CLARK
CONSULTING SERVICES

Agricultural Impact Assessment

In response to City of Kawartha Lakes' Large Scale Renewable Energy Protocol for a Non-Rooftop Project

CCS Project No.	2606
Canadian Solar Project:	Mount Pleasant
Date:	August 2015
Prepared for:	Canadian Solar
Prepared by:	Clark Consulting Services

1.0 Introduction

Clark Consulting Services (CCS) was retained by Canadian Solar to prepare an Agricultural Impact Assessment for land intended for a solar PV generating facility and to determine the agricultural impacts of changing the use of part of the subject lands to permit a solar PV installation. Council's Resolution #CR2013-511 says that a request for municipal support for solar projects located on lands with at least 6 inches of top soil on Canada Land Inventory Class 1-4, 5 and 6 soils may be denied unless the proponent provides a report from a qualified Agrologist showing that the proposal will have minimal impact to agricultural production. This study will review the subject land's agricultural capability, surrounding land uses, review the potential for agricultural conflict, and describe if the change in use will impact the local agricultural community.

The application for this project will be a Large Renewable Energy application filed with the Independent Energy System Operator (IESO).

1.1 Location

The Property is located at CON 1 PT lot 9 and 10, 676 Hayes Line, Emily Township, City of Kawartha Lakes. Property size is 59.3 hectares (147 ac). The location is illustrated in Figure 1 – Location, created from the City of Kawartha Lakes Official Plan mapping.

Mount Pleasant Solar LP property is located on the north side of Hayes Line on the southern edge of the City of Kawartha Lakes. A part of the property is planted in soya beans with a wet and treed band in the western portion of the farm. An old gravel pit lies on the south-east corner beside

Hayes Line. The bean fields are located to the north and east of the barn and run easterly to the eastern edge of the property.

