLEDO CLAY LOAM	Tc	1.2	B		0		2	W			0						
TIOGA SANDY LOAM	Tisl	7	D		0		3	F	M		0						
TECUMSETH SAND	Ts	1.2	B		0		2	F			0						
URBAN	Urban	-9	N	N			0				0						
VINCENT SILTY CLAY LOAM	Vsc	3.5	C		1		1			Vsc	7	D		1	3	T	
VINCENT SILTY CLAY LOAM - ERODED PHASE	Vsc-e	22.5	F		1		5	T			0						
WIARTON LOAM	Wl	1.2	B		1		1				0						
WIARTON SILT LOAM	Ws	1.2	B		1		1				0						
WATERLOO SANDY LOAM	Wsl	22.5	F		0		5	S	T	Wsl	7	D		0	3	F	M
WATER	ZZ	-9	N	N		W					0						

APPENDIX D

Soil Inspection Site Data

Soil Inspection Site Number	Horizon	Depth of Horizon (cm)	Soil Texture	Drainage Class	Soil Series
1	Ap*	0 - 18	Loam	Well	Sargent Loam
2	Ap*	0 – 20	Loam	Well	Sargent Loam
3	Ap*	0 – 21	Loam	Well	Sargent Loam
4	Ap*	0 – 19	Loam	Well	Sargent Loam
5	Ap*	0 – 17	Loam	Well	Sargent Loam
6	Ap*	0 – 16	Loam	Well	Sargent Loam
7	Ah*	0 – 15	Loam	Well	Sargent Loam
8	Ah*	0 – 20	Loam	Well	Sargent Loam
9	Ap*	0 – 21	Loam	Well	Sargent Loam
10	Ap*	0 – 16	Loam	Well	Sargent Loam
11	Ap*	0 – 17	Loam	Well	Sargent Loam
12	Ap*	0 – 19	Loam	Well	Sargent Loam
13	Ap*	0 – 15	Loam	Well	Sargent Loam
14	Ah*	0 – 15	Loam	Well	Sargent Loam
15	Ah*	0 – 21	Loam	Well	Sargent Loam
16	Ah*	0 – 20	Loam	Well	Sargent Loam
17	Ah*	0 – 19	Loam	Well	Sargent Loam
18	Ap*	0 – 19	Loam	Well	Sargent Loam
19	Ap*	0 – 17	Loam	Well	Sargent Loam
20	Ap*	0 – 16	Loam	Well	Sargent Loam
21	Ap*	0 – 15	Loam	Well	Sargent Loam
22	Ah*	0 – 17	Loam	Well	Sargent Loam
23	Ah*	0 – 19	Loam	Well	Sargent Loam
24	Ap*	0 – 18	Loam	Well	Sargent Loam
25	Ap*	0 – 16	Loam	Well	Sargent Loam
26	Ap*	0 – 20	Loam	Well	Sargent Loam
27	Ap*	0 – 20	Loam	Well	Sargent Loam
28	Ap*	0 – 19	Loam	Well	Sargent Loam
29	Ap*	0 – 18	Loam	Well	Sargent Loam
30	Ap*	0 – 17	Loam	Well	Sargent Loam
31	Ap*	0 – 19	Loam	Well	Sargent Loam

Notes * - refusal due to gravel/cobbles

APPENDIX E

Dave Hodgson Curriculum Vitae

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

EDUCATION

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

AREAS OF PROFESSIONAL EXPERIENCE

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

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

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

SELECT PROJECT EXPERIENCE

Municipal Comprehensive Review and Mapping Studies (MCR)

- Town of New Tecumseth Municipal AIA and MDS1 review, 2024 - 2025
- Bruce County Official Plan Review, Agriculture, 2022 – 2023.
- Simcoe County Official Plan Review, Agriculture, 2020 - ongoing.
- City of Vaughan Official Plan Review, Agriculture, 2020 - 2021
- Northumberland County, Agriculture, 2020 - ongoing.
- Halton Region, PSA Mapping, Agriculture, 2022
- Halton Region Official Plan Review, Agriculture, 2019 - 2022.

