DESKTOP AGRICULTURAL CHARACTERIZATION REPORT
FOR
6586 BEATTY LINE NORTH, FERGUS

PREPARED FOR:

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1. INTRODUCTION

1.1 Background

Colville Consulting Inc. was retained by Sorbara/Tribute Brubacher Holdings Inc. to complete a desktop Agricultural Characterization Report (ACR) for their lands located at 6586 Beatty Line North, Fergus. These lands, herein referred to as the Subject Lands, are generally located southwest of Beatty Line North, northeast of Rea Drive, and southeast of Nichol Road 15, immediately abutting the northwestern urban boundary of Fergus. The Subject Lands are approximately 43.2 ha (106.7 acres) in size, are tenant farmed and primarily in agricultural production, and contain three wetlands of varying sizes. The Subject Lands are identified in Schedule A-9 of Official Plan Amendment No. 119 of the County of Wellington Official Plan as Prime Agricultural, with smaller areas designated as Core Greenlands. These lands are located within the Greater Golden Horseshoe and form part of the Agricultural Land Base's prime agricultural area.

The Province estimates that the County of Wellington will reach a population of 160,000 people and employment of at least 70,000 jobs by 2051. The County of Wellington initiated an Official Plan Review and established the Urban Boundary Expansion Framework to determine how and where this growth will occur.

The Urban Boundary Expansion Framework will be used to consider whether a given area is feasible for urban expansion through a two-step process. Step 1 is the initial screening which will remove unqualified municipal comprehensive review requests based on whether the proposed expansion area is in a municipality with a need for expansion. The municipalities with an identified need for expansion include Centre Wellington, Erin, Mapleton, and Minto.

Step 2 will use evaluation criteria established by the County of Wellington to assess the urban boundary and assist in evaluating the appropriateness and suitability of lands for boundary expansion. The evaluation criteria are based on the policy tests outlined in the Growth Plan and associated Provincial and County planning documents. The overall recommendation as to whether a given candidate area is feasible for expansion will be based on the comprehensive application of all criteria.

1.2 Purpose of Study

The Subject Lands are located within Centre Wellington, which has an identified need for expansion. As such, it is expected that the Subject Lands will be evaluated in Step 2 of the County's Urban Boundary Expansion Framework for their feasibility of expansion. Colville Consulting Inc. has been requested to complete a desktop Agricultural Characterization Report to assist in satisfying the Agricultural Resources criteria, which pertain to the protection of prime agricultural lands, minimizing fragmentation of prime agricultural lands, compliance with the Minimum Distance Separation (MDS) Formulae, and the avoidance or minimization of impacts to the agri-food network.

1.3 Professional Qualifications

Colville Consulting Inc. was established in 2003 and provides agricultural and environmental consulting services to both private and public sector clients throughout Ontario. Colville Consulting Inc. has

extensive experience working in and around the Greater Golden Horseshoe on a number of agriculture-related projects including the preparation of various reports to aid in the identification of potential areas for settlement area boundary expansions in prime agricultural areas.

This study was led by Sean Colville, who has over 30 years of consulting experience and is a registered Professional Agrologist (P.Ag.) through the Ontario Institute of Agrologists (OIA). John Liotta was the Project Manager responsible for the preparation of the report. John has over 5 years of formal education in Environmental and Agricultural Planning and is an Articling Agrologist (A.Ag.) through the OIA. The CVs of Sean Colville and John Liotta can be found in Appendix A.

1.4 Investigation Area

This ACR will evaluate the agricultural character of the Subject Lands and compare those lands to those within the Study Area. The Study Area will include all lands within 1.5 km (1,500 m) of the Subject Lands. The location of the Subject Lands and Study Area are shown in Figure 1.

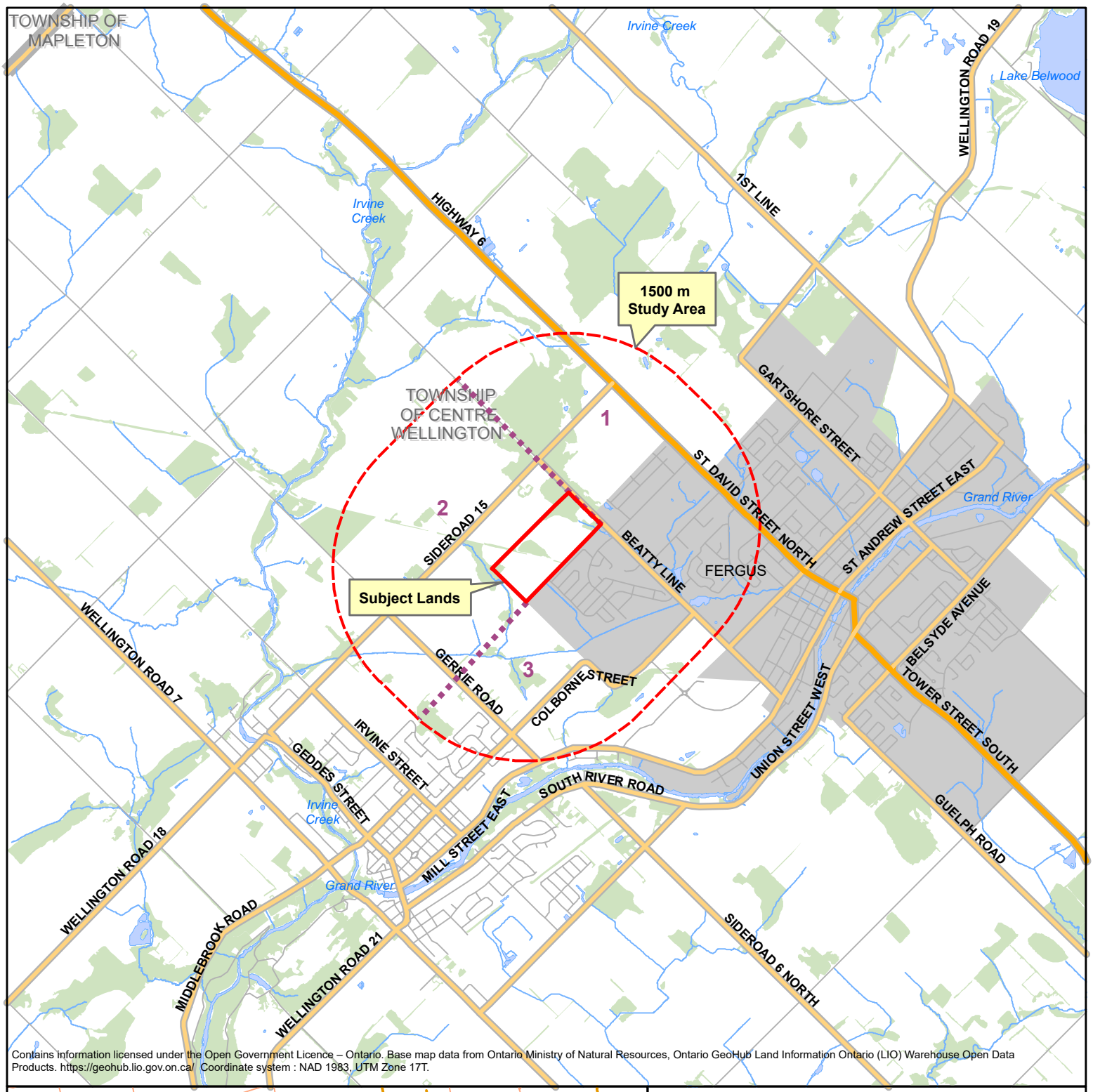
1.4.1 Subject Lands

As stated above, the Subject Lands are located at 6586 Beatty Line North, Fergus, are approximately 43.2 ha (106.7 acres) in size, are primarily in agricultural production, and contain three wetlands of various sizes. The Subject Lands are primarily designated Prime Agricultural, with smaller portions designated Core Greenlands in the County of Wellington Official Plan. The Subject Lands also form part of the prime agricultural area within the Agricultural Land Base for the Greater Golden Horseshoe.

1.4.2 Study Area

The Study Area encompasses all lands within 1.5 km (1,500m) of the Subject Lands, which encompasses approximately 1,186.28 ha (2,931.36 acres) of land. These lands are primarily designated Prime Agricultural, Core Greenlands, and Primary Urban Centre, with smaller portions of land designated Greenlands in the County of Wellington Official Plan. The portions of the Study Area located within the urban boundaries of Fergus and Elora are designated for a variety of urban land uses in the Township of Centre Wellington Official Plan. The portions of the Study Area located outside of the urban boundary of Fergus form part of the Prime Agricultural Area within the Greater Golden Horseshoe's Agricultural Land Base. The majority of the Study Area is in active agricultural production, with smaller forested areas and areas of various natural heritage features.

For comparative purposes, the Study Area has been divided into three Zones. Zone 1 encompasses the northern portion of the Study Area. Zone 2 encompasses the western portion of the Study Area and includes the Subject Lands. Zone 3 encompasses the southern portion of the Study Area. The three Zones do not include lands within the urban boundaries of Fergus and Elora. All lands within the eastern portion of the Study Area are located within the urban boundary of Fergus.



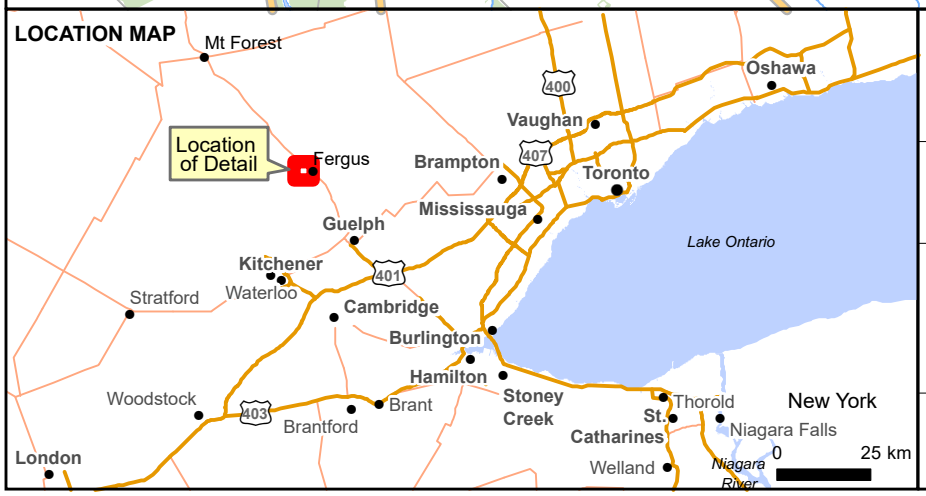


Figure 1
Location of Subject Lands

Desktop Agricultural Characterization Report
6586 Beatty Line North, Fergus ON

Prepared for: Sorbara/Tribute Brubacher Holdings Inc.

Prepared by: COLVILLE CONSULTING INC.

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2. SCOPE OF STUDY

The scope of the ACR includes the following:

- the collection and review of background information for the Subject Lands and Study Area;
- a review of the soils and CLI Capability ratings for the Subject Lands and Study Area;
- a desktop land use survey to map and describe the land uses observed within the Subject Lands and the Study Area and identify those agricultural operations that could potentially be impacted by SABE;
- the identification of agricultural land improvements and other investments in agriculture within the Study Area;
- the identification of agricultural operations which may require the completion of Minimum Distance Separation (MDS) calculations for future SABE consideration;
- a review of the parcel fabric and level of fragmentation of agricultural lands within the Study Area;
- a comparison of the Subject Lands to other lands within the Study Area; and
- the preparation of a report summarizing the study findings and providing an opinion on the appropriateness of including the Subject Lands within the SABE.

It should be noted that because this is only a desktop exercise, the conclusions reached may be subject to refinement following the collection of more detailed information. This ACR is intended to provide a general understanding of the agricultural character of the Subject Lands within the Study Area.

3. METHODOLOGY

The study methodology generally contains many of the elements that are considered in an Agricultural Impact Assessment (AIA). An ACR can be considered a precursor to an AIA, should one be required to address future proposed SABE. The Ontario Ministry of Agriculture, Food and Rural affairs (OMAFRA) developed a Draft Guidance Document for Agricultural Impact Assessments (2018) which we have used to prepare the ACR. Similar to an AIA, the ACR includes a review of relevant agricultural policies, published agricultural-related information sources, and the completion of a land use survey to characterize the Subject Lands and the Study Area.

