LAND EVALUATION AND AREA REVIEW STUDY

FOR

2394 Dwyer Hill Road, City of Ottawa

PREPARED FOR:

MR. JOHN NEWELL

PREPARED BY:

COLVILLE
CONSULTING INC.

COLVILLE CONSULTING INC.
404 QUEENSTON STREET
ST. CATHARINES, ONTARIO
L2P 2Y2

C18074
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1. INTRODUCTION

Colville Consulting Inc. was contacted my Mr. Murray Chown of NOVATECH Engineering Consultants Ltd. regarding the property located at 2394 Dwyer Hill Road, Ottawa, referred to herein as the Subject Lands. The legal lot description of the Subject Lands is Part Lot 5, Concession 7, Township of Goulbourn, in the City of Ottawa. The location of the Subject Lands is shown in Figure 1.

Mr. Chown had requested that we review the agricultural capability of the lands and assess whether the lands should be included within the City of Ottawa's Agricultural Resource Areas designation. After a brief review of the background information and discussions with other pedologists familiar with the area we prepared a proposal to complete a soil survey of the property to assess the agricultural capability of the lands and using the LEAR methodology developed by the City of Ottawa determine the LEAR score for the parcel. We were retained by the land owner Mr. John Newell to complete this Land Evaluation Study.

The property is generally located to the south of the intersection of Fallowfield Road and Dwyer Hill Road. The Subject Lands are approximately 37.49 ha in size, of which approximately half of the property is in agricultural production (corn and hay). The remaining lands include a cedar bush and scrubland, a pond, and uncultivated lands in the northern portion of the property much of which has been disturbed (e.g., lands have been excavated and soils stockpiled). Additionally, there are several unmaintained structures formerly part of a livestock operation. These structures appear to be in disrepair and may not be structurally sound and suitable for housing livestock.

1.1 Study Purpose

The purpose of the Land Evaluation Study is to assess the agricultural capability of the Subject Lands using the Canada Land Inventory (CLI) classification system for agriculture to determine whether the lands should be included or excluded from the Agricultural Resource Area.

The tasks involved for this Study are summarized below:

♦ The collection and review of background information for the site and surrounding area;
♦ A soil survey of the Subject Lands to refine the county level soils information;
♦ A reconnaissance level land use survey; and
♦ An evaluation of the LEAR score for the parcel.

1.2 Qualifications

I am a Professional Agrologist (P.Ag.) with a B.Sc. Geology from Acadia University and fourth year, university level Pedology courses from the University of Guelph. I have over 30 years of consulting experience completing soil surveys and interpreting the Canada Land Inventory (CLI) agricultural capability of land. My CV is included in Appendix A of this report.

1.3 Background

The Province of Ontario uses a national classification system called the Canada Land Information (CLI) Soil Capability Classification for Agriculture. It is a seven class system that rates soils based on their capability to produce common field crops. CLI Classes 1, 2 or 3 lands have the highest capability to
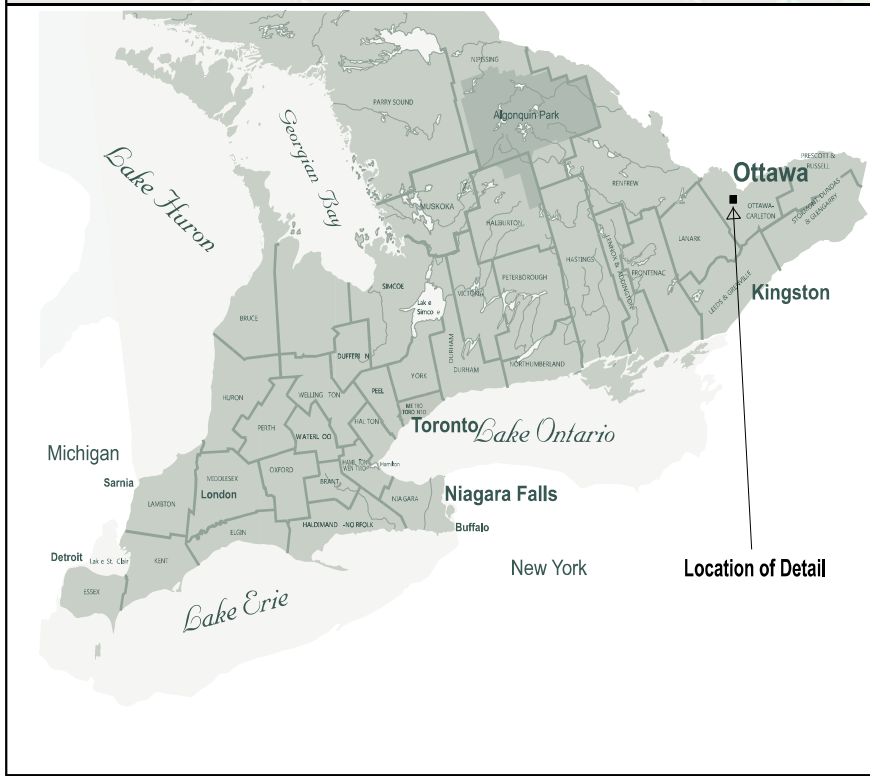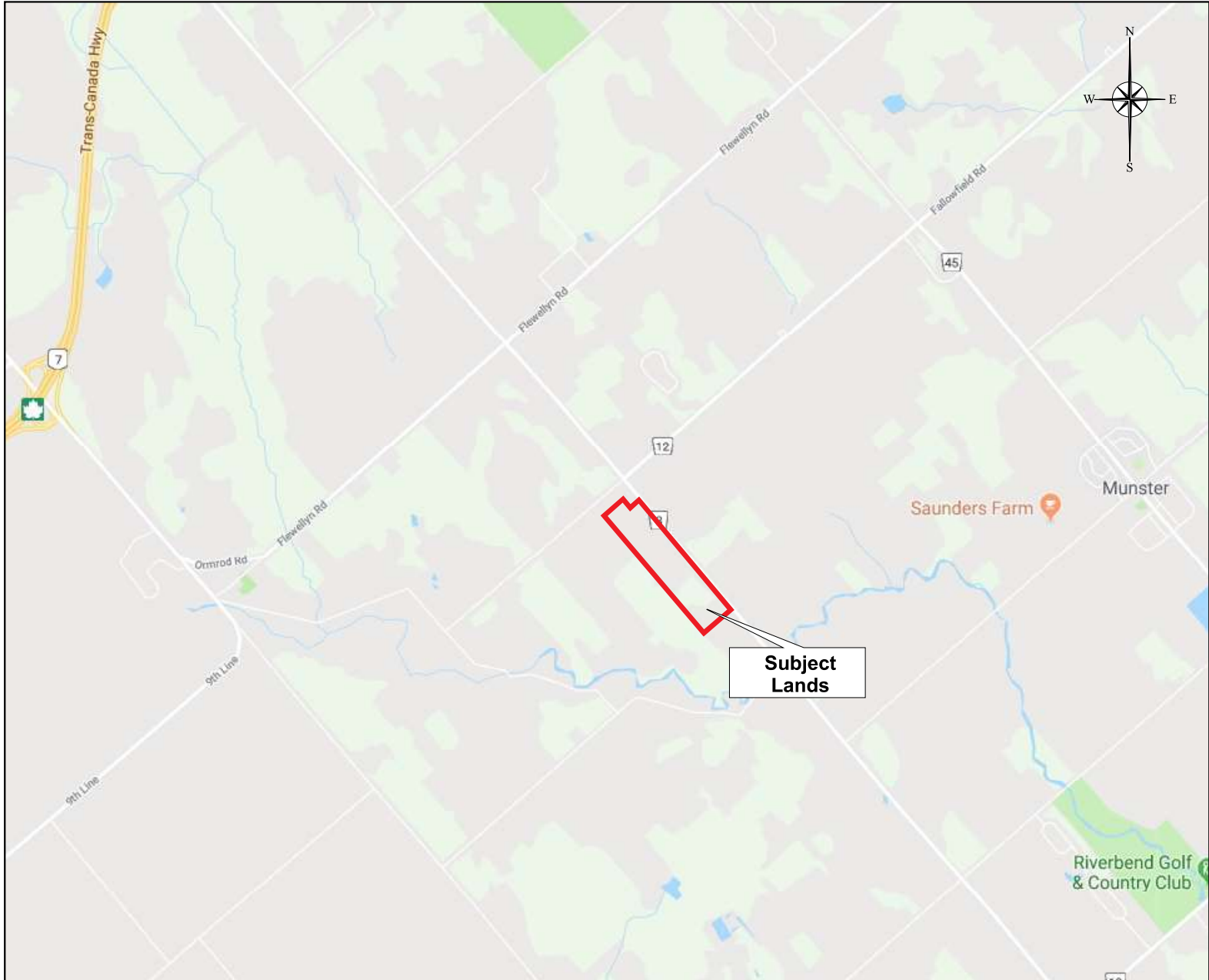
FIGURE 1
Location Map