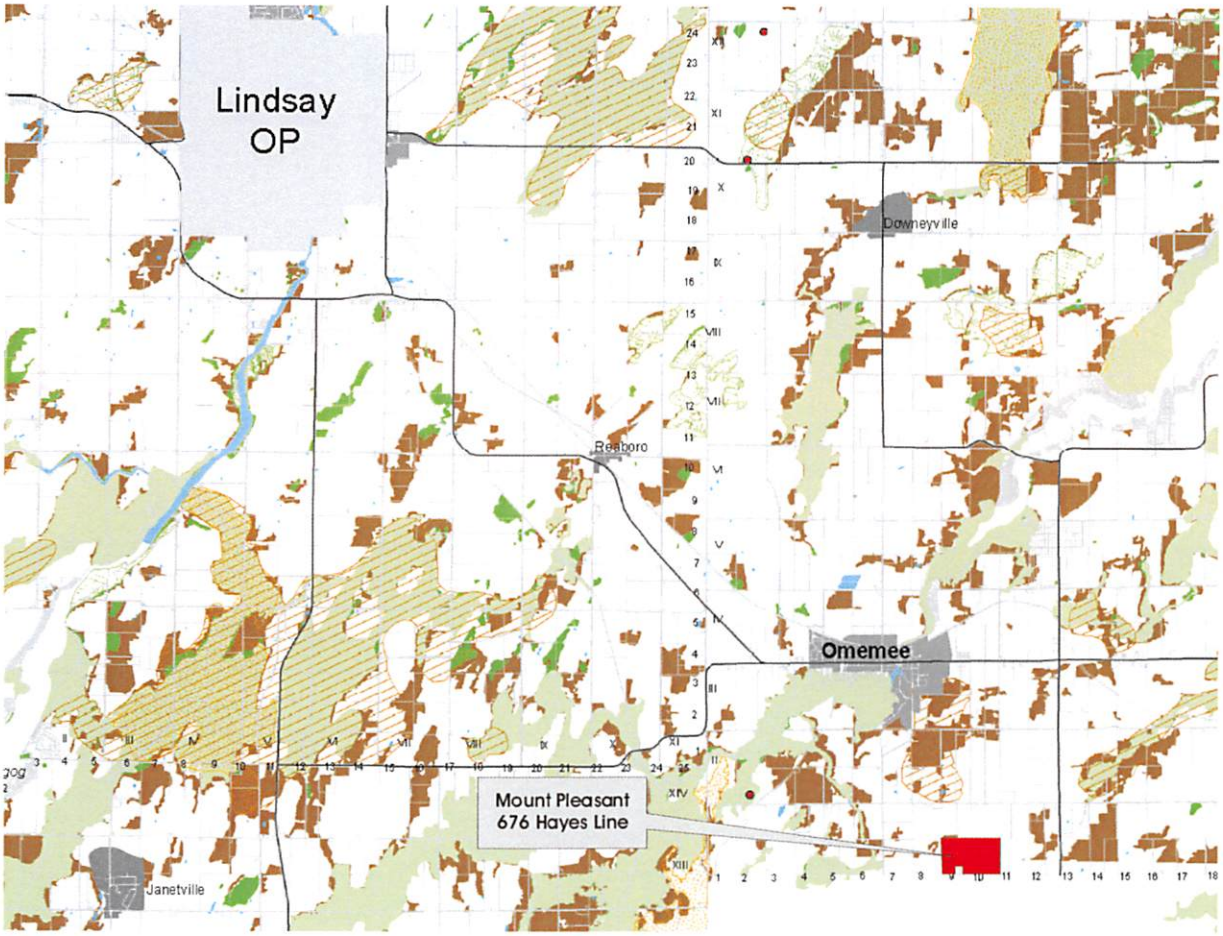


Figure 1 - Location

1.2 Property and Proposal Description

The proposal involves the temporary use of an area of the subject land to allow the installation of solar PV panels that convert the sun's energy into electricity usable within the provincial electrical delivery grid system. Since urban areas are generally suitable to house only small generating facilities the larger facilities must be placed in rural areas. The proposal follows Provincial guidelines and provides an opportunity for the generation of power within a local usage area.

The final product would be the use of approximately 63 acres of Class 4 farmland to be used for a period of 20 to 25 years and then returned for the purpose of agriculture.

The subject farm has a some obvious non-farm uses within its boundaries, including the old gravel pit and communications tower. These uses are more of a permanent nature than the solar installation and so create a more permanent change to the ability to use land for farm purposes.