3.1 Background Data Collection

Information sources reviewed for this study include:

- Township of Centre Wellington Official Plan and Land Use Schedules (May 2005);
- County of Wellington Official Plan and Land Use Schedules (September 2023 Office Consolidation);
- Wellington County Urban Boundary Expansion Framework (February 2024);
- The Soil Survey of Wellington County - No. 35 of the Ontario Soil Survey, 1963;
- OMAFRA's digital soil Resource Database to obtain soil series and CLI agricultural capability mapping and data;
- OMAFRA's The Minimum Distance Separation (MDS) Document: Formulae and Guidelines for Livestock Facility and Anaerobic Digester Odour Setbacks. Publication 853 (2016);
- OMAFRA's Artificial Drainage Systems mapping;
- OMAFRA's AgMaps and Agri-Systems databases;
- Draft Agricultural Impact Assessment (AIA) Guidance Document, Ontario Ministry of Agriculture and Rural Affairs. March 2018.; and
- Ortho-rectified, digital aerial photography viewed using Google Earth™.

Aerial photography covering the Study Area showing historical and the most recently available imagery, as well as parcel fabric (lots) were reviewed to assess the mix of land use, level of fragmentation, and to obtain a general impression of the agricultural activity and level of agricultural investments in the area.

3.2 Land Use Survey

A desktop land use survey of the Subject Lands and Study Area was completed to identify agricultural, agriculture-related, on-farm diversified, and non-agricultural land uses. The desktop land use survey utilized historic and the most recently available aerial imagery and Google Street View imagery to identify the mix of land uses in the Study Area.

3.3 Identification of Potential MDS Calculations

The MDS is a land use planning tool developed by OMAFRA to minimize land use conflicts and nuisance complaints arising from odours generated by livestock operations. The MDS calculates a recommended separation distance between a livestock or manure storage and other land use(s). The most recent version of the MDS guidelines, The Minimum Distance Separation (MDS) Document, Publication 853 (2016), came into effect on March 1st, 2017. The MDS formulae only apply to lands designated prime agricultural area or rural. The MDS does not apply to lands in non-agricultural land use designations.

The MDS uses two separate formulae depending on the type of land use proposed: MDS I and MDS II. The MDS I formula is used when a proposed new non-agricultural development is proposed in proximity to livestock facilities. The MDS II formula is used to calculate the distance from proposed new, enlarged or remodeled livestock facilities and existing or approved development.

The MDS Guidelines consider settlement area boundary expansions to be Type B land uses, which have a higher potential for generating nuisance complaints.

To determine the MDS I setback requirements, specific information regarding each livestock facility is required. This includes:

- the type of livestock housed in the facility;
- the maximum capacity of the barn housing livestock;
- the type of manure storage facility; and
- the size of the property upon which the livestock facility is located.

The MDS Document states that "The preferred method for obtaining information (e.g., livestock and manure type as well as design capacity) to be used in MDS I calculations for a complete planning application is visiting the site and getting information directly from the farm operator(s) or owner(s) of the property where the livestock facilities or anaerobic digesters are located."

Given that this ACR is based strictly off a desktop evaluation, MDS I setback requirements have not been calculated for the livestock operations identified within the Study Area. Agricultural operations which would potentially require MDS I setback calculations for future SABE were identified and recorded through the desktop land use survey. In our opinion, this is sufficient for the current phase of the County of Wellington Official Plan Review in determining the likelihood of SABE constraints associated with MDS I setbacks within the Study Area. MDS I setback requirements should be calculated prior to the final refinement of the settlement area boundary.

4. STUDY FINDINGS

4.1 Agricultural Crop Statistics

Agricultural crop statistics are available through Statistics Canada's Agriculture and Food Statistics Census of Agriculture. The Subject Lands are located within the Census Western Ontario Region, Wellington County. Data from Statistics Canada has been complied by the Ontario Ministry of Agriculture, Food and Rural Affairs for the Ontario region. Agricultural crop statistics were obtained from the online database and are included in Appendix B. This data provides a general overview of agriculture and agri-food operations in the area but is unlikely to be inclusive of all operations present at the time of this report.

The County and Township Agricultural Profile includes data from the 2011, 2016, and 2021 census periods. The total number of farms in Centre Wellington increased from 342 in 2016 to 363 in 2021, and total cropland decreased from 54,767 acres to 53,881 acres over the same period.

Field crops in Centre Wellington include winter wheat, oats for grain, barley for grain, mixed grains, corn for grain, corn for silage, hay, soybeans, and potatoes. Field crop production between 2016-2021 decreased for barley for grain, mixed grains, corn for silage, hay, and soybeans, whereas winter wheat, oats for grain, corn for grain, and potato production increased. The largest increase in crop production between 2016-2021 was observed in oats for grain (+165.02%) and the largest decrease was observed in mixed grains production (-54.75%).

Fruit crops grown in Centre Wellington include apples, peaches, strawberries, and raspberries. Total fruit crop production in Centre Wellington decreased from 34 acres in 2016 to 25 acres in 2021. Vegetable crops grown in Centre Wellington include sweet corn, tomatoes, green peas, and green or wax beans. Total vegetable production decreased from 65 acres in 2016 to 60 acres in 2021.

This data, showing an increase in total farms and decrease in crop production, is unlike most other townships in Ontario during this period. Most townships in Ontario have experienced a trend towards a decrease in farm numbers and acres of crop production, with acres of crop production decreasing less, proportionately, than total farm numbers. This indicates that farms across Ontario are becoming fewer but larger in scale. The data for Centre Wellington is inconsistent with what has been the trend for most of Ontario.

4.2 Specialty Crop Areas

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

a) soils that have suitability to produce specialty crops, or lands that are subject to special climatic conditions, or a combination of both;

b) farmers skilled in the production of specialty crops; and

c) a long-term investment of capital in areas such as crops, drainage, infrastructure and related facilities and services to produce, store, or process specialty crops."

There are two specialty crop areas recognized by the Province through the Greenbelt Plan: the Niagara Peninsula Tender Fruit and Grape Area and the Holland Marsh. Neither the Subject Lands, nor any portion of the Study Area, are located within either of these specialty crop areas. Additionally, the Subject Lands do not exhibit any of the characteristics of a specialty crop area. Therefore, if the Subject Lands were to be included within the County of Wellington SABE, specialty crop areas will be avoided.

4.3 Regional Soils

4.3.1 Soil Series on Subject Lands

The *Soil Survey of Wellington County – Report No. 35* of the Ontario Soil Survey (Hoffman, D.W., Matthews, B.C., and Wicklund, R.E., 1963) includes a soil map that shows the distribution of the various soil series in Wellington County. The digital Provincial Soil Resource database is compiled and administered by OMAFRA and includes most of the soil surveys completed in Ontario. Much of this information is accessible from the Province's Agricultural Information Atlas. The database was accessed in February 2024.

The *Soil Survey of Wellington County* mapping shows that the soils within the Subject Lands are comprised primarily of Listowel Loam soils (58.07%) and Harriston Loam soils (30.51%), with a smaller area of Muck soils (11.42%). Regional scale soil mapping is shown in Figure 2.

Harriston Series

The soils of the Harriston series are well-drained and occur on moderately to gently rolling topography. The parent material of these soils is a relatively stone-free glacial till that is derived from the underlying limestone bedrock. Harriston soils are among the best agricultural soils in Southern Ontario. The most common limitation for crop production is adverse topography (e.g., complex, steep slopes). These soils occur on approximately 30.51% of the Subject Lands and are mapped on simple E-Class slopes (9.0 – 15.0%).

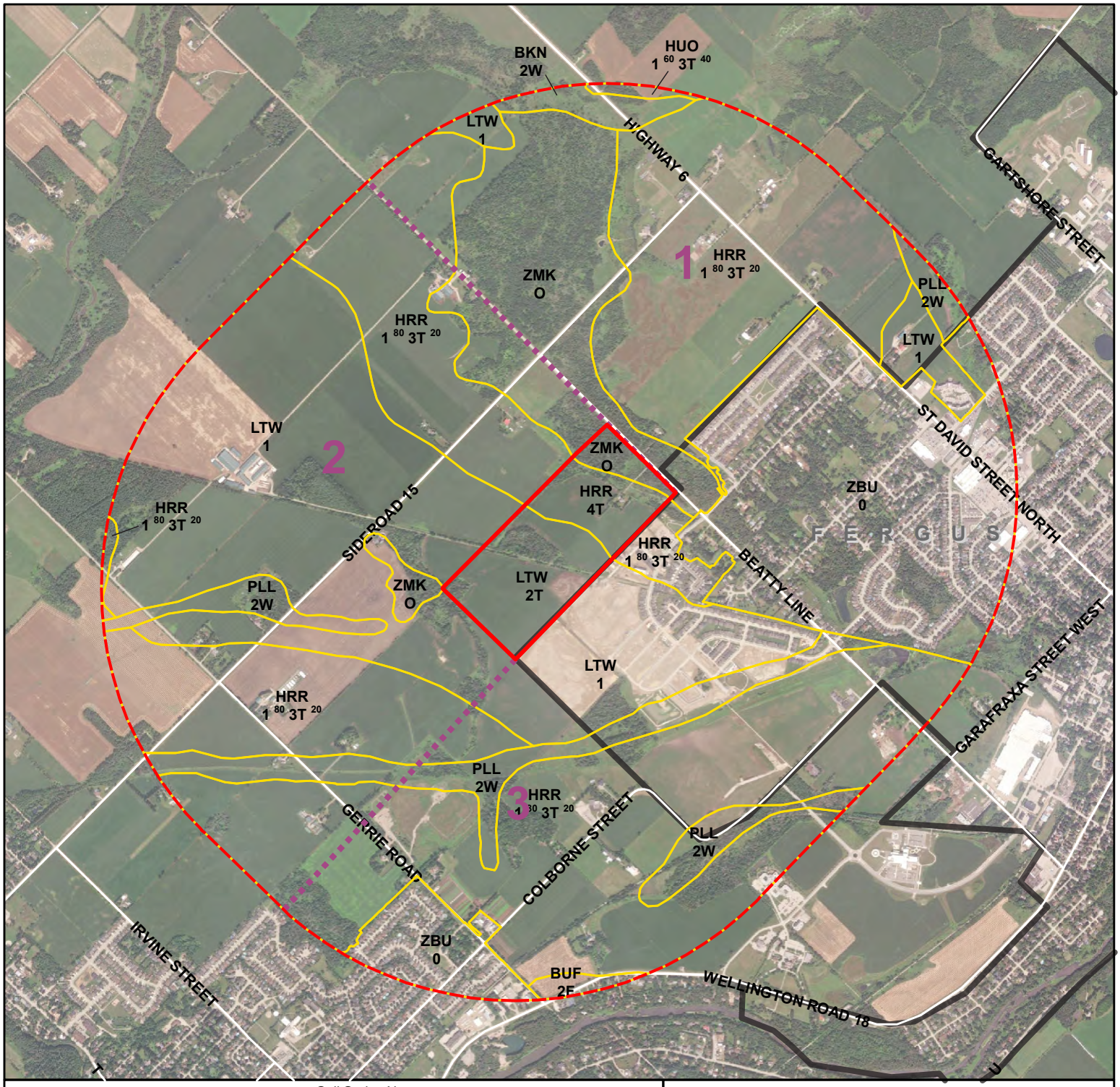
Listowel Series

The Listowel series have developed from the same material from which the Harriston series are derived. They are the imperfectly drained member of the Harriston Catena and generally occupy the mid-slope to lower-slope soil landscape positions. Surface textures of Listowel soils are primarily silt loam, which remain saturated for extended portions of growing season.

Listowel soils are moderately productive agricultural soils and are well suited for the production of most common field crops. The main limitation to crop production in these soils is the presence of excess water. To increase crop yields, tile drainage systems are often installed. These soils are found on approximately 58.07% of the Subject Lands and are mapped on simple C-Class slopes (2.0 – 5.0%).

Muck

Soils that have been identified as Muck consist of organic deposits which have accumulated in shallow lakes, ponds, or undrained depressions in the land. These are different than mineral soils as they are



Subject Lands
Study Area (1500m)
Soil
Town Boundary
Zone Boundaries

Soil Series Name → HRR ← Percentage of Area
CLI Class → 1 80 3T 20 ← CLI Subclass

CLI AGRICULTURAL CAPABILITY CLASSES

Class 1 - No significant limitations in use for crops.
Class 2 - Moderate limitations that reduce the choice of crops, or require moderate conservation practices.
Class 3 - Moderately severe limitations that reduce the choice of crops, or require moderate conservation practices.
Class 0 - Denotes organic soils, which are not assigned a capability class.