**Soil Survey for
2394 Dwyer Hill Road**

Prepared for:

Mr. John Newell

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produce common field crops and are considered to be prime agricultural lands. Lower capability soils are rated CLI Classes 4 – 7 are considered to be non-prime agricultural lands. Although organic soils are not rated under this system they are identified and mapped. More information on the CLI Classification system is provided in Appendix B.

The City of Ottawa uses an alternative agricultural evaluation system known as a Land Evaluation and Area Review (LEAR) to identify lands as Potential Agricultural Resource Areas (ARA) (i.e., prime agricultural areas). Once we assessed the CLI capability, parcel size and land use on site, we determined the LEAR score for the property. Lands with LEAR scores that exceed 125 are generally included within the ARA if they are within an area of similarly scored lands that exceed 250 ha.

2. STUDY METHODOLOGY

The study methodology involved a review of background information and site-specific information collected through field inventories. The data was then analyzed to assess the potential for these lands to be located within the Agricultural Resources Areas designation.

2.1 Background Data Collection

The background data collected and reviewed for this study included information obtained through a review of planning documents and existing published and online documents to obtain agricultural resource information. The 2016 LEAR information was provided by the City of Ottawa and included specific information for the Subject Lands. Agricultural and land use policies contained in the 2014 Provincial Policy Statement (PPS) and the City of Ottawa Official Plan and Rural Policy Plan Schedule A were also reviewed.

A list of the information sources reviewed is provided in Section 7 of this report. Among the information referenced the list includes:

♦ Soils of the Regional Municipality of Ottawa-Carleton County, Report No. 58 of the Ontario Institute of Pedology. 1987;

♦ Ortho-rectified, digital aerial photography, City of Ottawa, 2018 imagery viewed using Google Earth™ and/or GeoOttawa website;

♦ OMAFRA's digital Soil Resource Database;

♦ a review of the parcel fabric in the Study Area to assess the level of fragmentation of agricultural lands;

♦ a review aerial photography to review the type and extent of agricultural operations on Site and in the surrounding area and to identify potential sources of conflict;

♦ OMAFRA's Classifying Prime and Marginal Agricultural Soils and Landscapes: Guidelines for Application of the Canada Land Inventory in Ontario, May 2004;

♦ OMAFRA's mapping of artificial tile drainage and municipal drains; and

♦ Land Evaluation and Area Review for Agriculture (LEAR), City of Ottawa Planning, Infrastructure, and Economic Development, December 2016. LEAR key map and data provided by the City of Ottawa Planning Department (2016).

The digital soil database was used to obtain the most up to date information available from the province. The published soil survey mapping and report (i.e., the legacy, county level reports) provides a detailed description of the soil series expected to be encountered during the site inspection. These reports also provide the scale at which the original soil map produced (e.g., 1:50,000). The soil series identified on the Subject Lands was correlated with the soils as described in the published *Soils of the Regional Municipality of Ottawa-Carleton County, Report No. 58* or in the provincial digital soil database.