Environmental Assessment Studies

- Agricultural Component of the Highway 401 Widening Milton to Wellington County Boundary, 2023 – ongoing.
- Agricultural Component of the Highway 6 Widening Hamilton 2022 – 2024.
- Agricultural Component of the Bradford Bypass (Highway 400 to 404 link) 2021 – 2024.
- Agricultural Component of the Green for Life (GFL) Environmental, Moose Creek, Eastern Ontario Waste

Handling Facility (EOWHF) Expansion, 2020 – 2023.
- Agricultural Component of the Greater Toronto Area West (GTAW) Highway 413 Corridor Assessment, 2019 – ongoing.
- Peer Review of the Walker Environmental Group (WEG) Inc. Southwestern Landfill Proposal, Ingersoll, 2013 – 2021.
- Agricultural Component for the High-Speed Rail Kitchener to London –Terms of Reference, 2018,
- Agricultural Component of the Mount Nemo Heritage District Conservation Study – City of Burlington, 2014 – 2015.
- Agricultural Component of the Greater Toronto Area West (GTAW) Highway Corridor Assessment – Phase 2, 2014 – 2016.
- Peer Review of the Agricultural Component of the Walker Group Landfill – Ingersoll, 2013 – 2015.
- Agricultural Component of the Highway 407 East Extension Design and Build Phase, 2012 – 2013.
- Agricultural Component of the Beechwood Road Environmental Centre (Landfill/Recycling) – Napanee, 2012 – 2013.
- Agricultural Component of the Clean Harbors Hazardous Waste Landfill Lambton County 2009 – 2015.
- Agricultural Component of the Highway 401 widening Cambridge to Halton Region 2009 – 2012.
- Agricultural Component of the Upper York Sanitary Sewer Study, York Region, 2009 – 2013.
- Agricultural Component of the Greater Toronto Area West Corridor Environmental Assessment Study 2007 – 2013 (Phase 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.
- Agricultural Component of the Trafalgar Road study, Halton Region, 2005.
- Agricultural Component of the Highway 404 Extension North, 2004.
- Agricultural Component of the Highway 404 – 400 Bradford Bypass, 2004.
- Agricultural Component of the Highway 407 East Extension, 2002 – 2010.

Agricultural Impact Assessment (AIA)/Minimum Distance Separation Studies
- Scotts Canada, Talbot Road AIA, 2025.
- Eden Mills Settlement Area Boundary Expansion AIA, 2025.
- Tremble Pit Grey County AIA, 2025.
- Cedar Flats Wind Project AIA, 2025.
- Bower Hill Wind Project AIA, 2025.
- Temiskaming Shores Wind Project AIA, 2025.
- Atura Power Gas Generating Stations (four) AIA's, 2025.
- Agerton AIA Update, 2025.
- Dorchester Settlement Area Boundary Expansion AIA, 2025.
- Beatty Line Settlement Area Boundary Expansion AIA, 2025.
- Cambridge South AIA, (including MDS1), 2024.
- AECOM Peel Sewer AIA, 2024.
- Port Hope North Settlement Area Boundary Expansion AIA, (including MDS1) 2024
- Fergus Oaks, Fergus Settlement Area Boundary Expansion AIA (including MDS1), 2024.
- Jordan Settlement Area Boundary Expansion AIA (including MDS1), 2024.
- Town of New Tecumseth AIA Assistance, 2024
- Whistle Bare Road, North Dumfries Minimum Distance Separation (MDS1 Assessment), 2024.
- Balsam Road, Pickering Minimum Distances Separation (MDS1) Assessment, 2024.
- Port Hope West Urban Boundary Expansion Scoped AIA (including MDS1), 2023.
- Port Hope East Urban Boundary Expansion Scoped AIA (including MDS1), 2023.
- Town of King Battery Energy Storage System (BESS) AIA, 2023.
- City of London Emergency Services AIA (including MDS1), 2023.
- Caledonia Secondary Plan Scoped AIA (including MDS), 2023.
- Inglewood Municipal Well AIA, 2023.