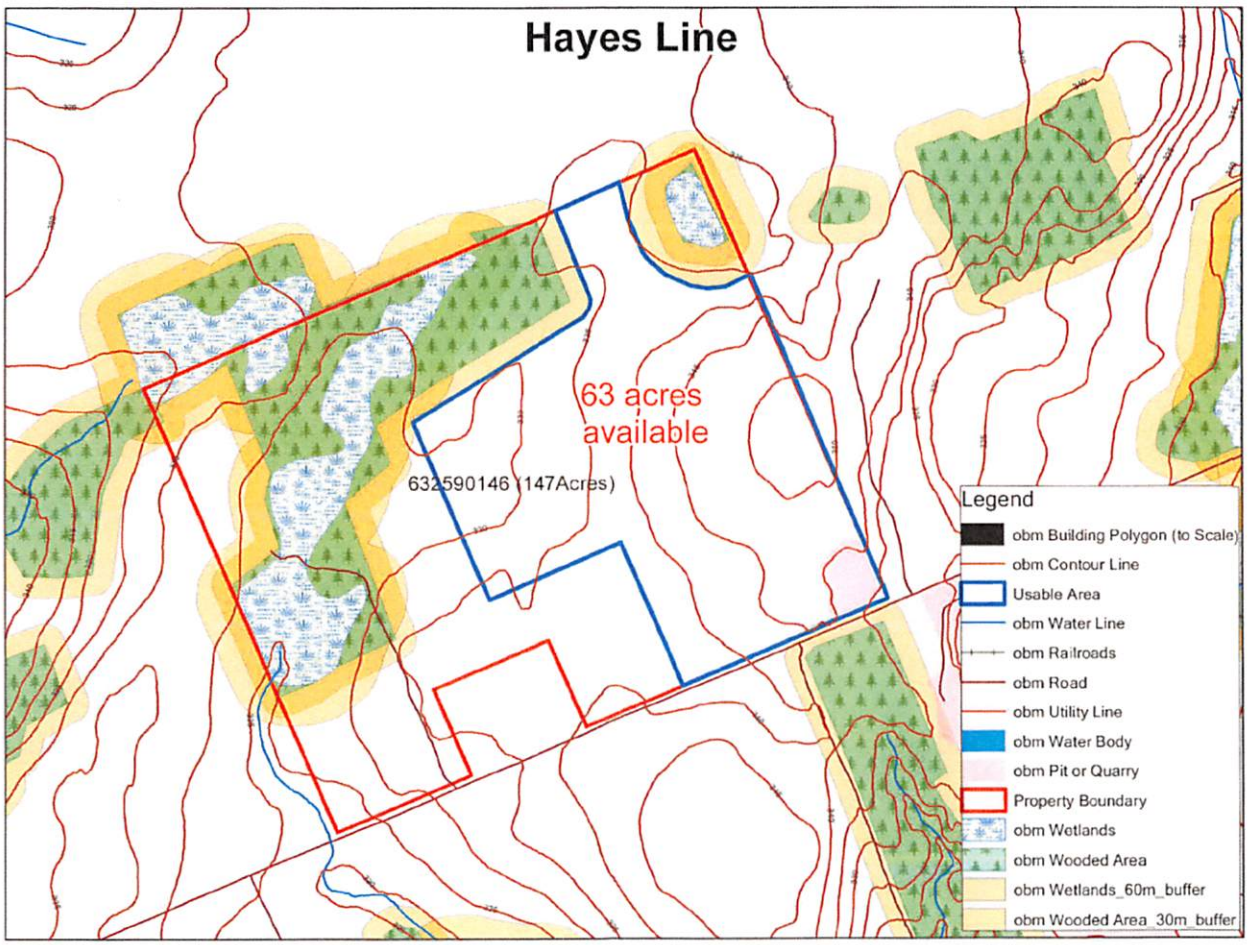


Figure 2-Hayes Line Canadian Solar

Study Description

This report will review the proposal and how it may impact the subject farm and the local farming community, and will provide the current analysis of the capabilities of the farm based on available information from OMAFRA and Agriculture and Agri-food Canada. A full physical review of the land has been completed and this study includes a report showing the current soil capabilities of the farm based on a detailed soil survey for agricultural land use planning which conforms to the methodologies outlined by OMAFRA.

The surrounding land use review looks at an area approximately 1,000 metres in all directions from the farm. Figure 3 shows the review area.