2.2   Field Inventories

2.2.1   Soil Survey

A soil survey was completed to assess the agricultural capability of the Subject Lands. The soil survey was completed in accordance with the "Field Manual for Describing Soils in Ontario" (Ontario Centre for Soil Resource Evaluation, 1993) using the taxonomic conventions consistent with the Canadian System of Soil Classification (Expert Committee on Soil Survey, 1981). The soil survey also followed the procedures outlined in OMAFRA's document *Guidelines for Detailed Soil Surveys for Agricultural Land Use Planning* (OMAFRA, 2004). A site inspection density appropriate for site specific development applications was used (i.e., a minimum of one site per two hectares for mapping a site at a 1:10,000 scale). For a parcel approximately 38 hectares in size, approximately 18 – 20 locations should be examined.

The Subject Lands were traversed on foot and the soil profile where possible was exposed using a hand-held Dutch auger. The slope percentage within the soil polygons was measured using a hand-held clinometer. The physical properties of the soil and surrounding landscape were described and recorded on field data sheets (Appendix C). Physical and chemical properties such as the mode of deposition, soil horizons and horizon depths, depth to bedrock, soil texture, drainage, stoniness, soil reaction, slope percentage, slopes complexity and site position on the landscape were all recorded.

In the field, a GPS unit was used to record the location of each site inspection location. The approximate location of each site and was also recorded on aerial photography of the Subject Lands.

2.2.2   Land Use Survey

A reconnaissance level, land use survey for the area surrounding the Subject Lands was carried out on October 14th and 15th, 2018 Information gathered during the land use survey included the type of land uses observed (both agricultural and non-agricultural), the cropping pattern observed (i.e., the type of field crops and non-agricultural land cover), the location of farm operations (including both livestock and other agricultural operations) relative to the Subject Lands. Findings from the land use survey are provided in Section 4.4.

2.3   Study Analysis

The soil and land use information was assessed using a combination of the background information reviewed and the field data collected. The soils identified during the soil survey were correlated with the soils described in *Soils of the Regional Municipality of Ottawa-Carleton County, Report No. 58* or with the provincial digital soil database as provided by OMAFRA.

The Canada Land Inventory (CLI) classification system and OMAFRA's Classifying Prime and Marginal Agricultural Soils and Landscapes: Guidelines for Application of the Canada Land Inventory in Ontario were used to classify the soils identified on the Subject Lands.

The LEAR methodology was then used to determine the LEAR score for the parcel based on the CLI Capability classes identified and the surrounding land uses. The LEAR score for the parcel helps assess whether the parcel should be considered part of a larger prime agricultural area (i.e., part of the Agricultural Resource Areas designation).

3.   RESULTS OF BACKGROUND REVIEW

3.1   Provincial Soil Mapping

According to the digital soil database, the soil series mapped within the Subject Lands include the Ashton, Allendale, Brooke, and Richmond soil series. Figure 2 shows the provincial mapping based on the Soil Survey of the Regional Municipality of Ottawa-Carleton, Report No. 58 (1987) and the CLI Capability classes assigned to these soils. A description of these soils is provided in Appendix D.

3.2   Canada Land Inventory Capability Ratings

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 has no limitations, to Class 7 soils which have no agricultural capability for common field crops. Class 2 through 7 soils have one or more limitations for common field crop production. The severity and type of limitation(s) is denoted by the class rating and subclass, respectively. There are thirteen subclasses described in CLI Report No. 2 (1971). Eleven of these subclasses have been adapted to Ontario soils. Appendix B provides more details on the CLI agricultural capability classification system.

Figure 2 also shows the CLI Classes according to the digital soil resources database. It shows that the Ashton soils are rated CLI Class 4FM; the Allendale soils are rated CLI Class 3W; the Brooke soils are rated CLI Class 6R; and the Richmond soils are rated as CLI Class 1.

The Provincial Policy Statement (PPS) considers lands rated CLI Classes 1, 2 and 3 to be prime agricultural land. CLI Classes 4 through 7 are non-prime lands. According to the province's digital soils database, the majority of soils at 23.27 ha (62.1%) consist of CLI Classes 4FM and 6R. These are non-prime agricultural lands that have limitations related to poor fertility (F), droughtiness (M) and shallow depths to bedrock (R). The remaining area, approximately 14.21 ha (37.91%) is comprised of soils with CLI Capability ratings between 1 -3. The Class 1 soils would have no limitations for common field crop production while the Class 3 soils have moderately severe wetness limitations (W).

Table 1 below summarizes the soil series, the CLI classes and the area and percentage of each soil as identified from the province's digital soil database. As noted below in the table, the Allendale soils are rated CLI Class 4WF in the Soil Survey of the Regional Municipality of Ottawa-Carleton, Report No. 58 (1987). Otherwise there is no difference between the soil survey report and the digital soils database.

Table 1.   Desktop Soil Series & CLI Capability Classes

Soil Series	CLI Class	Area (ha)	Percentage (%)
Richmond	1	4.26	11.36
Allendale*	3W	9.95	26.55
Ashton	4FM	18.26	48.72
Brooke	6R	5.01	13.37
Totals		**37.49**	**100.00**

* Note: Allendale soils are rated CLI Class 4WF in the Soil Survey of the Regional Municipality of Ottawa-Carleton, Report No. 58 (1987).

Figure 2 — Provincial Soil and CLI Mapping — Soil Survey for 2394 Dwyer Hill Road

Map labels:
- ASH c2 4FM[100]
- BOK B1 6R[100]
- ALL[70], RMD[30] b0 b0 3W[70] 1[30]

Legend

▭ **Subject Lands**

Soil Symbol

Soil Sereis Name — **ASH** — Stoniness
Slope Class — **c2**

Soil Series
ASH - Ashton
ALL - Allendale
BOK - Brooke
RMD - Richmond

Symbol
CLI CLass → 3W[70] ← Percentage of CLI Class
CLI Subclass (Limitation)

CLI Capability

1 - Soils in this class have no significant limitations in use for crops

3W - Moderately severe limitations for agriculture due to poor drainage

4FM - Severe limitations due to inherently low natural fertility and droughtiness

6R - Unsuited for agriculture due to shallowness of soil over bedrock

Slope Classes (%)
A a - Level slopes (0.0 - 0.5%)
B b - Nearly level slopes (0.5 - 2.0%)
C c - Very Gentle slopes (2.0 - 5.0%)
D d - Gentle slopes (5 - 9%)
E e - Moderate slopes (9 - 15%)
F f - Strong slopes (15 - 30%)
G g - Very Strong slopes (30 - 45%)
Simple Slopes (uniform, lengths > 50 metres) denoted in upper case
Complex Slopes (short, irregular slopes) denoted in lower case

Stoniness/Rockiness
0 - Non
1 - Slightly
2 - Moderately
3 - Very
4 - Exceedingly
5 - Excessively

Figure 2
Provincial Soil and CLI Mapping

Soil Survey for 2394 Dwyer Hill Road

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Prepared by:
COLVILLE CONSULTING INC.