CLI AGRICULTURAL CAPABILITY SUBCLASSES

T	Topography	– limitations due to slope steepness and length
F	Fertility	– low inherent fertility
M	Moisture	– low moisture holding capacity
W	Excess Water	– excess soil moisture

SOIL SERIES

HRR	Harriston Loam	**BUF**	Burford Loam
PLL	Parkhill Loam	**LTW**	Listowel Loam
HUO	Huron Loam	**ZMK**	Muck
BRT	Brant Fine Sandy Loam	**ZBU**	Built Up Area

Figure 2
Soils and CLI

Agricultural Characterization Report
6586 Beatty Line North, Fergus, ON

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derived from decayed plant material. This results in black, soft, and fluffy organic material with some coarse particles of woody fragments from trees.

Muck soils are most likely to develop where lands are saturated with water for the entire growing season. Muck soils are organic soils which have no profile development, unlike mineral soils. Muck soils are often not cultivated for common field crop production and require drainage and the application of fertilizers, which may adversely impact the water table levels and wildlife. These soils are mapped on 11.42% of the Subject Lands and are mapped on simple B-Class slopes (0.5% – 2.0%).

4.3.2 CLI Agricultural Land Classification for Subject Lands

The Canada Land Inventory (CLI) is an interpretative system for assessing the effects of climate and soil characteristics on the limitations of land for growing common field crops. The CLI system has seven soil classes that descend in quality from Class 1, which have no significant limitations, to Class 7 soils which have no agricultural capability for common field crops. Class 2 through 7 soils have one or more significant limitations, and each of these are denoted by a capability subclass. There are thirteen subclasses described in CLI Report No. 2 (1971). Eleven of these subclasses have been adapted to Ontario soils. More information regarding the CLI Classification system is provided in Appendix C.

According to the provincial database, the majority of the Subject Lands are mapped as CLI Class 1 lands (82.48%), will smaller areas of CLI Class 3 lands (6.10%) and CLI Class O lands (11.42%), as shown in Figure 2. The CLI Class O lands are comprised of Muck soils and which are not rated (NR) by the CLI Capability system for agricultural soil. CLI Class 1 soils have no or very minor limitations for common field crop production. CLI Class 3T soils have moderately severe limitations for common field crop production due to adverse topography.

OMAFRA's *Classifying Prime and Marginal Agricultural Soils and Landscapes: Guidelines for the Application of the Canada Land Inventory in Ontario* document was used to interpret the CLI Classes for the soils on the Subject Lands. Interpretation of the CLI capability classes using this document indicates that the Harriston loam on simple E-Class slopes and the Listowel soils on simple C-Class slopes are to be rated as CLI Class 4T and 2T lands, respectively.

When the appropriate CLI Classes are assigned to the Subject Lands, they are comprised of CLI Class 2T lands (58.07%), CLI Class 4T lands (30.51%), and Not Rated (NR) lands (11.42%). Table 1 below shows the composition of soils mapped within the Subject Lands and their associated CLI Class through the interpretation of the above-mentioned OMAFRA document.

Table 1. Regional Soil Series for Subject Lands

Soil Series	CLI Class	Area (Ha)	% of PSA
Listowel Loam	**2T**	25.87	58.07
Harriston Loam	**4T**	13.60	30.51
Muck	**NR**	5.09	11.42
Totals		**44.56**	**100.00%**

4.3.3 Soils & CLI for Zone 1

The *Soil Survey of Wellington County* mapping shows that the soils within Zone 1, excluding the lands within the urban boundary of Fergus, are comprised primarily of Harriston Loam soils (60.72%), with smaller areas mapped as Muck soils (28.24%), Listowel Loam soils (4.44%), Brookston Loam soils (3.69%), Parkhill Loam soils (2.08%), and Huron Loam soils (0.83%).

Zone 1 is comprised primarily of prime agricultural lands. These lands are primarily mapped as CLI Class 1 lands (53.52%), with smaller areas mapped as CLI Class 2 (5.77%), CLI Class 3 (12.47%), and CLI Class O (28.24%) lands which are Not Rated (NR) for common field crop production.

It should be noted that although Zone 1 contains substantial amounts of non-prime agricultural lands (28.24%), the non-prime agricultural lands are associated with the Muck soils (i.e., the Organic deposits). Muck soils typically occur in undrained depressions in the land, which typically cannot be used for development and agricultural production.

4.3.4 Soils & CLI for Zone 2

The *Soil Survey of Wellington County* mapping shows that the soils within Zone 2, excluding the lands within the urban boundary of Fergus, are comprised primarily of Listowel Loam soils (48.45%) and Harriston Loam soils (39.68%), with smaller areas mapped as Muck soils (6.20%) and Parkhill Loam soils (5.67%).

Zone 2 is also comprised primarily of prime agricultural lands. These lands are primarily mapped as CLI Class 1 lands (80.20%), with smaller areas mapped as CLI Class 2 (5.67%), CLI Class 3 (7.94%), and CLI Class O (6.19%) lands.

4.3.5 Soils & CLI for Zone 3

The *Soil Survey of Wellington County* mapping shows that the soils within Zone 3, excluding the lands within the urban boundaries of Fergus and Elora, are comprised primarily of Harriston Loam soils (81.29%), with smaller areas mapped Parkhill Loam soils (11.38%), Listowel Loam soils (5.43%), and Burford Loam soils (1.90%).

According to the provincial soils data, Zone 3 is comprised entirely of prime agricultural lands. These lands are primarily mapped as CLI Class 1 lands (70.46%), with smaller areas mapped as CLI Class 2 (13.28%) and CLI Class 3 (16.26%) lands.

4.3.6 Soils & CLI for Study Area

The *Soil Survey of Wellington County* mapping shows that the soils within the entire Study Area, excluding the Subject Lands and developed lands within the urban boundaries of Fergus and Elora, are comprised primarily of Harriston Loam soils (52.78%), with smaller portions of land mapped as Listowel Loam soils (29.25%), Muck soils (10.26%), Brookston Loam soils (0.89%), Burford Loam soils (0.34%), and Huron Loam soils (0.20%). Developed lands are identified as Built-Up Area on the provincial soil mapping, which account for 15.41% of all land within the Study Area, excluding the Subject Lands.

Prime agricultural lands account for 58.07% (CLI Class 2) of the Subject Lands, whereas 75.92% of the Study Area are prime agricultural lands. The majority of the lands within the Study Area are CLI Class 1

lands, which have a higher priority for protection than CLI Class 2 lands. The loss of prime agricultural lands is unavoidable for SABE in Fergus, however, the Subject Lands represent an area of lower priority agricultural lands.

4.4 Land Use

A desktop land use survey was completed which identified the number and type of agricultural use, agriculture-related uses, on-farm diversified uses, and non-agricultural uses within the Subject Lands and Study Area. The desktop land use survey used historical and the most recent available aerial imagery and Google Streetview imagery. Figure 3 shows the land uses identified through this exercise.

The purpose of the land use survey is to document the mix of agricultural and non-agricultural uses within the Study Area, identify agricultural operations that may be sensitive to the introduction of new land uses, and identify livestock facilities that may require the calculation of MDS setback requirements. All of the land uses are numbered, and short descriptions of these operations are included in the land use notes in Appendix D.

Seventeen agricultural uses were identified within the Study Area. The agricultural uses include thirteen livestock operations, three cash crop operations, and one hobby farm. One agriculture-related use (a farm market) was identified within the Study Area and no on-farm diversified uses were identified during the desktop land use survey.

In addition to approximately twelve non-farm residences, five non-agricultural uses were identified. These included two industrial and three institutional uses.

4.4.1 Land Use in Zone 1

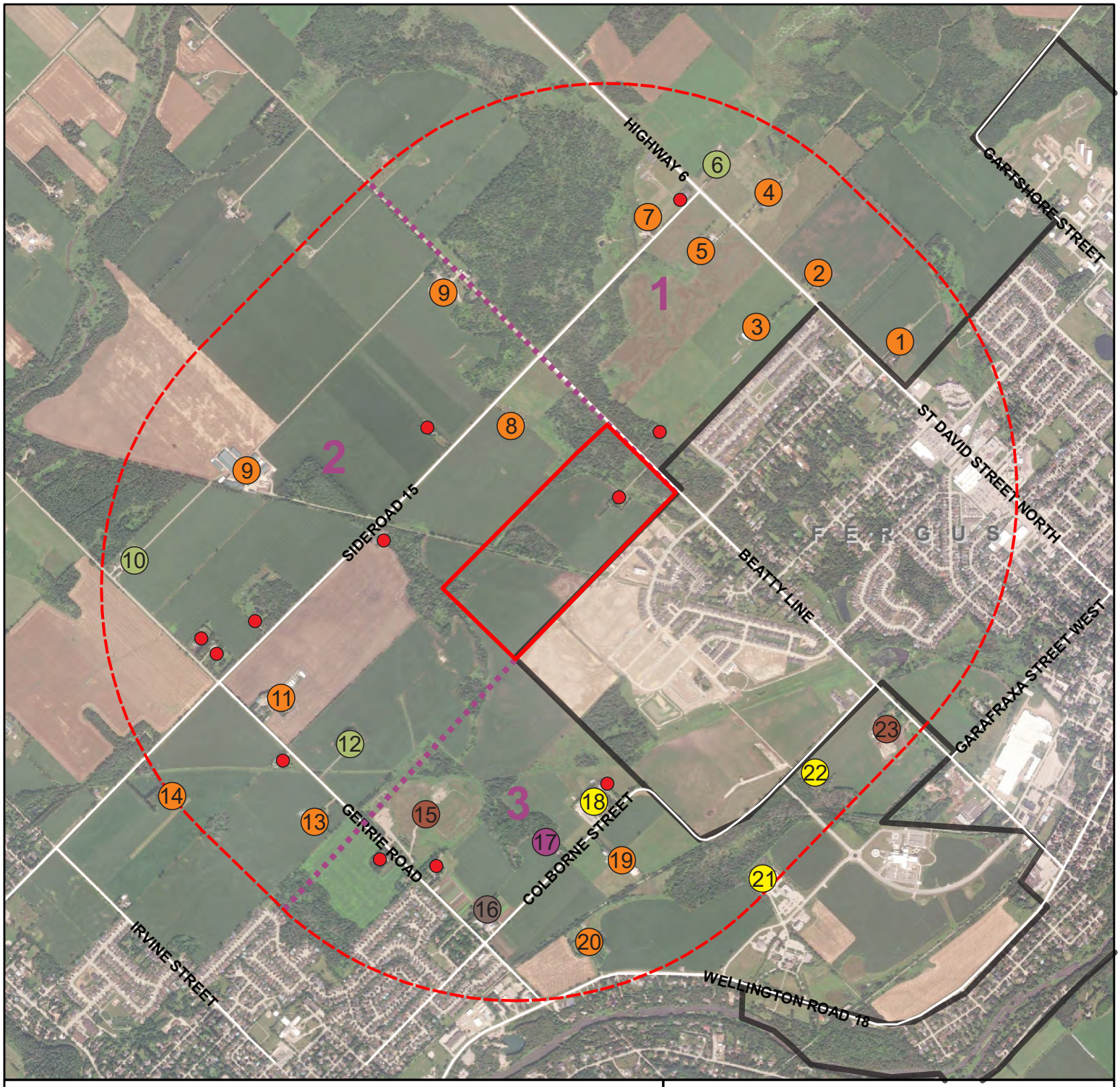
Within Zone 1, seven agricultural uses and two non-farm residences were identified. The lands within Zone 1 appeared to be primarily cultivated for common field crop production and contained smaller areas of natural heritage features.

The agricultural uses identified include six livestock operations (#1-5 & #7) and one cash crop operation (#6). It was not possible to determine whether Operations #1, #2, and #3 are active or if they would be more appropriately classified as empty livestock operations. The cash crop operation located within Zone 1 had no infrastructure that appears to be capable of housing livestock and therefore would not require the application of the MDS I formula. However, MDS I setback requirements should be calculated for all six of the livestock operations in Zone 1 prior to finalizing SABE options.

4.4.2 Land Use in Zone 2

Within Zone 2, seven agricultural uses and seven non-farm residences were identified. The lands within Zone 2 appeared to be primarily cultivated for common field crop production.

The seven agricultural uses identified include five livestock operations (#8, #9, #11, #13, &#14) and two cash crop operations (#10 & #12). Operation #9 appears to be a large dairy operation, with multiple barns located in two distinct areas on the property. Operations #11 and #13 appear to be active operations with barns in good condition although it is not clear whether livestock is present. It was not possible to determine whether Operations #8 and #14 are active or if they would be more appropriately be classified



Subject Lands
Study Area (1500m)
Town Boundary
Zone Boundaries

Agricultural Uses
Hobby Farm
Livestock Operation
Cash Crop Operation

Agriculture-Related Uses
Farm Market

Non-Agricultural Uses
Industrial
Institutional
Non-Farm Residence

Figure 3
Land Use

Agricultural Characterization Report
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as empty livestock facilities. The cash crop operations identified within Zone 2 had no infrastructure that appeared capable of housing livestock and do not require the calculation of MDS I setback requirements. MDS I setback requirements should be calculated for all five of the livestock operations in Zone 2 prior to finalizing SABE options.