- Orangeville Battery Energy Storage System (BESS) AIA, 2023.
- County Road 109 Realignment AIA, 2023.
- Thornbury Acres AIA (including MDS1), 2022 – 2023.
- Highway 6 Widening Hamilton AIA, 2022 – 2024.
- Whistle Bare Aggregate Pit AIA, 2022.
- Middletown Road Vacuum Truck Services AIA (including MDS1), 2022.
- Claremont, Durham Region Minimum Distance Separation (MDS1), 2022.
- Grand Valley Settlement Area Boundary Expansion 2022 - 2024.
- Hagersville Minimum Distance Separation (MDS1), 2022.
- East River Road Minimum Distance Separation (MDS1), County of Brant, 2022.
- Brampton Brick Norval Quarry AIA, 2022 – 2024.
- Northfield Drive Minimum Distance Separation (MDS1), Waterloo Region, 2021
- Bradford Bypass Highway 400- 404 Link AIA, 2021 – 2024.
- Wilfrid Laurier Milton Campus AIA (including MDS1), 2021 – 2023.
- Town of Lincoln Road Realignment AIA, 2021 – 2023.
- Britannia Secondary Plan, AIA (including MDS1), Milton, 2021 – 2023.
- Reesor Road Minimum Distance Separation (MDS1), Markham, 2021.
- Maclean School Road Minimum Distance Separation (MDS1), County of Brant, 2021.
- Petersburgh Sand Pit AIA, 2021 – 2022.
- Milton CRH Quarry Expansion AIA, 2020 – 2022.
- Grimsby, Specialty Crop Area Redesignation AIA, 2020 - 2022.
- Halton Hills, Premier Gateway Phase 2 Employment Lands Secondary Plan, AIA (including MDS1), 2020 - 2021.
- Milton Education Village Secondary Plan AIA (including MDS1), 2020 - 2021.
- Woodstock, Pattullo Avenue Realignment AIA, 2020 - 2021.
- Smithville, West Lincoln Master Community Plan AIA (including MDS1), AECOM, 2019 – 2022.
- Kirby Road AIA, HDR, Vaughan, 2019 – 2021.
- Elfrida Lands, City of Hamilton, AIA Update, WSP, 2019 – 2021.
- Dorsay Development – Durham Region High Level Agricultural Assessment, 2019.
- Stoney Creek Landfill AIA Update – GHD, 2019.
- Town of Wilmot, Aggregate Pit Study (Hallman Pit) AIA, 2018 - 2019.
- Courtice Area Southeast Secondary Plan (Clarington) AIA (including MDS1), 2019,
- Town of Halton Hills, Minimum Distance Separation (MDS 1), August 2018,
- Cedar Creek Pit/Alps Pit (North Dumfries) AIA, 2018 – 2021,
- Belle Aire Road (Simcoe County) AIA (including MDS1), 2019,
- Vinemount Quarry Extension (Niagara) AIA, December 2017.
- Grimsby – AIA 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 AIA, Oro-Medonte Township, 2015.
- Greenwood Construction Aggregate Pit AIA, 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 Assessment and Sampling, Trussler Road Kitchener, 2024.
- Soil Survey and Canada Land Inventory Evaluation, Mount Hope, 2024.

- Soil Survey and Canada Land Inventory Evaluation, Peterborough, 2024.
- Soil Survey and Canada Land Inventory Evaluation, Essex, 2024.
- Mississippi Mills Soil Survey Peer Reviews (4 parcels), 2024.
- Ontario Stone, Sand & Gravel Association Case Study Rehabilitated Pits, 2023 – ongoing.
- Soil Survey and Canada Land Inventory Evaluation, Neubauer Pit, 2023.
- Soil Survey and Canada Land Inventory Evaluation, David Pit, 2023.
- Soil Survey and Canada Land Inventory Evaluation, Pinehurst Road, 2023.
- Soil Survey and Canada Land Inventory Evaluation, Paris Plains Church Road Site, 2022.
- Soil Survey and Canada Land Inventory Evaluation, Mulmur Site, 2022.
- Soil Survey and Canada Land Inventory Evaluation, Port Colborne Site, 2022.
- Soil Survey and Canada Land Inventory Evaluation, Pike Site, 2022.
- Soil Survey and Canada Land Inventory Evaluation, New Dundee Road Site, 2022.
- Soil Survey and Canada Land Inventory Evaluation, Gehl Farm, 2022
- Soil Sampling, City of Kitchener, 2021 – 2022.
- Soybean Cyst Nematode Soil Sampling, Enbridge, 2021.
- Soil Survey and Canada Land Inventory Evaluation, Max Becker Enterprises, City of Kitchener, 2021
- Soil Survey and Canada Land Inventory Evaluation, Max Beck Enterprises, City of Kitchener, 2021 – 2022.
- Soil Survey and Canada Land Inventory Evaluation, Burlington, Nelson Quarry, 2020-2021.
- City of Kitchener, City Wide Soil Studies, 2020-ongoing.
- Soil Survey, Fallowfield Drive, City of Kitchener Development Manual Study, 2020 - ongoing.
- Soil Survey, Williamsburg Estates, City of Kitchener Development Manual Study, 2020 - 2021.
- Soil Survey, South Estates, City of Kitchener Development Manual Study, 2020 - 2021.
- Soil Survey and Canada Land Inventory Evaluation, Burlington, Nelson Quarry, 2019.
- Soil Survey and Canada Land Inventory Evaluation, Maryhill Pit, 2019.
- Soil Survey and Canada Land Inventory Evaluation, Glen Morris Pit, Lafarge Canada, 2018,
- Soil Survey and Canada Land Inventory Evaluation, Brantford Pit Extension, Lafarge Canada, 2018,
- Soil Survey and Canada Land Inventory Evaluation, Pinkney Pit Extension, Lafarge Canada, May 2018,
- Soil evaluation and opinion, King-Vaughan Road, March 2018,