DATE: October 2018   FILE: C18074

3.3 Soil Survey Results

A soil survey of the Subject Lands was completed on October 14th and 15th, 2018. The purpose of the soil survey was to refine the provincial soil mapping at a scale more suitable for site specific development applications and decisions. The soil survey refined the Soil Survey of the Regional Municipality of Ottawa-Carleton mapping from 1:50,000 to a scale of approximately 1:10,000. The soil profile was exposed and described at 18 locations throughout the Subject Lands. In several instances the soil profile could not be described in full due to the extensive stoniness and/or presence of bedrock.

The location of each inspection site was recorded using a GPS and are shown in Figure 3. The soil profile and landscape information at each inspection location was described and recorded on field datasheets. The digitized copies of the datasheets are included in Appendix C.
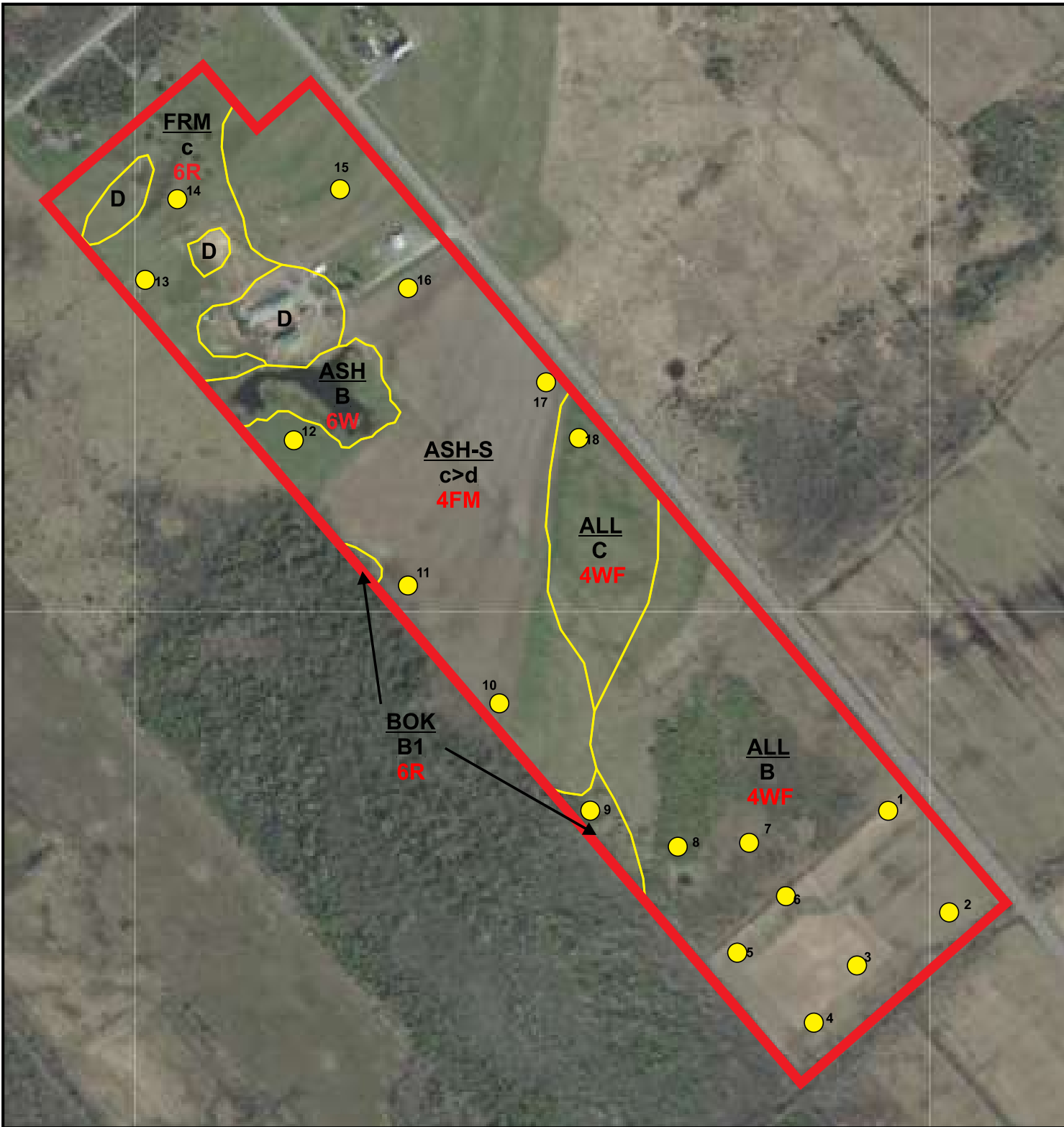
In addition, visual observations of the lands throughout the area inspected were recorded either on the datasheets or directly on the aerial photography used in the field. Photos of the area are provided in Appendix E. As shown in Figure 3, the soil survey identified four soil series within the Subject Lands; Allendale, Ashton, Brooke, and Farmington. The Richmond soil series was not identified on the Subject Lands.

3.3.1 Soil Series

The Allendale Soil Series is a member of the Manotick Association and is the dominant soil series mapped on the property comprising approximately 16.54 ha (44.12%) of the Subject lands. The Allendale soils are generally mapped in the southern portion of the Subject Lands. They are mapped on nearly level (0.5-2%) slopes to very gentle (2-5%) slopes. These soils are poorly to very poorly drained. These soils have not been used for crops other than forage crops (hay and pasture). The land owner confirmed that even hay crops are poor and, in some years, cannot be harvested due to excessive wetness due to a high water table in the area. Mowing of the field only occurs to minimize the colonization of the fields by woody vegetation. Where mowing has ceased, the lands have reverted to a young cedar bush and scrublands.