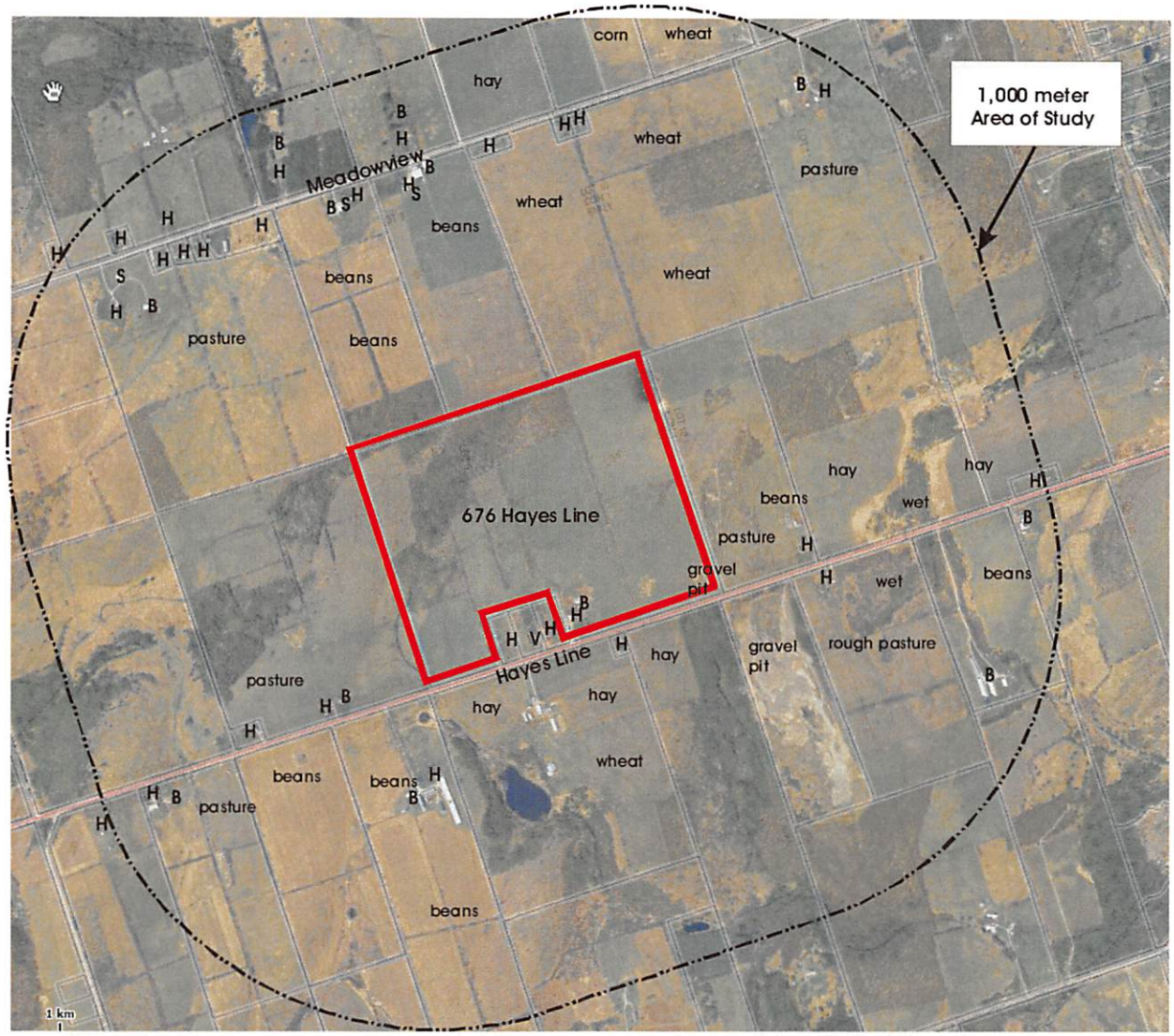


Figure 3 - Property and Study Area Limits

2.0 AGRICULTURAL IMPACT ASSESSMENT INFORMATION

In preparing the study materials for this assessment, CCS has reviewed:

- The Provincial Policy Statement (P.P.S.) 2014
- The City of Kawartha Lakes Official Plan
- The Soil Survey of Victoria County (CANSIS, Agriculture and Agri-food Canada)
- The Agricultural Information Atlas – Ontario Ministry of Natural Resources and Land Information Ontario.

3.0 AGRICULTURAL CAPABILITY

3.1 AGRICULTURAL LAND EVALUATION

An agricultural soil capability assessment and soil study has been completed by Clark Consulting Services during August 2015 and is part of this report. The site visit, including a pedestrian review with shovel test pitting and visual observations of the accessible areas of the property, was completed on August 5, 2015. Study methodology meets the IESO, the Ontario Ministry of Energy and the Ontario Ministry of Agriculture, Food and Rural Affairs requirements for soil studies. These requirements, including qualifications for Land Evaluators, can be found at: http://www.energy.gov.on.ca/en/fit-and-microfit-program/fit-soilstudy/.

The study includes a review of current Canada Land Information (CLI) mapping showing the published CLI classifications of the land and a detailed refinement of soil classification based upon the findings of the pedestrian review and shovel test pitting.

A description and review of the various classes and subclasses of soil under the CLI system can be found at http://sis.agr.gc.ca/cansis/nsdb/cli/classdesc.html and is included in this report as Attachment C.