Subject Lands

One of the seven non-farm residences is located in Zone 2 is located on the Subject Lands. There is no agricultural infrastructure present (e.g., barns, implement sheds, etc.) on the Subject Lands.

4.4.3 Land Use in Zone 3

Within Zone 3, three agricultural uses, one agriculture-related use, and eight non-agricultural uses, including three non-farm residences, were identified. The lands within Zone 3 appear to be primarily cultivated for common field crop production and contained smaller areas of natural heritage features.

The agricultural uses identified in Zone 3 include two livestock operations (#19 and #20) and one hobby farm (#17). The two livestock operations identified appear to be active operations and the hobby farm appears to be a retired operation based on the interpretation of photographic imagery. A reconnaissance level land use survey may be required to confirm whether livestock is present. However, both livestock operations and the hobby farm appear to have infrastructure in good to fair condition, which would permit the housing of livestock. MDS I setback requirements should be calculated for all three of the agricultural uses identified within Zone 3 prior to finalizing SABE options.

The agriculture-related use identified within Zone 3 is Gerrie's Farm Market (#16), which sells local produce, animal products, and various garden centre products such as shrubs and seeds.

The non-agricultural uses identified in Zone 3 included three institutional uses (#18, #21, & #22) and two industrial uses (#15 & #23). Two of the institutional uses identified were churches, with the remaining institutional use identified as a municipal long term care home. The two industrial uses included a landscape supplier and a waste transfer station.

4.4.4 Land Use Summary

Table 2 summarizes the types of land uses observed in the Study Area.

Table 2. Summary of Observed Land Uses

	Total Number	Active	Empty or Remnant
Agricultural	17	13 – Livestock Operation 1 – Hobby Farm 3 – Cash Crop Operation	0
Agriculture-Related	1	1 – Farm Market	0
On-farm Diversified	0	0	0
	Total Number	**Type**	
Non-Agricultural	17	3 – Institutional 2 – Industrial 12 – Non-Farm Residential	

4.5 Land Improvements

OMAFRA's Agricultural Information Atlas (AgMaps) provides artificial drainage mapping for the province. This online tool was accessed to obtain drainage mapping for the Subject Lands and Study Area. Figure 4 below shows that there are drainage improvements within the Subject Lands and Study Area.

4.5.1 Drainage Improvements in Subject Lands

According to OMAFRA's online mapping tool, AgMaps, a small portion of the Subject Lands contain systematic tile drainage tile drainage (approximately 1.95 ha). The Subject Lands do not contain any random tile drainage, nor any constructed drains.

4.5.2 Drainage Improvements in Zone 1

The soil drainage in Zone 1 has been improved with the installation of both random and systematic tile drainage. The random tile drainage is located in the northwestern portion of the Zone, whereas the systematic tile drainage is located in the northern and eastern portions of the Zone. According to AgMaps, there are no constructed drains located within Zone 1.

4.5.3 Drainage Improvements in Zone 2

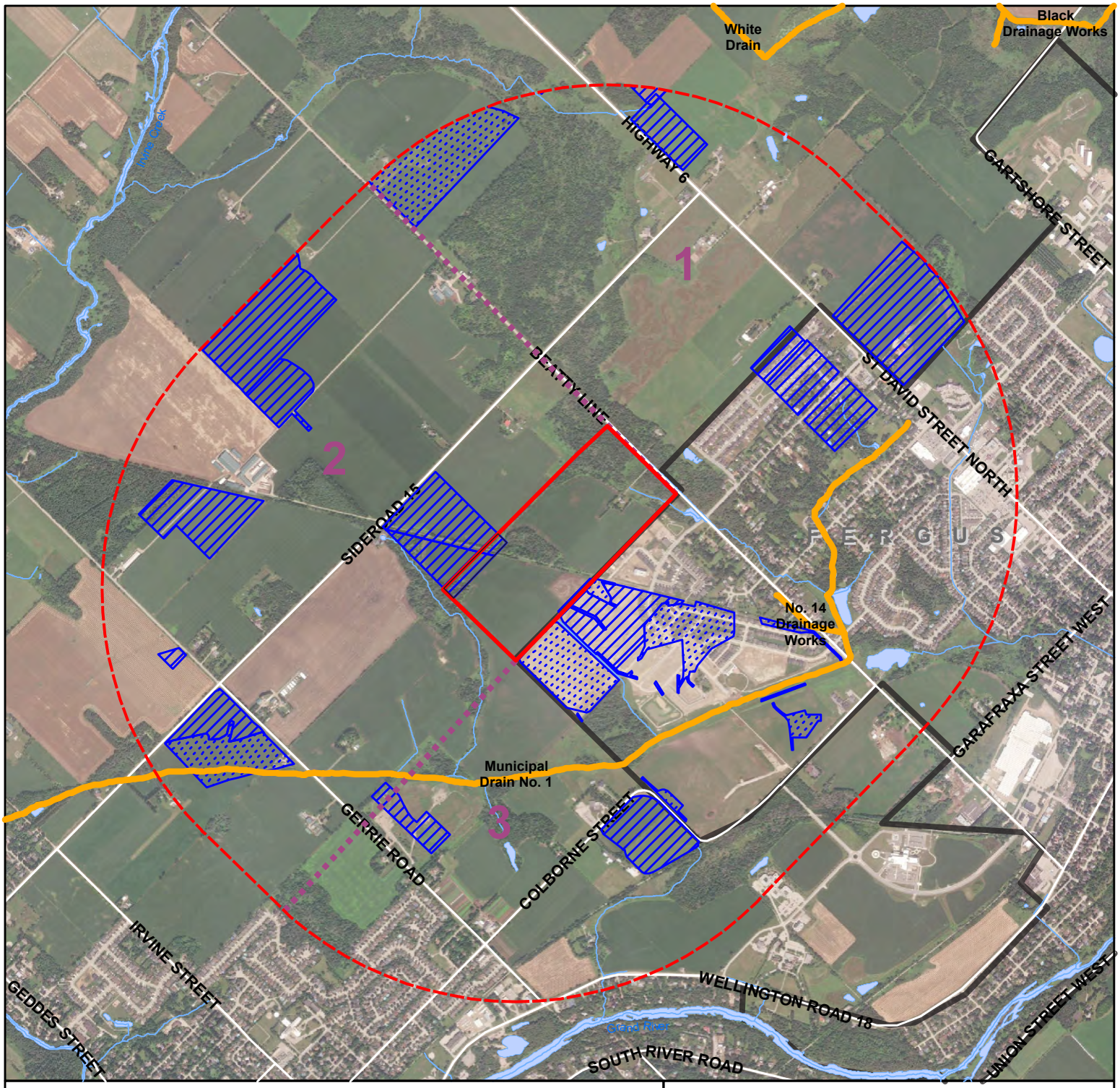
Lands within Zone 2 are shown to have both random and systematic tile drainage improvements. The systematic tile drainage within Zone 2 is located in the northern, central, and western portions of the Zone, with the random tile drainage located in the southwestern portion of the Zone.

There is also one constructed drain located within Zone 2. The constructed drain was identified as Municipal Drain No. 1 which traverses the southwestern portion of the Zone, flowing in a western direction.

4.5.4 Drainage Improvements in Zone 3

Zone 3 contains installations of systematic tile drainage, which are located in the central and western portions of the Zone. According to AgMaps, no random tile drainage has been installed within Zone 3.

There is also one constructed drain located within Zone 3. The constructed drain was identified as Municipal Drain No. 1, which traverses the northern portion of the Zone, flowing in a western direction.



- Subject Lands
- Study Area (1500m)
- Town Boundary
- Zone Boundaries
- Constructed Drain
- Tile Drainage Random
- Tile Drainage - Systematic

Figure 4
Land Improvements

Agricultural Characterization Report
6586 Beatty Line North, Fergus, ON

Prepared for: Sorbara/Tribute Brubacher Holdings Inc.

Prepared by: COLVILLE CONSULTING INC.

0 500 Meters

1:24,000

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DATE: Mar 2024

FILE: C24019

4.6 Fragmentation of Agricultural Lands

Fragmentation of agricultural lands can have a negative impact on the viability of agricultural lands and its long-term preservation for agricultural purposes. Fragmentation of farmlands can diminish the economic viability of the agricultural area by reducing farming efficiency and increasing operating costs for farmers who must manage multiple small, separated parcels. Larger farm parcels can accommodate a wider range of agricultural activities and ensure long term viability of the property. In contrast, smaller farm parcels cannot offer the same flexibility and may not be viable as standalone parcels. Generally, smaller farm parcels cannot sustain a family farm without a secondary source of income (off farm) to maintain the agricultural operation.

Additionally, agricultural areas which have been fragmented often have a higher occurrence of non-agricultural land uses, which in turn can result in more frequent occurrences of conflict arising between agricultural and non-agricultural land uses. Agricultural areas with lower levels of fragmentation are considered to be more viable economically for agricultural uses and generally have fewer sources of non-agricultural land use conflicts. In most cases, these areas have a higher priority for protection. High levels of fragmentation in an agricultural area lower the areas agricultural priority.

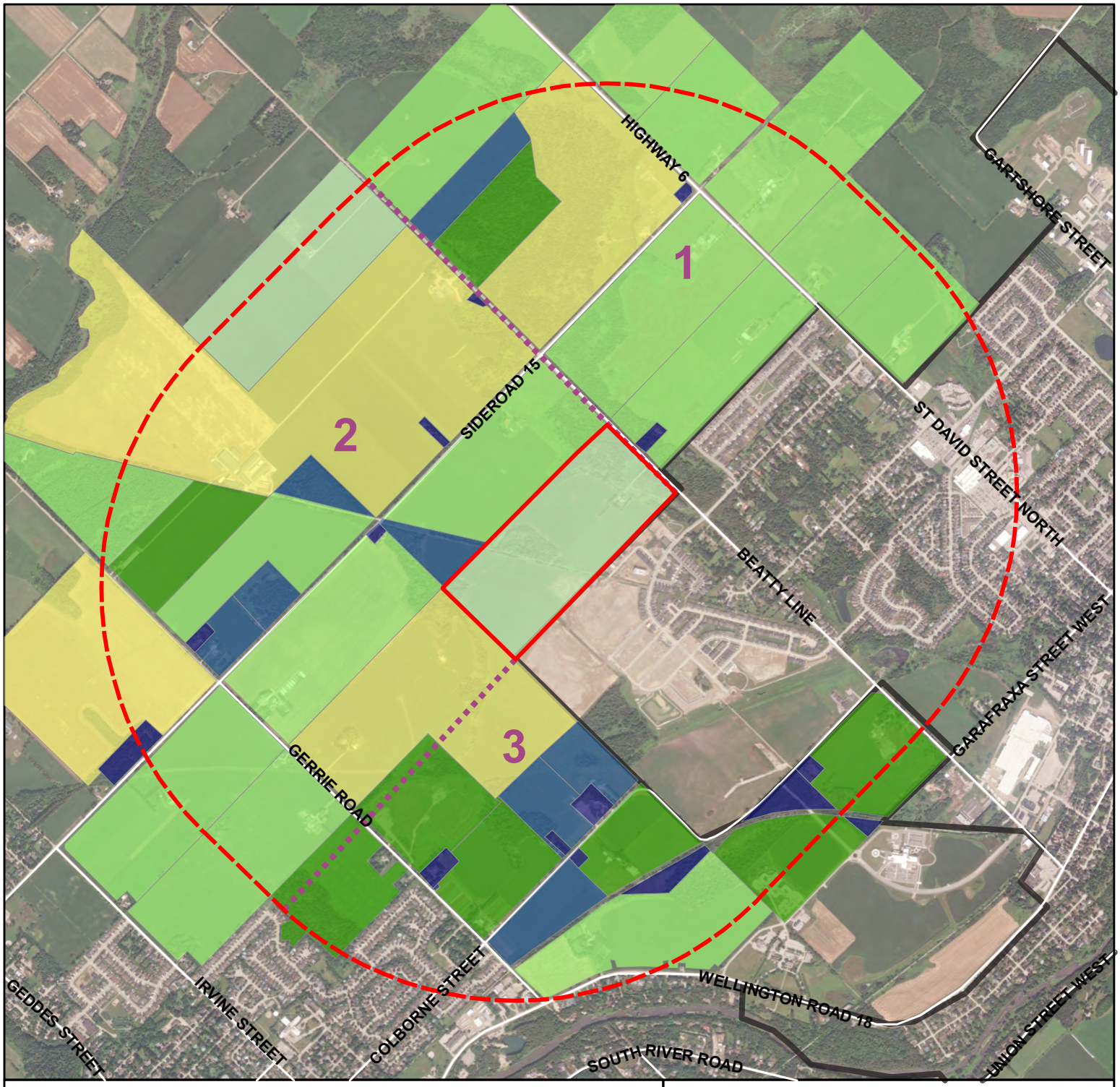
The PPS planning policies recognize the impact of fragmentation on agricultural lands and try to minimize the fragmentation of agricultural lands for non-agricultural uses. For example, the PPS policies do not permit lot creation in prime agricultural areas for residential purposes. New permitted development in prime agricultural areas should avoid further fragmentation of the agricultural land base whenever possible.