The Ashton Soil Series also comprises a relatively large portion of the property and is present throughout the central portion of the Subject Lands. It comprises approximately 15.06 ha (40.17%) of the Subject Lands. The shallow phase of the Ashton Soils makes up the majority of this soil series. These soils are very gravelly and the underlying limestone bedrock was observed at various depths throughout the central polygon, often occurring between 30 cm – 70 cm. Drainage in the soils is well to rapid with slopes ranging between very gentles (2.0-5.0%) slopes to gentle slopes (5-9%). A small area (1.35 ha) of very poorly drained Ashton soils was mapped surrounding the ponds on the property.

Farmington soils were mapped in the northern western portion of the Subject Lands and comprise approximately 3.56 ha (9.50%) of the Subject Lands. The underlying bedrock was observed close to the surface and in some locations exposed or at the surface. These soils have been mapped where the soil depth over consolidated bedrock is less than 30 cm. Outcrops of bedrock were observed at several locations. The drainage is variable, but most commonly this soil is well to rapidly drained. Farmington soils were not previously mapped on the Subject Lands, however, the poorly drained member of the

Figure 3
Refined CLI and Soils Mapping

Soil Survey for
2394 Dwyer Hill Road

Prepared for: **Mr. John Newell**

Prepared by:

COLVILLE
CONSULTING INC.

DATE: November 2018   FILE: C18074

Legend

Subject Lands

Soil Series
ASH - Ashton
ALL - Allendale
BOK - Brooke
D - Disturbed
FRM - Farmington

Soil Symbol
Soil Series Name — **ASH-S** — Soil Phase
Slope Class — **D2** — Stoniness
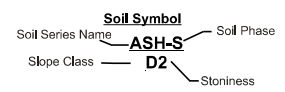
Soil Phase
S - Shallow Phase - bedrock occurs at 50 - 100cm depth
O - Organic Phase - 15 to 40 cm of surface material at the surface
C - Coarse Phase - 15 to 40 cm of surface material significantly coarser textured than the underlying material
F - Fine Phase - 15 to 40cm of surface material significantly finer textured than the underlying material

CLI Class → **6R** ← CLI Subclass (Limitation)

CLI AGRICULTURAL CAPABILITY CLASSES
Class 4 - severe limitations that restrict the choice of crops, or require special conservation practices and very careful management, or both.
Class 6 - Soils in this class are capable only of producing perennial forage crops, and improvement practices are not feasible.
Disturbed - Soils are not given a CLI Capability

CLI AGRICULTURAL CAPABILITY SUBCLASSES
Subclass F - Low natural fertility due to lack of available nutrients, pH, low exchange capacity, high CaCO3, or toxic chemicals
Subclass M - Low moisture holding capacity caused by adverse inherent soil characteristics.
Subclass R - Applied to soils where the depth of the rooting zone is restricted by consolidated bedrock.
Subclass W - Presence of excess water (i.e inadequate soil drainage, high water table, seepage or runoff from other areas)

Slope Classes (%)
A a - Level slopes (0.0 - 0.5%)
B b - Nearly level slopes (0.5 - 2.0%)
C c - Very Gentle slopes (2.0 - 5.0%)
D d - Gentle slopes (5 - 9%)
E e - Moderate slopes (9 - 15%)
F f - Strong slopes (15 - 30%)
G g - Very Strong slopes (30 - 45%)
Simple Slopes (uniform, lengths > 50 metres) denoted in upper case
Complex Slopes (short, irregular slopes) denoted in lower case

Stoniness/Rockiness
0 - Non
1 - Slightly
2 - Moderately
3 - Very
4 - Exceedingly
5 - Excessively

Farmington Association was mapped on the Subject Lands and Farmington soils do occur immediately to the west of the Subject Lands.

Two small areas of the Brooke series were delineated totalling 0.55 ha were mapped along the western boundary of the Subject Lands. Brooke soils are the poorly drained member of the Farmington Association. Consolidated bedrock was observed at depths less than 30 cm.

A considerable amount of disturbance to the soils was observed in the northern portion of the property. It is understood that gravelly sands were excavated from portions of the property and berms were created using imported fill in other areas; predominantly in the area mapped as Farmington. The disturbed portion of the property (not including the area surrounding the farm structures) is approximately 1.78 ha (4.75%) in size.

Table 2 lists the area (ha) and percent occurrence for the soils mapped on the Property during the soil survey.

Table 2.   Soil Series

Soil Series	Area (ha)	Percent (%)
Ashton - Shallow Phase	13.71	36.57%
Ashton	1.35	3.60%
Allendale - Manotick Association	16.54	44.12%
Brooke	0.55	1.47%
Farmington	3.56	9.50%
Disturbed	1.78	4.75%
Totals	**37.49**	**100.00%**

3.3.2   Interpretation of CLI Capability

Based on the findings of the refined soil survey, the CLI capability classes were interpreted for the soils mapped on the Property. The CLI capability classes were interpreted using the OMAFRA publication "Classifying Prime and Marginal Agricultural Soils and Landscapes: Guidelines for the Application of the Canada Land Inventory in Ontario" and in consultation with the CLI ratings assigned to these soils as provided in the Provincial digital soil database and in the Soil Survey of the Regional Municipality of Ottawa-Carleton. The refined CLI Classes are shown in Figure 3.

Allendale Soil Series

As shown in Figure 3, those areas mapped as Allendale soils are rated CLI Class 4WF due to the presence excess water and low fertility, which limits crop selection for the area while also reducing the crop yield. This is consistent with the CLI capability rating for these soils in the Soil Survey of the Regional Municipality of Ottawa-Carleton. During the soil survey, standing water was observed in several areas including the hayfield in the southern portion of the Subject Lands and within the scrublands and cedar bush. A large portion of the Allendale soils are not under active agricultural cultivation due to their poor drainage resulting from a high water table that exists throughout the year. The landowner stated that even hay cannot be harvested every year due to the excessive wetness and they are not good pasture

lands due to wetness In my opinion, after assessing the soils in the field and in conversations with the landowner, these soils at best represent a CLI Class 4WF soil, if they can be improved through installation of tile drainage. The landowner stated that there is no outlet available for tile drains. Without the ability to feasibly tile drain these lands, these soils are as productive as a CLI Class 5W soil.