Land Evaluation and Area Review Studies (LEAR)

- Land Evaluation and Area Review (LEAR) presentation for Lanark County Council, 2024.
- Land Evaluation and Area Review (LEAR) Town of Amaranth, 2023 – ongoing.
- Mapping Audit Bruce County. Assessment of Prime and Non-Prime Agricultural Lands, 2022.
- Mapping Audit Northumberland County. Comparison of Regional and Provincial Prime Agricultural Area Mapping – 2021 - ongoing.
- Mapping Audit Simcoe County. Comparison of Regional and Provincial Prime Agricultural Area Mapping – 2021 - ongoing.
- Mapping Audit Halton Region. Comparison of Regional and Provincial Prime Agricultural Area Mapping – 2019 - 2022.
- Land Evaluation and Area Review (LEAR) – Soils Component, in Association with AgPlan Ltd, Kanata/Munster. December 2017 – July 2018.
- Land Evaluation and Area Review (LEAR) – Soils Component, Prince Edward County, 2016 – 2017.
- Land Evaluation and Area Review (LEAR) – Soils Component, Peel Region, 2013 - 2014.
- Land Evaluation and Area Review (LEAR), Minto Communities, Ottawa, 2012 – 2013.
- GIS and LE component of Land Evaluation and Area Review (LEAR), York Region 2008 – 2009.
- Land Evaluation and Area Review (LEAR), 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 (LEAR), Halton Region 2007 - 2008.
- GIS and LE component of Land Evaluation and Area Review (LEAR), City of Hamilton, 2003 – 2005.

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Expert Witness

- Ontario Land Tribunal (OLT) Hearing/mediation, Thornbury Estates, 2025.
- Ontario Land Tribunal (OLT) Hearing, Haldimand County, 2024.
- Ontario Land Tribunal (OLT) Hearing preparation, Burlington Quarry, 2024.
- Ontario Land Tribunal (OLT) Hearing preparation, Cemetery Lands Bradford, 2024.
- Local Planning Appeal Tribunal (LPAT) Hearing, Greenwood Aggregates Limited, Violet Hill Pit Application, 2020.
- Ontario Municipal Board (OMB) Hearing, Burl's Creek Event Grounds 2018-2019.
- Town of Mono Council Meeting, Greenwood Aggregates Violet Hill Pit, January 2018.
- Ontario Municipal Board (OMB) Hearing, Burl's Creek Event Grounds, Simcoe County, 2015 – 2016.
- Ontario Municipal Board (OMB) Hearing, Town of Woolwich, Gravel Pit, 2012 – 2013.
- Ontario Municipal Board (OMB) Hearing, Mattamy Homes – City of Ottawa, 2011 – 2012.
- Ontario Municipal Board (OMB) Hearing, Town of Colgan, Simcoe County, 2010.
- Presentation to Planning Staff on behalf of Mr. MacLaren, City of Ottawa, 2005.
- Ontario Municipal Board (OMB) Hearing, Flamborough Severance, 2002.
- Preparation for an Ontario Municipal Board Hearing, Flamborough Golf Course, 2001.
- Ontario Municipal Board (OMB) Hearing, Stratford RV Resort and Campground – Wetland Delineation Assessment, 2000.
- Ontario Municipal Board (OMB) Hearing, Watcha Farms, Grey County, Agricultural Impact Assessment – Land Use Zoning Change, 1999-2000.
- Ontario Municipal Board (OMB) Hearing, Town of St. Vincent Agricultural Impact Assessment – Land Use Zoning Change, 1999 – 2000.
- Halton Agricultural Advisory Committee (HAAC), Halton Joint Venture Golf Course Proposal - Agricultural Impact Assessment for Zoning Change, 1999-2000
- Halton Agricultural Advisory Committee (HAAC), Sixteen Mile Creek Golf Course Proposal – Agricultural Impact Assessment for Zoning Change, 1999.
- Ontario Municipal Board (OMB) Hearing, Town of Flamborough, Environs Agricultural Impact Assessment for Zoning Change – Golf Course Proposal, 1999.
- Ontario Municipal Board (OMB) Hearing, Stratford RV Resort and Campground – Agricultural Impact Assessment, 1998.

Monitoring Studies

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

Publications

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