Based on our review of the lot fabric in the Study Area using AgMaps and direct observation of residential lots, there is a mix of parcel sizes ranging from single residential (< 1 ha) to large agricultural parcels (>60 ha). While some fragmentation is evident within the Study Area, it is not considered to be a highly fragmented area, as there are a considerable number of parcels that are suitably sized for a variety of agricultural uses. The level of fragmentation in the Study Area is shown in Figure 5 below.

As shown in Figure 5, Zone 3 has the highest level of fragmentation, with the average parcel size in the Zone being approximately 11.93 ha. The majority of the smaller agricultural parcels are located along Colborne Street, closest to the existing settlement area boundaries of Fergus and Elora. The Elora Cataract Trailway also traverses through Zone 3 which further fragments the agricultural land base.

Zone 2 has the lowest levels of fragmentation, with the largest parcels located furthest from the existing urban areas. Zone 1 has experienced a moderate level of fragmentation and contains many parcels >20 ha immediately abutting the existing urban boundary of Fergus.

The highest levels of fragmentation within the Study Area are associated with the rural residential land uses, primarily along Sideroad 15 and Colborne Street. Settlement area boundary expansion will further fragment the agricultural land base regardless of the direction in which expansion occurs, however, Zone 3 represents an opportunity to avoid fragmenting larger agricultural parcels within the Study Area and to provide a connection from Elora to Fergus. The inclusion of the Subject Lands also represents a logical extension of the existing urban boundary of Fergus and could be included in SABE without fragmenting large, adjacent agricultural parcels.



Subject Lands
Study Area (1500m)
Town Boundary
Zone Boundaries

Parcel Size (ha)

<4
5 - 10
11 - 20
21 - 40
41 - 50
>50

Figure 5
Fragmentation

Agricultural Characterization Report
6586 Beatty Line North, Fergus, ON

Prepared for: Sorbara/Tribute Brubacher Holdings Inc.

Prepared by: COLVILLE CONSULTING INC.

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DATE: Mar 2024

FILE: C24019

4.7 Minimum Distance Separation

Prior to SABE, the MDS I formula will need to be applied to all livestock facilities capable of housing livestock identified within 1.5 km (1,500 m) of the proposed SABE. MDS I setbacks were not calculated at this time for operations within the Study Area, as the information required to complete the calculations is best obtained directly from landowners and direct observation. Additionally, the final SABE options have not yet been identified by County staff.

Through the desktop land use survey, at least fourteen potential livestock operations (existing and empty livestock operations and hobby farms) were identified. Each of these is likely to require the calculation of MDS I setback requirements. The existing and empty livestock facilities will most likely have the largest impact on developable lands. In the Study Area, most of the constraints related to the MDS are on lands located to the north of the Subject Lands, as well in the southern and southwestern portions of the Study Area.

Although it appears unlikely that development of the Subject Lands will be constrained by MDS I setback requirements, more detailed assessment of the MDS I factors will be required to confirm this preliminary conclusion. It should be noted that all three Zones contain at least three operations which will require the calculation of MDS I setback requirements prior to SABE.

5. SUMMARY & RECOMMENDATIONS

The information gathered throughout this desktop Agricultural Characterization Report compares the Subject Lands to the three Zones and is displayed in Table 3 below. The table identifies the most and least preferred locations for SABE within the Study Area based on the degree of impact associated with the removal of the lands from the agricultural land base. As shown in Table 3, the least preferred locations for inclusion in SABE are Zone 1 and Zone 2 (northern and western portion of Study Area) due to the degree of impact on the Agricultural System. The Subject Lands, as well as the portions of Zone 3 which are closest to the existing urban areas, represent a logical location for urban expansion and will have less of an impact on the Agricultural System. These lands represent the most preferred locations for SABE based on the potential degree of impact to the Agricultural System.

This desktop ACR provides preliminary information regarding the impacts to the Agricultural System associated with SABE. It is recommended that an Agricultural Impact Assessment be completed to further evaluate the Agricultural System and the potential impacts associated with SABE. As part of the Agricultural Impact Assessment, a reconnaissance-level land use survey should be completed to confirm the mix of land uses and gather information required to accurately calculate MDS I setback requirements.

Table 3. Comparative Table for Subject Lands & Study Area

	Land Use Designation	Vegetative Cover	Parcel Size	Land Improvements	Potential for MDS Constrains	CLI %	Additional SABE Constraints
Subject Lands ● (overall)	Prime Agricultural ◐	Common Field Crops & Small Wetlands ◐	44.56 ha ◐ (logical expansion)	Small area of systematic drainage installed. No random, nor constructed drains installed ●	Low potential for constraints. No structures requiring MDS calculations within Subject Lands ●	CLI Class 2 (58.07%), CLI Class 4 (30.51%), and Not Rated (11.42%) lands. ●	Core Greenlands designation due to small wetlands. No other constraints identified ◐
Zone 1 ○ (overall)	Prime Agricultural ◐	Common Field Crops & Wetlands ◐	23.66 ha (average) ◐	Systematic and random tile drainage installed ◐	High potential for constraints throughout the majority of the Zone ○	CLI Class 1 (53.52%), CLI Class 2 (5.77%), CLI Class 3 (12.47%), and Not Rated (28.24%) lands. ◐	Greenlands and Core Greenlands designation due to natural heritage areas. No other constraints identified ◐
Zone 2 ○ (overall)	Prime Agricultural ◐	Common Field Crops & Wetlands ◐	28.06 ha (average) ○	Systematic and random tile drainage, one constructed drain installed ◐	High potential for constraints in northern, western, and southern portions, low potential in eastern and central portions ◐	CLI Class 1 (80.20%), CLI Class 2 (5.67%), CLI Class 3 (7.94%), and Not Rated (6.19%) lands. ○	Greenlands and Core Greenlands designation due to natural heritage areas. No other constraints identified ◐
Zone 3 ◐ (overall)	Prime Agricultural ◐	Common Field Crops & Wetlands ◐	12.15 ha (average) ●	Systematic tile drainage, one constructed drain installed ◐	High potential for constraints in southern and central portion, low potential in eastern portion ◐	CLI Class 1 (70.46%), CLI Class 2 (13.287%), and CLI Class 3 (16.26%) lands. ○	Greenlands and Core Greenlands designation due to natural heritage areas. ◐

Most Preferred for SABE: ● **Similar Preference:** ◐ **Least Preferred for SABE:** ○

6. CONCLUSION

This desktop Agricultural Characterization Report evaluated the appropriateness of including the Subject Lands in the final SABE options for the County of Wellington through the evaluation of soil resources, agricultural land improvements, land fragmentation, and surrounding land uses. We have determined that the Subject Lands:

- have a higher proportion of lower priority prime agricultural lands relative to the other areas assessed;
- contain minimal investments in land improvements and no investments in agricultural infrastructure;
- are not part of a specialty crop area and do not exhibit any characteristics of a specialty crop area;
- immediately abut the existing urban boundary of Fergus and represent a logical extension of the existing urban boundary of Fergus; and
- have a lower potential for development constraints relating to the application of the MDS I formula.

Based on this preliminary evaluation, the Subject Lands are a reasonable consideration for inclusion in the final SABE options for Centre Wellington.

Respectfully submitted by:

Sean Colville, B.Sc., P.Ag.
Colville Consulting Inc.

John Liotta, B.Sc. Env., A.Ag
Colville Consulting Inc.

7. GLOSSARY OF TERMS

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

Agriculture-related uses: - means those farm-related commercial and farm-related industrial uses that are small scale and directly related to the farm operation and are required in close proximity to the farm operation.*

Beef Farm: - a farm operation whose predominant livestock is beef cattle, including cow-calf operations.

Cash Crop: - means a crop being produced for income purposes and not to supplement a livestock operation by contributing to feed requirements.

Catena: - the group of soils that have developed on the same parent material but as a result of being located on a different position in the landform the group differs by drainage class (i.e., well drained, imperfectly drained, and poorly drained).

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

Dairy Farm: - a farm whose primary livestock is dairy cattle, including dairy heifers.

Development: - means the creation of a new lot, a change in land use, or the construction of buildings and structures, requiring approval under the *Planning Act*; but does not include activities that create or maintain *infrastructure* authorized under an environmental assessment process; or works subject to the *Drainage Act*.

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

***Former Livestock Facility:** - means an empty livestock facility that no longer contains manure or livestock. The buildings are generally in fair to good condition and the potential for housing livestock in the building remains. The MDS formula is applied to these facilities.

Glaciolacustrine Deposit: - soil derived from material deposited in a glacial lake environment.

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

Gleyed Horizon: – greyish colours and prominent mottles in the soil horizon profile which indicate that soils are poorly drained and have developed in a reduced environment (i.e., oxygen depleted) due to high water tables throughout the year.

Hobby Farm: - A residential dwelling, with or without accessory buildings, which may include some crop production for personal consumption or limited sale; and/or small numbers of livestock raised for

personal consumption, pleasure, or limited sale. A hobby farm normally will generate little or no income and as such may not have a Farm Business Registration Number.

Idle Agricultural Lands: - means lands that have not been used for agricultural production for at least five years (estimated).

Inclusion: - a small soil polygon that occurs within a larger soil polygon and which is comprised of a different soil type or is located on a different slope class, however it is too small to map as a single unit given the scale of map.

Livestock: - includes dairy, beef, swine, poultry, horses, goats, sheep, ratites, fur-bearing animals, deer & elk, game animals, birds, and other animals.*

Livestock facility: - means one or more barns or permanent structures with livestock-occupied portions, intended for keeping or housing livestock. A livestock facility also includes all manure or material storages and anaerobic digesters.*

Minimum Distance Separation (MDS) I Formulae: - used to determine the minimum distance separation for new development from any existing and some former livestock facilities.

Minimum Distance Separation (MDS) II Formulae: - used to determine the minimum distance separation for new or expanding livestock facilities from existing non-farm land uses.

Morainal Till: - generally a compact, poorly sorted, and poorly stratified material deposited by glacial action.

Mottles: - are spots of colour in soil horizons, caused by impeded drainage. The mottle colours are recorded as faint, distinct or prominent depending on the contrast between the mottle colour and the basic horizon colour.

Non-farm Residential (NFR): - means residential buildings and lots not associated with a farm operation such as farm retirement lots/severances and/or other residences in the Agricultural and Rural Area. Second farm residences for farm help would be considered a farm residence if it is on an existing farm operation.

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

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

Provincial Policy Statement: - the Provincial Policy Statement (PPS) was issued under Section 3 of the Planning Act and came into effect in May of 1996 and subsequently updated in 1997 and again in 2005. The PPS provides policy direction on matters of provincial interest related to land use planning and development.

Remnant: - means a location where one or more farm buildings once stood. All or some of the buildings have fallen, are severely structurally unsound and/or been removed. No MDS would be applied to a remnant farm operation.

Retired Farm Operation: - means a former farm operation whose buildings or farm related structures remain; however, it has either been converted to a non-agricultural use; would require significant upgrades and investment to modernize; or it is in poor condition and not suitable for agricultural uses. The MDS may still apply if it is a former livestock facility.

Rural Residential Cluster: - means four or more, adjacent rural lots, generally one hectare or less in size, sharing a common contiguous boundary. Lots located directly across a road from one another shall be considered as having a common boundary.*

Scrub Land: - means lands that are no longer farmed and woody species (young trees and shrubs) have begun regenerating and/or sparsely treed areas.