The land uses observations on the Allendale soils on adjacent lands (to the east) are similar to what was observed on the Subject Lands. The lands are predominantly abandoned fields that are reverting to scrublands.

Ashton Soil Series – Shallow phase

The shallow phase of the Ashton soils was mapped in the central portion of the property. These soils are predominantly rated CLI Class 4FM, although one smaller unit was mapped as a very poorly drained Ashton soils and rated CLI Class 6W.

The shallow phase Ashton soils are limited due to inherently low fertility levels and moisture limitations resulting from low water holding capacity (i.e., droughtiness). The presence of the underlying bedrock also contributes to the soil's poor water holding capacity and in some locations may limit rooting depths. The corn crop observed on these soils was very uneven and varied in height and cobb lengths. In some locations the corn height exceeded six feet while in other area stalk heights barely reach four feet. The landowner confirmed that in comparison to other nearby locations his yields were generally lower.

The Ashton soils rated CLI Class 6W are located in a depressional area that is seasonally flooded. Based on a review of aerial photography over several years it appears that some of the ponds are permanent. Improvements to the lands would not be practical due to the depressional nature of the topography and lack of outlets to drain the area.

Farmington Association

The Farmington Association includes the well drained Farmington and poorly drained Brooke soils. Both of these soils are rated CLI Class 6R and are only suitable for rough grazing. Improvement practices are impractical. These soils are limited as a result of the shallowness of the soil over bedrock (generally less than 30 cm). The shallowness of the bedrock causes very severe limitations for tillage, rooting depth, and moisture holding capacity.

Disturbed Lands

The Disturbed soils (1.78 ha) are not suitable for agricultural production and are not classified by the CLI system. These areas are highly disturbed due to excavation and filling activities.

Table 3 summarizes the CLI Classes and Subclasses for each of the soil types mapped on the Subject Lands. Table 3 also shows the total area and percent occurrence for each of the CLI Classes mapped on the Subject Lands. Figure 3 shows the refined CLI Capability mapping for the Subject Lands.

Table 3.   CLI Classifications on Subject Lands

Soil Association	CLI Classification	Area (Ha)	% of Parcel
Ashton- Shallow Phase	4FM	13.71	36.57%
Allendale	4WF	16.54	44.12%
Farmington	6R	3.56	9.50%
Brooke	6R	0.55	1.47%
Ashton	6W	1.35	3.60%
Disturbed	D	1.78	4.75%
Totals		37.49	100.00%

As shown in Table 3, there are no prime agricultural lands mapped on the Subject Lands.

3.4   Land Use

The purpose of the land use survey was to identify the agricultural and non-agricultural land uses and the cropping pattern in the Study Area. The survey provided a general understanding of the land use character of the surrounding area. The land use survey also helped to confirm the AR factors used in the LEAR analysis.

To be consistent with the City of Ottawa LEAR we reviewed the land uses within 500 m of the Subject Lands. We expanded our land use characterization using AgMaps to include lands within 2-3 kilometers.

The land uses observed within 500 m of the Subject Lands are more characteristic of a rural area rather than a high priority agricultural area. There is a mix of both agricultural and non-agricultural uses found within the Study Area. Lands to the west of the Subject Lands are non-agricultural and consists of a woodland, scrublands and fallow lands. The lands to the east and southeast include both actively cultivated lands and scrub and forested lands. The cultivated lands consist of row crops (corn and soybean) and hay fields. The closest agricultural operation appears to be a small hobby farm approximately 450 m to the south east of the Subject Lands. However, there are some larger farm operations in the surrounding area with significant investment in infrastructure located to the east, south and west of the Subject Lands. These farms are all at least one kilometer or more away. Many of these farms have invested in tile drainage.

There are nine residential lots in close proximity to the Subject Lands, six of which immediately abut the Subject Lands. There are several other residential lots located along Fallowfield Road. An estate residential subdivision is located just under 700 m from the Subject Lands. The villages of Munster to the east and Ashton to the west are both within three kilometers from the Subject Lands.

4.0   ASSESSMENT OF LEAR

The Land Evaluation and Area Review (LEAR) evaluation system is used by many municipalities across Ontario in order to identify lands as potential agricultural resource areas. The LEAR method is customized by each municipality in order to reflect the agricultural priorities and characteristics of each municipality. The LEAR system is comprised of two main components; the land evaluation (LE) which relates to the soil's agricultural capability (i.e., the CLI Capability Classes 1-7); and the area review (AR) which relates to other factors important to agriculture (e.g., agricultural production, fragmentation, conflicting land uses, etc.). The two components are then combined to obtain a LEAR score.

4.1   City of Ottawa LEAR

The City of Ottawa uses a LEAR to identify its prime agricultural areas. It recently updated their LEAR in December of 2016 and refined the areas designated Agricultural Resource Area. Values for the land in the LEAR system can range from 0 to 200. Blocks of agricultural land greater than 250 ha in size with a LEAR value of 125 or greater are generally designated as Agricultural Resource Areas (ARA) in the 2003 Official Plan.

4.1.1   Land Evaluation

The Land Evaluation portion of the LEAR makes up 70% of the overall score for the 2016 scoring method. The LE score is based on the Canada Land Inventory (CLI) rating of the soils found within the EU. The scoring system used in the 2016 LEAR is shown below in Table 4.

Table 4.   2016 Land Evaluation Scoring

CLI Class	Point Scale	Parcel Points
1	10	
2	8	
3	6.5	
4	5.5	(% parcel x Points) x (14/100)
5	5	
6	4	
7, Organic (O) & Not mapped (NM)	0	

The LE score for the Subject Lands according to the City's 2016 LEAR is 85.

4.1.2   Area Review

The AR component is comprised of three factors; Parcel Size, percentage of the evaluation unit (parcel) in Agricultural use; and non-conflicting land use.