Secondary Uses: - means uses secondary to the principle use of the property, including home occupations, home industries, and uses that produce value-added agricultural products from the farm operation on the property.*

Settlement Area: - As defined in the Provincial Policy Statement, 2005, this means urban areas and rural settlement areas within municipalities (such as cities, towns, villages and hamlets) that are:

built up areas where development is concentrated and which have a mix of land uses, and

lands which have been designated in an official plan for development over the long term planning horizon provided for in policy 1.1.2of the PPS. In cases where land in designated growth areas is not available, the settlement area may be no larger than the area where development is concentrated.*

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

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

Specialty crops include crops such as tender fruits (peaches, cherries, plums), grapes, other fruit crops, vegetable crops, greenhouse crops and crops from agriculturally developed organic soil.

Soil Horizon: - a layer of soil, approximately parallel to the land surface, that differs from adjacent layers in properties such as texture, colour, structure, etc. As an example, the surface horizon of a mineral soil is recorded as the "A" horizon. If the surface is ploughed then the suffix p is used (i.e., Ap) if the surface has not been ploughed, as in a forest soil, a humic layer generally develops and a eluviated light coloured soil horizon often forms immediately below. These horizons are identified with the suffix h is used (i.e., Ah) and e (i.e., Ae), respectively. The weathered portion of the profile below the A horizons is identified as the "B" horizon and the unweathered, parent material is the "C" horizon.

Soil Profile: - a vertical section of the soil through all its horizons and extending into the soil parent material.

Soil Texture: - the relative portion of particle sizes in soil (i.e., sand, silt and clay) that are used to describe the soil textural class (e.g., clay, sandy clay loam, sandy loam, loam, clay loam, sand, loamy sand, etc.).

Tender Fruit: - a term applied to tree fruits such as peaches, apricots, and nectarines which are particularly sensitive to low winter and/or spring temperatures.

Wooded: - Forested areas of various age composition and size.

* Indicates that the definition is essentially derived from OMAFRA publications.

Note: the list of terms in this glossary may not include all terms mentioned in the report and some of the included terms may not appear in the report.

8. REFERENCES

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APPENDIX A

Curriculum Vitae

SEAN M. COLVILLE, B.Sc., P.Ag.

432 Niagara St., Unit 2, St. Catharines, ON L2M 4W3
Tel: (905) 935-2161 | Email: sean@colvilleconsultinginc.com

EDUCATION

B.Sc.Geology, Acadia University, 1986
Soil Science, University of Guelph, 1984

PROFESSIONAL AFFILIATIONS

Ontario Institute of Agrology
Agricultural Institute of Canada

POSITIONS HELD

2003 – Present	**President** - Colville Consulting Inc., St. Catharines, Ontario
2001 – 2003	**Senior Project Manager** - ESG International Inc., St. Catharines, Ontario
1998 – 2001	**Senior Project Manager** - ESG International Inc., Guelph, Ontario
1988 – 1998	**Project Manager** - ESG International Inc., Guelph, Ontario
1984 – 1988	**Soil Scientist –** MacLaren Plansearch Ltd., Halifax, Nova Scotia
1982 – 1983	**Assistant Soil Scientist** – Nova Scotia Department of Agriculture and Marketing

EXPERIENCE

Colville Consulting Inc. (CCI) was established in June of 2003 by Sean Colville. CCI offers agricultural and environmental consulting services to clients across Ontario, catering to both public and private sectors. Sean has over 35 years of agricultural consulting experience, which includes agricultural resource evaluation studies, soil surveys, interpretations of agricultural capability, agricultural impact assessments, alternative site assessments, and soil and microclimatic rehabilitation/restoration projects. Sean has extensive experience interpreting agricultural land use policies for a wide variety of development applications.

Sean is a Professional Agrologist (P.Ag.), and a member of both the Ontario Institute of Agrology and the Agricultural Institute of Canada. Sean has been recognized by the Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA) as an expert in the identification of Prime Agricultural Areas and in the interpretation of the Minimum Distance Separation requirements for livestock operations.

Sean has presented expert testimony before the Ontario Land Tribunal (formerly OMB, LPAT), Consolidated Joint Board, Assessment Review Board, Ontario Superior Court, and the Normal Farm Practices Protection Board. Sean's testimonies have involved land use planning matters as they relate to agriculture, impact assessments, resource evaluations, soil science, and normal farm practices.

Agricultural Impact Assessments and Alternative Site Studies

Colville Consulting Inc. specializes in agricultural impact assessment and alternative site studies for development applications in Prime Agricultural Areas. Sean has prepared over 200 agricultural impact assessments for a wide variety of development projects, including settlement area boundary expansions, linear facilities (Class EAs), new and expanding aggregate operations, and residential, commercial, recreational, industrial, and institutional developments. The majority of these projects required the interpretation of agricultural land use policies, an inventory and assessment of the agricultural resources,

land use, land tenure, an assessment of conflict potential including determination of minimum distance separation requirements, interpretation of the agricultural priority, and development of mitigation measures to avoid or minimize potential impacts. Justification of the location for development proposals in agricultural areas is required by the Provincial Policy Statement and can often be addressed by an alternative site study.

Recent examples of Sean Colville's agricultural work include:

- Agricultural Impact Assessment for Stubbes New Durham Precast Plant (2021)
- Agricultural Impact Assessment for New Tecumseth Community Builders Inc., County of Simcoe (2021)
- Agricultural Impact Assessment for Caledon Costco (2021)
- Agricultural Impact Assessment for Walker Industries' Redford Pit Expansion, West Grey (2022)
- Agricultural Impact Assessment for Milton Business Park (2022)
- Minimum Distance Separation for Mono Hills Corporation (2022)
- Land Evaluation and Area Review for Norfolk County (2022)

Publications

Rees, H.W.; Duff, J.P.; Colville, S.; Soley, T and Chow T.L. 1995. Soils of selected agricultural areas of Moncton Parish, Westmoreland County, New Brunswick. New Brunswick. Soil Survey Report No. 15. CLBRR Contribution No. 95-13, Research Branch, Agriculture AND Agri-Food Canada, Ottawa, Ontario

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EDUCATION

Bachelor of Science in Environmental Sciences, University of Guelph, 2018
Environmental Management and Assessment Graduate Certificate, Niagara College, 2022

PROFESSIONAL AFFILIATIONS

Eco Canada – Environmental Professional in Training

POSITIONS HELD

2022 – Present Colville Consulting Inc., St. Catharines, Agrologist/Ecologist

EXPERIENCE

John Liotta, Agrologist and Ecologist at Colville Consulting Inc., has over 5 years of formal educational training and experience in Environmental and Agricultural Planning. John has completed Agricultural Impact Assessments, Minimum Distance Separation (MDS) Requirements, and Agricultural Characterization Reports in his role as at Colville.

Through his education at the University of Guelph and Niagara College, John has gained a broad base knowledge of Environmental and Agricultural Planning and Management, which has taken him to work with Colville Consulting. His work at Colville includes the interpretation of provincial, regional and local land use policies, creation and interpretation of land use maps, regional soils mapping, and agricultural protection policies. He has participated in the completion of Agricultural Impact Assessments, Minimum Distance Separation Assessments, and Agricultural Characterization Reports. His field work activities include land use surveys and post-construction avian and bat mortality monitoring for wind turbines in the County of Haldimand, Ontario.

A selection of projects John has been involved with at Colville Consulting Inc. include:

- Post-Construction Avian and Bat Mortality Monitoring for Pattern Energy, Korea Electric Power Corporation, and Samsung Renewable Energy Inc., Grand Renewable Energy Park, County of Haldimand, Ontario
- Agricultural Impact Assessment for landowner group, City of Pickering
- Agricultural Impact Assessment for landowner, Township of North Dumfries, Ontario
- Agricultural Characterization Report for landowner, Township of Beckwith, Ontario
- Agricultural Characterization Report for landowner, Town of Carleton Place, Ontario
- Minimum Distance Separation Report for landowner, Town of Caledon, Ontario
- Agricultural and Rural Lands Discussion Paper for municipality, Town of Blue Mountain, Ontario
- Agricultural Impact Assessment for Wildfield Village, Town of Caledon
- Agricultural Impact Assessment for Redford Pit Expansion, West Grey

ADDITIONAL TRAINING AND WORKSHOPS

Standard First Aid, CPR C, AED – St. John's Ambulance (2023)
Windmill Safety Training – Stantec Inc (2022)
Workplace Hazardous Materials Information System
Natural Gas Pipeline Safety Training – TC Energy (2022)
Excavation Safety Training – TC Energy (2022)
Supervisor (Level 2) Ground Disturbance Training (2022)

APPENDIX B

Agricultural Crop Statistics

County & Township Ag Profile - Wellington County; Townships: Puslinch, Guelph/Eramosa, Erin, Centre Wellington, Mapleton, Minto, Wellington North

Centre Wellington Township at a Glance - 2021

Item	Centre Wellington	Province	Percent of province	Percent from 2016
Farms, 2021 Census (number)				
Total	363	48,346	0.75%	6.14%
Under 10 acres	41	3,217	1.27%	46.43%
10 to 69 acres	104	12,686	0.82%	19.54%
70 to 129 acres	86	10,924	0.79%	2.38%
130 to 179 acres	30	4,422	0.68%	-11.76%
180 to 239 acres	34	3,981	0.85%	6.25%
240 to 399 acres	31	5,396	0.57%	-16.22%
400 to 559 acres	17	2,865	0.59%	21.43%
560 to 759 acres	9	1,698	0.53%	-30.77%
760 to 1,119 acres	5	1,600	0.31%	-28.57%
1,120 to 1,599 acres	3	720	0.42%	-25.00%
1,600 to 2,239 acres	2	451	0.44%	100.00%
2,240 to 2,879 acres	0	173	0.00%	-
2,880 to 3,519 acres	0	95	0.00%	-100.00%
3,520 acres and over	1	118	0.85%	-
Land Use, 2021 Census (acres)				
Land in crops	53,881	9,051,011	0.60%	-1.62%
Summerfallow land	24	13,964	0.17%	-20.00%
Tame or seeded pasture	2,002	400,480	0.50%	22.07%
Natural land for pasture	1,006	626,366	0.16%	-4.46%
Christmas trees, woodland & wetland	4,577	1,269,535	0.36%	-16.77%
All other land	2,736	404,714	0.68%	1.79%
Total area of farms	64,226	11,766,071	0.55%	-2.21%
Greenhouse Area, 2021 Census (square feet)				
Total area in use	47,140	201,055,888	0.02%	19.77%
Farm Capital Value, 2021 Census (farms reporting)				
Under $200,000	14	1,212	1.16%	180.00%
$200,000 to $499,999	3	3,223	0.09%	-83.33%
$500,000 to $999,999	41	8,699	0.47%	-48.10%
$1,000,000 and over	305	35,212	0.87%	27.08%
Total Gross Farm Receipts, 2021 Census (farms reporting)				
Under $10,000	50	7,277	0.69%	-23.08%
$10,000 to $24,999	40	7,429	0.54%	-9.09%
$25,000 to $49,999	42	6,263	0.67%	5.00%
$50,000 to $99,999	45	6,093	0.74%	55.17%
$100,000 to $249,999	41	6,817	0.60%	-19.61%
$250,000 to $499,999	38	4,448	0.85%	-15.56%
$500,000 to $999,999	44	3,954	1.11%	12.82%
$1,000,000 to $1,999,999	25	2,452	1.02%	47.06%
$2,000,000 and over	11	1,696	0.65%	-8.33%
Farms by Industry Group, 2021 Census (number of farms)				
Beef cattle ranching and farming	57	7,986	0.71%	46.15%
Dairy cattle and milk production	34	3,188	1.07%	-19.05%
Hog and pig farming	13	1,189	1.09%	-7.14%
Poultry and egg production	34	2,061	1.65%	13.33%
Sheep and goat farming	18	1,309	1.38%	100.00%
Other animal production	41	4,556	0.90%	-26.79%
Oilseed and grain farming	109	18,194	0.60%	12.37%
Vegetable and melon farming	7	1,562	0.45%	75.00%
Fruit and tree nut farming	1	1,211	0.08%	0.00%
Greenhouse, nursery and floriculture	10	1,672	0.60%	-16.67%
Other crop farming	39	5,418	0.72%	2.63%

Item	Centre Wellington	Province	Percent of province	Percent from 2016
Major Field Crops, 2021 Census (acres)				
Winter wheat	9,199	1,144,406	0.80%	6.15%
Oats for grain	697	84,320	0.83%	165.02%
Barley for grain	549	68,756	0.80%	-45.15%
Mixed grains	343	59,961	0.57%	-54.75%
Corn for grain	13,481	2,202,465	0.61%	2.91%
Corn for silage	3,320	289,678	1.15%	-18.93%
Hay	10,434	1,704,017	0.61%	-2.00%
Soybeans	14,569	2,806,255	0.52%	-1.83%
Potatoes	76	39,193	0.19%	68.89%
Major Fruit Crops, 2021 Census (acres)				
Total fruit crops	25	48,661	0.05%	-26.47%
Apples	12	16,008	0.07%	-25.00%
Sour Cherries	0	1,383	0.00%	-
Peaches	1	4,608	0.02%	-
Grapes	0	18,432	0.00%	-
Strawberries	9	2,633	0.34%	-
Raspberries	1	438	0.23%	-66.67%
Major Vegetable Crops, 2021 Census (acres)				
Total vegetables	60	127,893	0.05%	-7.69%
Sweet corn	27	20,518	0.13%	12.50%
Tomatoes	3	14,614	0.02%	0.00%
Green peas	1	14,044	0.01%	-
Green or wax beans	2	8,709	0.02%	100.00%
Livestock Inventories, 2021 Census (number)				
Total cattle and calves	17,691	1,604,810	1.10%	1.79%
Steers	6,022	299,540	2.01%	5.95%
Beef cows	1,230	224,194	0.55%	10.61%
Dairy cows	3,168	327,272	0.97%	-16.06%
Total pigs	14,771	4,071,902	0.36%	-47.16%
Total sheep and lambs	3,572	322,508	1.11%	39.53%
Poultry Inventories, 2021 Census (number)				
Total hens and chickens	1,518,260	53,802,772	2.82%	0.95%
Total turkeys	24,056	2,453,126	0.98%	-40.85%

County & Township Ag Profile - Wellington County; Townships: Puslinch, Guelph/Eramosa, Erin, Centre Wellington, Mapleton, Minto, Wellington North

Centre Wellington Township at a Glance - 2016

Item	Centre Wellington	Province	Percent of province	Percent from 2011
Farms, 2016 Census (number)				
Total	342	49,600	0.69	-13.42
Under 10 acres	28	3,051	0.92	-17.65
10 to 69 acres	87	12,625	0.69	-7.45
70 to 129 acres	84	10,742	0.78	-23.64
130 to 179 acres	34	4,592	0.74	3.03
180 to 239 acres	32	4,282	0.75	-15.79
240 to 399 acres	37	6,008	0.62	-22.92
400 to 559 acres	14	3,093	0.45	0.00
560 to 759 acres	13	1,990	0.65	8.33
760 to 1,119 acres	7	1,593	0.44	40.00
1,120 to 1,599 acres	4	801	0.50	33.33
1,600 to 2,239 acres	1	457	0.22	-66.67
2,240 to 2,879 acres	0	168	0.00	-
2,880 to 3,519 acres	1	88	1.14	-
3,520 acres and over	0	110	0.00	-100.00
Land Use, 2016 Census (acres)				
Land in crops	54,767	9,021,298	0.61	-13.63
Summerfallow land	30	15,885	0.19	-71.15
Tame or seeded pasture	1,640	514,168	0.32	-24.46
Natural land for pasture	1,053	783,566	0.13	-50.40
Christmas trees, woodland & wetland	5,499	1,542,637	0.36	-7.42
All other land	2,688	470,909	0.57	-26.19
Total area of farms	65,677	12,348,463	0.53	-15.13
Greenhouse Area, 2016 Census (square feet)				
Total area in use	39,359	158,511,328	0.02	-73.57
Farm Capital Value, 2016 Census (farms reporting)				
Under $200,000	5	2,142	0.23	-37.50
$200,000 to $499,999	18	7,433	0.24	-58.14
$500,000 to $999,999	79	12,500	0.63	-39.69
$1,000,000 and over	240	27,525	0.87	12.68
Total Gross Farm Receipts, 2016 Census (farms reporting)				
Under $10,000	65	9,536	0.68	-9.72
$10,000 to $24,999	44	8,376	0.53	-20.00
$25,000 to $49,999	40	6,755	0.59	-20.00
$50,000 to $99,999	29	6,263	0.46	-43.14
$100,000 to $249,999	51	7,022	0.73	-21.54
$250,000 to $499,999	45	4,707	0.96	-16.67
$500,000 to $999,999	39	3,689	1.06	34.48
$1,000,000 to $1,999,999	17	2,019	0.84	70.00
$2,000,000 and over	12	1,233	0.97	33.33
Farms by Industry Group, 2016 Census (number of farms)				
Beef cattle ranching and farming	39	6,786	0.57	-17.02
Dairy cattle and milk production	42	3,439	1.22	-10.64
Hog and pig farming	14	1,229	1.14	7.69
Poultry and egg production	30	1,816	1.65	30.43
Sheep and goat farming	9	1,097	0.82	-40.00
Other animal production	56	5,902	0.95	-29.11
Oilseed and grain farming	97	16,876	0.57	-16.38
Vegetable and melon farming	4	1,856	0.22	-20.00
Fruit and tree nut farming	1	1,362	0.07	-66.67
Greenhouse, nursery and floriculture	12	2,050	0.59	20.00
Other crop farming	38	7,187	0.53	2.70

Item	Centre Wellington	Province	Percent of province	Percent from 2011
Major Field Crops, 2016 Census (acres)				
Winter wheat	8,666	1,080,378	0.80	-18.66
Oats for grain	263	82,206	0.32	-43.80
Barley for grain	1,001	103,717	0.97	-42.07
Mixed grains	758	92,837	0.82	-28.69
Corn for grain	13,100	2,162,004	0.61	-10.00
Corn for silage	4,095	295,660	1.39	4.30
Hay	10,647	1,721,214	0.62	-18.19
Soybeans	14,840	2,783,443	0.53	-0.07
Potatoes	45	34,685	0.13	-4.26
Major Fruit Crops, 2016 Census (acres)				
Total fruit crops	34	51,192	0.07	-5.56
Apples	16	15,893	0.10	60.00
Sour Cherries	x	2,121	-	-
Peaches	0	5,232	0.00	-
Grapes	0	18,718	0.00	-
Strawberries	x	2,915	-	-
Raspberries	3	680	0.44	-25.00
Major Vegetable Crops, 2016 Census (acres)				
Total vegetables	65	135,420	0.05	-54.86
Sweet corn	24	22,910	0.10	-50.00
Tomatoes	3	15,744	0.02	-84.21
Green peas	x	16,268	-	-
Green or wax beans	1	9,732	0.01	0.00
Livestock Inventories, 2016 Census (number)				
Total cattle and calves	17,380	1,623,710	1.07	-4.17
Steers	5,684	305,514	1.86	14.30
Beef cows	1,112	236,253	0.47	-36.13
Dairy cows	3,774	311,960	1.21	3.45
Total pigs	27,953	3,534,104	0.79	44.18
Total sheep and lambs	2,560	321,495	0.80	-29.75
Poultry Inventories, 2016 Census (number)				
Total hens and chickens	1,504,031	50,759,994	2.96	195.15
Total turkeys	40,671	3,772,146	1.08	-10.62

Centre Wellington at a Glance - 2011

Item	Centre Wellington	Province	Percent of province
Farms, 2011 Census (number)			
Total	395	51,950	0.76
Under 10 acres	34	2,741	1.24
10 to 69 acres	94	12,681	0.74
70 to 129 acres	110	11,779	0.93
130 to 179 acres	33	4,969	0.66
180 to 239 acres	38	4,801	0.79
240 to 399 acres	48	6,460	0.74
400 to 559 acres	14	3,359	0.42
560 to 759 acres	12	2,026	0.59
760 to 1,119 acres	5	1,587	0.32
1,120 to 1,599 acres	3	788	0.38
1,600 to 2,239 acres	3	436	0.69
2,240 to 2,879 acres	0	152	0.00
2,880 to 3,519 acres	0	79	0.00
3,520 acres and over	1	92	1.09
Land Use, 2011 Census (acres)			
Land in crops	63,408	8,929,947	0.71
Summerfallow land	104	23,450	0.44
Tame or seeded pasture	2,171	648,758	0.33
Natural land for pasture	2,123	984,809	0.22
Christmas trees, woodland & wetland	5,940	1,612,444	0.37
All other land	3,642	468,828	0.78
Total area of farms	77,388	12,668,236	0.61
Greenhouse Area, 2011 Census (square feet)			
Total area in use	148,934	133,520,541	0.11
Farm Capital Value, 2011 Census (farms reporting)			
Under $200,000	8	2,562	0.31
$200,000 to $499,999	43	12,994	0.33
$500,000 to $999,999	131	15,276	0.86
$1,000,000 and over	213	21,118	1.01
Total Gross Farm Receipts, 2011 Census (farms reporting)			
Under $10,000	72	12,263	0.59
$10,000 to $24,999	55	9,098	0.60
$25,000 to $49,999	50	6,720	0.74
$50,000 to $99,999	51	6,189	0.82
$100,000 to $249,999	65	6,985	0.93
$250,000 to $499,999	54	5,086	1.06
$500,000 to $999,999	29	3,248	0.89
$1,000,000 to $1,999,999	10	1,558	0.64
$2,000,000 and over	9	803	1.12
Farms by Industry Group, 2011 Census (number of farms)			
Beef cattle ranching and farming	47	7,105	0.66
Dairy cattle and milk production	47	4,036	1.16
Hog and pig farming	13	1,235	1.05
Poultry and egg production	23	1,619	1.42
Sheep and goat farming	15	1,446	1.04
Other animal production	79	6,966	1.13
Oilseed and grain farming	116	15,818	0.73
Vegetable and melon farming	5	1,531	0.33
Fruit and tree nut farming	3	1,548	0.19
Greenhouse, nursery and floriculture	10	2,372	0.42
Other crop farming	37	8,274	0.45

Item	Centre Wellington	Province	Percent of province
Major Field Crops, 2011 Census (acres)			
Winter wheat	10,654	1,100,003	0.97
Oats for grain	468	71,040	0.66
Barley for grain	1,728	126,881	1.36
Mixed grains	1,063	106,162	1.00
Corn for grain	14,556	2,032,356	0.72
Corn for silage	3,926	271,701	1.44
Hay	13,015	2,077,911	0.63
Soybeans	14,850	2,464,870	0.60
Potatoes	47	37,384	0.13
Major Fruit Crops, 2011 Census (acres)			
Total fruit crops	36	52,740	0.07
Apples	10	15,830	0.06
Sour Cherries	0	2,342	0.00
Peaches	x	6,455	-
Grapes	0	18,383	0.00
Strawberries	17	3,283	0.52
Raspberries	4	902	0.44
Major Vegetable Crops, 2011 Census (acres)			
Total vegetables	144	129,595	0.11
Sweet corn	48	25,540	0.19
Tomatoes	19	16,558	0.11
Green peas	1	15,121	0.01
Green or wax beans	1	9,186	0.01
Livestock Inventories, 2011 Census (number)			
Total cattle and calves	18,136	1,741,381	1.04
Steers	4,973	291,263	1.71
Beef cows	1,741	282,062	0.62
Dairy cows	3,648	318,158	1.15
Total pigs	19,388	3,088,646	0.63
Total sheep and lambs	3,644	352,807	1.03
Poultry Inventories, 2011 Census (number)			
Total hens and chickens	509,586	46,902,316	1.09
Total turkeys	45,504	3,483,828	1.31

APPENDIX C

Canada Land Inventory Information

Canada Land Inventory Soil Capability Classification for Agriculture

The Canada Land Inventory (CLI) classification system was developed to classifying soil capability for agricultural use for use across Canada. CLI is an interpretative system which assesses the effects of climate and soil characteristics on the limitations of land for growing common field crops. It classifies soils into one of seven capability classes based on the severity of their inherent limitations to field crop production. Soils descend in quality from Class 1, which is highest, to Class 7 soils which have no agricultural capability for the common field crops. Class 1 soils have no significant limitations. Class 2 through 7 soils have one or more significant limitations, and each of these are denoted by a capability subclass.

In Ontario the document, "Classifying Prime and Marginal Agricultural Soils and Landscapes: Guidelines for Application of the Canada Land Inventory in Ontario" (OMAFRA, 2008) provides a Provincial interpretation of the CLI classification system. These guidelines are based on the "Canada Land Inventory, Soil Capability Classification for Agriculture" (ARDA Report No. 2, 1965) and have been modified for use in Ontario. In Ontario, CLI Classes 1 to 4 lands are generally considered to be arable lands and Classes 1 to 3 soils and specialty crop lands are considered to be prime agricultural lands.

The following definitions were taken from Classifying Prime and Marginal Agricultural Soils and Landscapes: Guidelines for Application of the Canada Land Inventory in Ontario (2008).

Definitions of the Capability Classes

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.

Definitions of the Prime and Non-prime Agricultural Lands

In Ontario, CLI Classes 1, 2 and 3 and specialty crop lands are considered prime agricultural lands. Non-prime agricultural lands are comprised of CLI Class 4-7 lands.