Parcel Size Factor

Parcel size influences the agricultural potential of a given evaluation unit (parcel). As parcels decrease in size, they generally become less viable as a stand-alone, agricultural parcel. As a result, smaller parcels are scored lower relative to larger parcels. The scoring system used for Parcel Size is shown in Table 5 below.

Table 5. 2016 Parcel Size scoring.

LEAR		Weight
Parcel Size (ha)	Points	
>36.4	10	
20.2-36.4	9	2
10.1-20.2	6	
4.5-10.1	4	
<4.5	1	

Because the Subject Lands are greater than 36.4 ha in size they are assigned the maximum score of 10 points. The weighting for Parcel Size is 2; therefore, the AR score for the parcel size is 20.

Percentage of Land in Agricultural Use Factor

The percentage of the evaluation unit/parcel in agricultural use is used as a factor in the 2016 methodology. Agricultural uses include areas that have been under active cultivation (not regenerated to scrub or forest) as well as pasture, fences, streams, hedgerows, woodlots that are <2ha in size and buildings and is weighted at value of 3. The scoring method used is shown in Table 6 below.

Table 6. Agricultural Land Use Factor

Percentage of Land in Agricultural Use	Points	Weight
85-100%	10	
70-<85%	9	
55-<70%	8	
40-<55%	7	3
25-<40%	4	
10-<25%	2	
0-<10%	1	

The LEAR methodology used by the City determined that the percentage of land in agricultural use was between 70% and 85%. Parcels in this range receive a score of 9 points. The weighting for this AR factor is three (3); therefore, the City determined that the Subject Lands would receive a score of 27 (i.e., 3x9).

Non-Conflicting Land Use Factor

The 2016 LEAR uses a non-conflicting land use factor, which measures the area (%) of non-conflicting land uses within 500 m of the evaluation unit (EU). Non-conflicting land uses include all non-farm land uses with the exception of residential lots and rural residential subdivisions. This value represents the proportion of land uses surrounding the evaluation unit which are considered to be "non-conflicting" land uses and are therefore not considered to be a deterrent or a land use that has the potential to conflict with agriculture. The larger the percentage of the area with non-conflicting land uses, the higher the points assigned to the EU. This factor does not include lands which are designated urban.

The scoring method for the 2016 LEAR non-conflicting land use value is shown in Table 7 below.

Table 7.   Non-conflicting Uses within 500 m

| 2016 LEAR		Weight
Percentage of surrounding 500m area in non-conflicting land use	Points	
100%	10	
85-99%	8	1
50-85%	4	
0-50%	0	

The City of Ottawa did identify some land use which did not meet the definition of a non-conflicting land use, however, the percentage of the area containing non-conflicting land uses was relatively large. Approximately 85 - 99% of the area within 500 m of the parcel was considered as non-conflicting and the parcel received eight (8) points. The weighting for this factor is one (1) therefore, the score for the parcel is 8 for this AR factor.

The Parcel ID number for the Subject Lands is 044430261. Table 8 summarizes the scoring for this parcel based on the information used by the City of Ottawa. According to the City's LEAR,the total LEAR score is 140. This exceeds the 125 threshold value used by the City to identify its prime agricultural lands and is thus being considered for inclusion within the Agricultural Resource Areas designation.

Table 8.   City of Ottawa LEAR Scores for Subject Lands

Parcel ID	LE Score	Parcel Size Score	AG Use Score	Non-Conflict Score	AR Score	LEAR Score
044430261	85	10x2=20	9x3=27	8x1=8	55	140

According to the City's LEAR, the total LEAR score is 140. This exceeds the 125 threshold value used by the LEAR to identify its prime agricultural lands and be considered for inclusion within the Agricultural Resource Areas designation. Lands within the Agricultural Resource Area designation are generally comprised of contiguous parcels that match or exceed the 125 threshold and, in total, are at least 250 ha in size.

Figure 4, shows the City of Ottawa LEAR mapping. This figure shows that the majority of parcels west of Dwyer Hill Road, extending from Jock Creek in the south and north to Flewellyn Road, are all below the 125 Threshold value. This is an area greater than 500 ha.
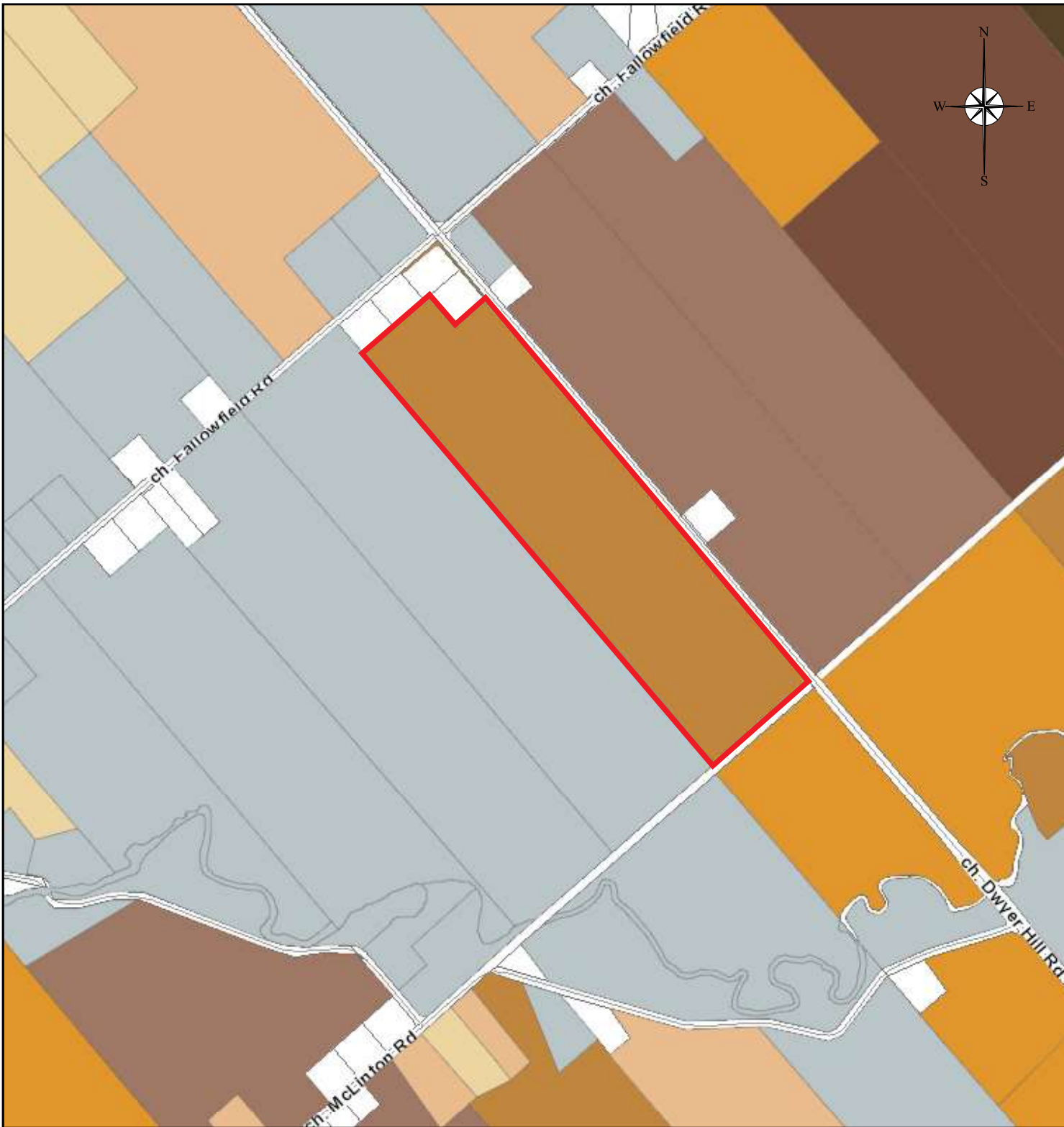
Legend

Subject Lands

Total LEAR

- 175+
- 165+ - 175
- 155+ - 165
- 145+ - 155
- 135+ - 145
- 125+ - 135
- 115+ - 125
- 105+ - 115
- 0 - 105

LEAR PIN: 044430261

Figure 4
Ottawa LEAR Mapping

**Soil Survey for
2394 Dwyer Hill Road**

Prepared for: **Mr. John Newell**

Prepared by:

COLVILLE
CONSULTING INC.

DATE: October 2018   FILE: C18074

4.2   Updated LEAR Analysis

The LEAR score for the property was updated using the City of Ottawa LEAR methodology. The information used to update the LEAR score for the Subject Lands is based on:

♦ the soil data collected during the soil survey of the Subject Lands and the subsequent interpretation of the CLI capability of the soils. This information was used to calculate the LE component; and

♦ the updated land use information and parcel sizes to calculate the Land Use, Parcel Size and non-conflicting land use AR factors.

To determine the percentage of land in agricultural use, the AgMaps measuring tool was used to delineate those areas that were clearly not under active cultivation. All other lands were considered to be under active cultivation. Approximately 67% of the land was determined to be in agricultural use. This method provided a generous measurement of the area in agricultural use. Large portions of the property that were included within the percentage of land in agricultural use have been abandoned and no longer used for agriculture. Significant portions of the property are regenerating to scrub and forested lands. In fact, the only lands that are under active cultivation are those lands which are currently in corn production. The area under active cultivation is only 8.25 ha or 22% of the property.

Parcels between 55% and 70% in agricultural use receive a score of 8 points. The weighting for this factor is three (3); therefore, the parcel receives an AR land use factor score of 24 (i.e., 3x8).

The refined LEAR scores are based on the soil survey and land use observations. The LE and AR factors used in the calculation of the LEAR score are shown in Table 9.

Table 9.   Refined LEAR Scores for Subject Lands

LE Score	Parcel Size Score	AG Use Score	Non-Conflict Score	AR Score	LEAR Score
70.29	20	24	8	52	122.29

The updated LEAR score for this parcel is lower than the City of Ottawa LEAR score for this property primarily due to the refined soil survey information and a reduction in the Ag Use Score. Table 9 shows that the updated LEAR score for the Subject Lands is 122.29, which is below the 125 threshold used to identify potential Agricultural Resource Area lands. Our analysis shows that the Subject Lands should be mapped as within the 115 to 125 range shown in Figure 4.

5.0   CONCLUSIONS

Colville Consulting Inc. was retained to complete a Land Evaluation Study for lands located at 2394 Dwyer Hill Road, Ottawa. This involved the completion of a soil survey, a land use survey and an evaluation of the LEAR score to assess whether the Subject Lands should be included within the City of Ottawa's Agricultural Resource Areas designation.

The Land Evaluation Study concludes that:

- There are no prime agricultural lands (CLI Class 1-3) on the Subject Lands;
- The Subject Lands consist primarily of CLI Classes 4 and 6 with severe limitations for common field crop production as a result of excessive wetness, poor fertility and water holding capacity and shallowness to bedrock;
- Approximately 67% (25.13 ha) of the land was determined to be in agricultural use (as defined in the City of Ottawa LEAR) however, only 22% (8.25 ha) are actually in agricultural production;
- The farm structures on the Subject Lands have been retired (10 years) and are generally in poor repair. There are no;
- The Subject Lands are located within a predominantly non-agricultural area (i.e., few agricultural operations within 500 m). The land use character of this area appears more representative of a rural area than a prime agricultural area;
- The refined LEAR score for the Subject Lands is 122.29 which is lower than the 125 Threshold value used to identify potential Agricultural Resources Areas; and
- The Subject Lands are located within an area greater than 500 ha which have LEAR values less than the 125 Threshold value.

Based on the above points, in my opinion, the Subject Lands should be included within the General Rural Areas designation and not the Agricultural Resource Areas designation.

Yours sincerely,

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

6.0   BACKGROUND INFORMATION

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Personal Communications with Mr. David Hodgson, DBH Soil Services Ltd., Mr. Michael Hoffman, AgPlan Ltd., Mr. Daniel Saurette, OMAFRA and Mr. John Newell (landowner)