Organic soils (Muck) are not classified under the CLI system but are mapped and identified as O in the provincial mapping.

Definitions of the Capability Subclasses

Capability Subclasses indicate the kinds of limitations present for agricultural use. Thirteen Subclasses were described in CLI Report No. 2. Eleven of these Subclasses have been adapted to Ontario soils.

Subclass Definitions:

Subclass C - Adverse climate: This subclass denotes a significant adverse climate for crop production as compared to the "median" climate which is defined as one with sufficiently high growing-season temperatures to bring common field crops to maturity, and with sufficient precipitation to permit crops to be grown each year on the same land without a serious risk of partial or total crop failures. In Ontario this subclass is applied to land averaging less than 2300 Crop Heat Units.

Class	Crop Heat Units
1	>2300
2C	1900-2300
3C	1700-1900
4C	<1700

Subclass D - Undesirable soil structure and/or low permeability*:* This subclass is used for soils which are difficult to till, or which absorb or release water very slowly, or in which the depth of rooting zone is restricted by conditions other than a high water table or consolidated bedrock. In Ontario this subclass is based on the existence of critical clay contents in the upper soil profile.

Class	Soil Characteristics
2D	The top of a clayey horizon >15 cm thick occurs within 40 cm of the soil surface. Clayey materials in this case must have >35% clay content.
3D	The top of a very fine clayey (clay content >60%) horizon >15 cm thick occurs within 40 cm of the soil surface

Subclass E - Erosion*:* Loss of topsoil and subsoil by erosion has reduced productivity and may in some cases cause difficulties in farming the land e.g. land with gullies.

Class	Soil Characteristics
2E	Loss of the original plough layer, incorporation of original B horizon material into the present plough layer, and general organic matter losses have resulted in moderate losses to soil productivity.
3E	Loss of original solum (A and B horizons) has resulted in a plough layer consisting mostly of

	Loamy or Clayey parent material. Organic matter content of the cultivated surface is less than 2%.
4E	Loss of original solum (A and B horizons) has resulted in a cultivated layer consisting mainly of Sandy parent material with an organic matter content of less than 2%; shallow gullies and occasionally deep gullies which cannot be crossed by machinery may also be present.
5E	The original solum (A and B horizons) has been removed exposing very gravelly material and/or frequent deep gullies are present which cannot be crossed by machinery.

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

Class	Upper Texture Group (>40 and <100 cm from surface)	Lower Texture Group (remaining materials to 100 cm depth)	Drainage Class	Additional Soil Characteristics[1]
2F	Sandy	Sandy or very gravelly	Rapid to imperfect	Neutral or alkaline parent material with a Bt horizon within 100 cm of the surface
3F	Sandy	Sandy or very gravelly	Any drainage class	Neutral or alkaline parent material with no Bt horizon present within 100 cm of surface
3F	Sandy	Loamy or Clayey	Any drainage class	Acid parent material
3F	Loamy or clayey	Any Texture Group	Any drainage class	Acid parent material
4F	Sandy	Sandy or very gravelly	Any drainage class	Acid parent material
4F	Very gravelly	Any texture	Rapid to imperfect	Neutral to alkaline parent material
5F	Very Gravelly	Any texture	All drainage classes	Acid parent material

[1] "Acid" means pH<5.5; "Neutral" pH 5.5 to 7.4; "Alkaline" pH>7.4 as measured in 0.01 M CaCl2 (CSSC, 1998). PH 's measured in distilled water tend to be slightly higher (up to 0.5 units).

Bt horizon should be fairly continuous and average more than 10cm thickness

Subclass I - Inundation by streams or lakes: Flooding by streams and lakes causes crop damage or restricts agricultural use.

Class	Soil Characteristics
3I	Frequent inundation with some crop damage; estimated frequency of flooding is less than once every 5 years (Floodplain); includes higher floodplain-terraces on which cultivated field crops can be grown.
5I	Very frequent inundation with some crop damage; estimated frequency of flooding is at least once every 5 years (Floodplain); includes active floodplain areas on which forage crops can be grown primarily for pasture.
7I	Land is inundated for most of the growing season; often permanently flooded (Marsh)

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

Class	Soil Texture Groups		Drainage	Additional Soil Characteristics
	Upper materials1	Lower materials2		
2M	15 to 40 cm of loamy or finer materials	Sandy to Very Gravelly	Well	
2M	40 to < 100 cm of sandy to very gravelly material.	Loamy to Very Fine Clayey	Well	
2M	Sandy		Rapid to well	Well developed Bt3 horizon occurs within 100 cm of surface
3M	Sandy material to > 100cm		Rapid	Bt horizon absent within 100 cm of surface
4M	Very Gravelly to > 100 cm		Rapid	Bt horizon present within 100 cm of surface
5M	Very gravelly to > 100cm		Very rapid	Bt horizon absent within 100cm

Subclass P - Stoniness: This subclass indicates soils sufficiently stony to hinder tillage, planting, and harvesting operations.

Class	Soil Characteristics
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.
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^2), 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.
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.
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 m2).
6P	Surface stones 15-60 cm in diameter and/or boulders >60 cm in diameter occupy >50% of the surface area.

Subclass R - Shallowness to Consolidated Bedrock: This subclass is applied to soils where the depth of the rooting zone is restricted by consolidated bedrock. Consolidated bedrock, if it occurs within 100 cm of the surface, reduces available water holding capacity and rooting depth. Where physical soil data were available, the water retention model of McBride and Mackintosh was used to assist in developing the subclass criteria.

Class	Soil Characteristics
3R	Consolidated bedrock occurs at a depth of 50-100 cm from the surface causing moderately severe restriction of moisture holding capacity and/or rooting depth.
4R	Consolidated bedrock occurs at a depth of 20-50 cm from the surface causing severe restriction of moisture holding capacity and/or rooting depth.
5R	Consolidated bedrock occurs at a depth of 10 to 20 cm from the surface causing very severe restrictions for tillage, rooting depth and moisture holding capacity. Improvements such as tree removal, shallow tillage, and the seeding down and fertilizing of perennial forages for hay and grazing may be feasible.

6R	Consolidated bedrock occurs at a depth of 10-20 cm from the surface but improvements as in 5R are unfeasible. Open meadows may support grazing.
7R	Consolidated bedrock occurs at < 10cm from the surface.

Subclass S - Adverse soil characteristics: This subclass denotes a combination of limitations of equal severity. In Ontario it has often been used to denote a combination of F and M when these are present with a third limitation such as T, E or P.

Subclass T - Topography

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.

Determination of Subclass T for Very Gravelly and Sandy Soils

Slope %	<2		2-5		5-9		9-15		15-30		30-60		>60	
Slope type	S	C	S	C	S	C	S	C	S	C	S	C	S	C
Class				2T	2T	3T	3T	4T	5T	5T	6T	6T	7T	7T

Slope %	<2		2-5		5-9		9-15		15-30		30-60		>60	
Slope type	S	C	S	C	S	C	S	C	S	C	S	C	S	C
Class				2T	3T	3T	4T	4T	5T	5T	6T	6T	7T	7T

S = Simple Slopes >50 m in length

C =Complex Slopes <50 m in length

Subclass W - Excess water:

The presence of excess soil moisture, other than that brought about by inundation, is a limitation to field crop agriculture. Excess water may result from inadequate soil drainage, a high water table, seepage or runoff from surrounding areas.

Soil Textures and Depths	**Depth to Bedrock** (cm)	**Soil Class** (Drainage in place or feasible)	**Soil Class** (Drainage not feasible)
Very gravelly, sandy, or loamy extending >40 cm from the surface, or, <40 cm of any other textures overlying very gravelly, sandy or loamy textures	>100	2W	4W, 5W
>40 cm depth of clayey or very fine clayey textures, or, <40 cm of any other texture overlying clayey or very fine clayey textures	>100	3W	5W
<40 cm of peaty material overlying any texture	>100	3W	5W
All textures	50-100	4W	5W
All textures	0-50	NA	5W

APPENDIX D

Land Use Notes

Land Use Survey Notes – Desktop Agricultural Characterization for 6586 Beatty Line North, Fergus

Site No.	Type of Use	Type of Operation	MDS Calculation Required?	Description of Operation
1	Agricultural	Livestock Operation	Yes	Old bank barn in fair condition, uncapped silo. Potential a beef operation or former beef operation converted to a cash crop operation. No sign of livestock but barn appears to be capable of housing livestock.
2	Agricultural	Livestock Operation	Yes	Wooden bank barn in fair condition, two metal grain bins, possibly a retired operation but barn still appears capable of housing livestock.
3	Agricultural	Livestock Operation	Yes	"Ted & Marlene Buczek Got the Besta Farm" sign out front saying hay for sale. Barn, hay bails, uncapped cement silo observed. Possibly a cash crop operation but building appears to be capable of housing livestock. Further investigation required.
4	Agricultural	Livestock Operation	Yes	Equestrian operation, multiple barns, multiple paddocks, at least 8 horses observed in aerial photos, barns appear to be in good condition.
5	Agricultural	Livestock Operation	Yes	Equestrian operation, two barns in good condition, multiple paddocks. Appears to be an active operation but no horses observed in photos.
6	Agricultural	Cash Crop Operation	No	Three implement shed, no sign of livestock, no buildings capable of housing livestock.
7	Agricultural	Livestock Operation	Yes	Hoppy Fields Farm. Equestrian operation with multiple paddocks, multiple greenhouses that appear to grow vegetables, barn in good condition, no sign of livestock recently but barn appears capable of housing livestock.

8	Agricultural	Livestock Operation	Yes	Equestrian operation that is either active or retired. Barn in fair condition, multiple paddocks overgrown, uncapped silo. Likely a former equestrian operation but barn appears capable of housing livestock. Horses last observed in 2015 Google Streetview photos.
9	Agricultural	Livestock Operation	Yes	Appears to be a very large dairy operation with barns located at two separate locations on the property. Appears to be active. Approximately 6 barns and 3 implement shed. Liquid manure storage for northeastern set of barns, solid scrape manure storage for southwestern set of barns, 3 silos.
10	Agricultural	Cash Crop Operation	No	Newly constructed implement shed where a livestock barn previously was. Appears to be associated with Operation #9. No structures appear capable of housing livestock.
11	Agricultural	Livestock Operation	Yes	Appears to be an active livestock operation, barn in good condition, implement shed, six grain bins, two silos, appears to have outdoor solid manure storage, multiple Quonset huts.
12	Agricultural	Cash Crop Operation	No	Quonset hut and implement shed, no sign of livestock, does not appear to have structures capable of housing livestock. Further investigation required as structures are set far away from road.
13	Agricultural	Livestock Operation	Yes	Large livestock operation, likely dairy or possibly beef, three barns, in good condition, implement shed, grain dryer, silo, grain bins, used to have liquid manure storage but has been removed and appears to be solid scrape or slatted floor manure now.

14	Agricultural	Livestock Operation	Yes	Wooden bank barn in good condition, implement shed, possibly a retired livestock operation but barn appears structurally sound and capable of housing livestock.
15	Non-Agricultural	Industrial	No	Elora Transfer Station. Transfer station for waste collection.
16	Agriculture-Related	Farm Market	No	Gerries's Farm Market. Sells local produce, beef, eggs, chicken, pork, turkey, and various garden centre products such as shrubs and seeds.
17	Agricultural	Hobby Farm	Yes	Small barn behind house, no sign of livestock but appears as though it could be a small hobby farm with horses. Barn appears to be capable of housing livestock.
18	Non-Agricultural	Institutional	No	Central Church
19	Agricultural	Livestock Operation	Yes	North Aboyne Farm. Equestrian operation and dog breeder, two large barns in good condition, multiple paddocks, OFA member
20	Agricultural	Livestock Operation	Yes	Livestock operation with one barn and two silos, possibly retired but appears active, unsure of type of livestock, appears capable of housing livestock, further investigation required.
21	Non-Agricultural	Institutional	No	Wellington Terrace. Not-for-profit Municipal Long Term Care Home.
22	Non-Agricultural	Institutional	No	Kingdom Hall of Jehovah's Witnesses. Church
23	Non-Agricultural	Industrial	No	Yard Weasels Landscape Products. Aggregate storage, implement shed, no structures capable of housing livestock.

	Total Number	Active	Retired or Remnant
Agricultural	17	13 – Livestock Operation 3 – Cash Crop Operation 1 – Hobby Farm	0
Agriculture-related	1	1 – Farm Market	0
On-farm Diversified	0	0	0
	Total Number	**Type**	
Non-Agricultural	5	2 – Industrial 3 – Institutional	