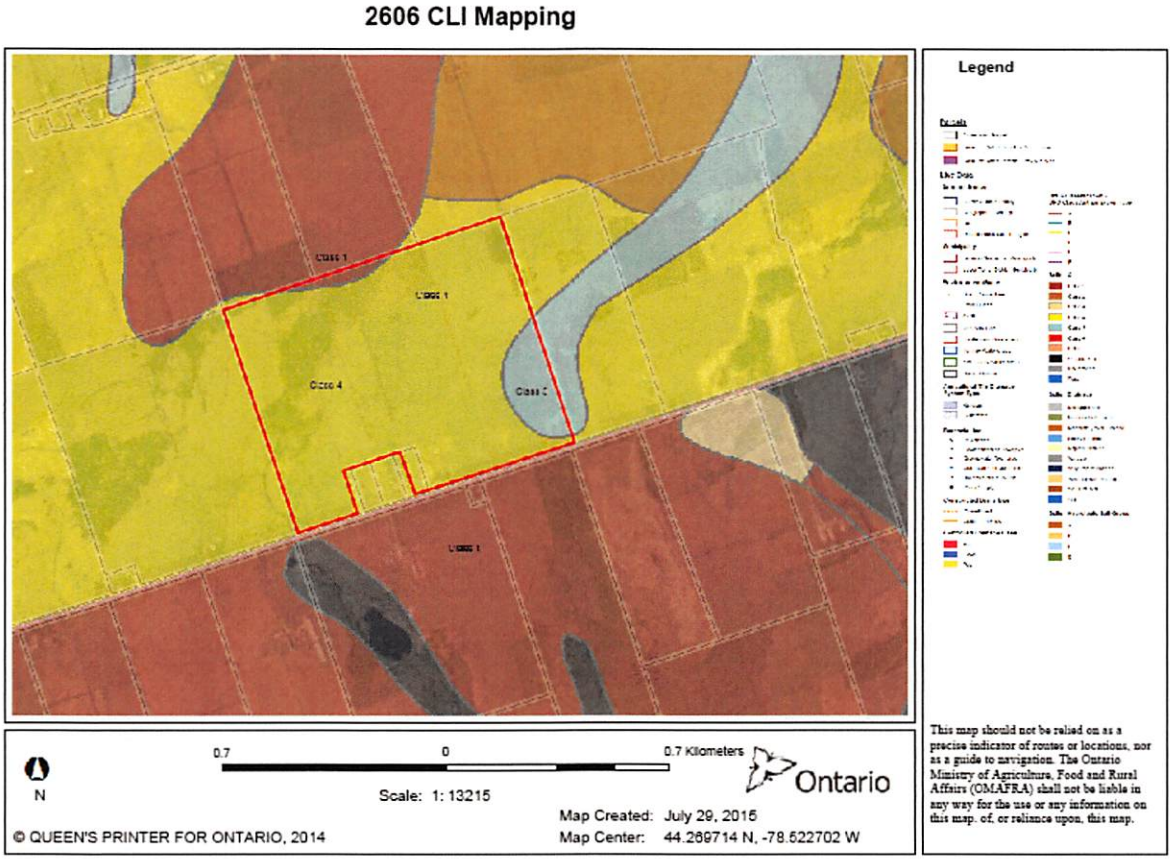


Figure 4 - CLI Mapping

Canada Land Inventory

The CLI mapping shows the property is largely mapped as Class 4 soils with smaller areas of Class 5 and Class 1. The areas available to be used for solar purposes are shown as Classes 4 and 5.

Available background information shows that the current published and accepted CLI mapping identifies the soils as a mix of Class 1, 4 and 5. These soils are described as:

Class 1:	"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." A further description in the Agriculture and Agri-food website says that Class 1 soils "have no significant limitations in use for crops."
Class 4T:	" Soils in this class have severe limitations that restrict the range of crops or require special conservation practices. Topography
Class 5PT:	" Soils in this class have very severe limitations that restrict their capability in producing perennial forage crops, and improvement practices are feasible. Stoniness Topography

At the time of the soils study site visit, a stony field was planted in soya beans and a field was used for pasturing cattle or growing hay.

Soils

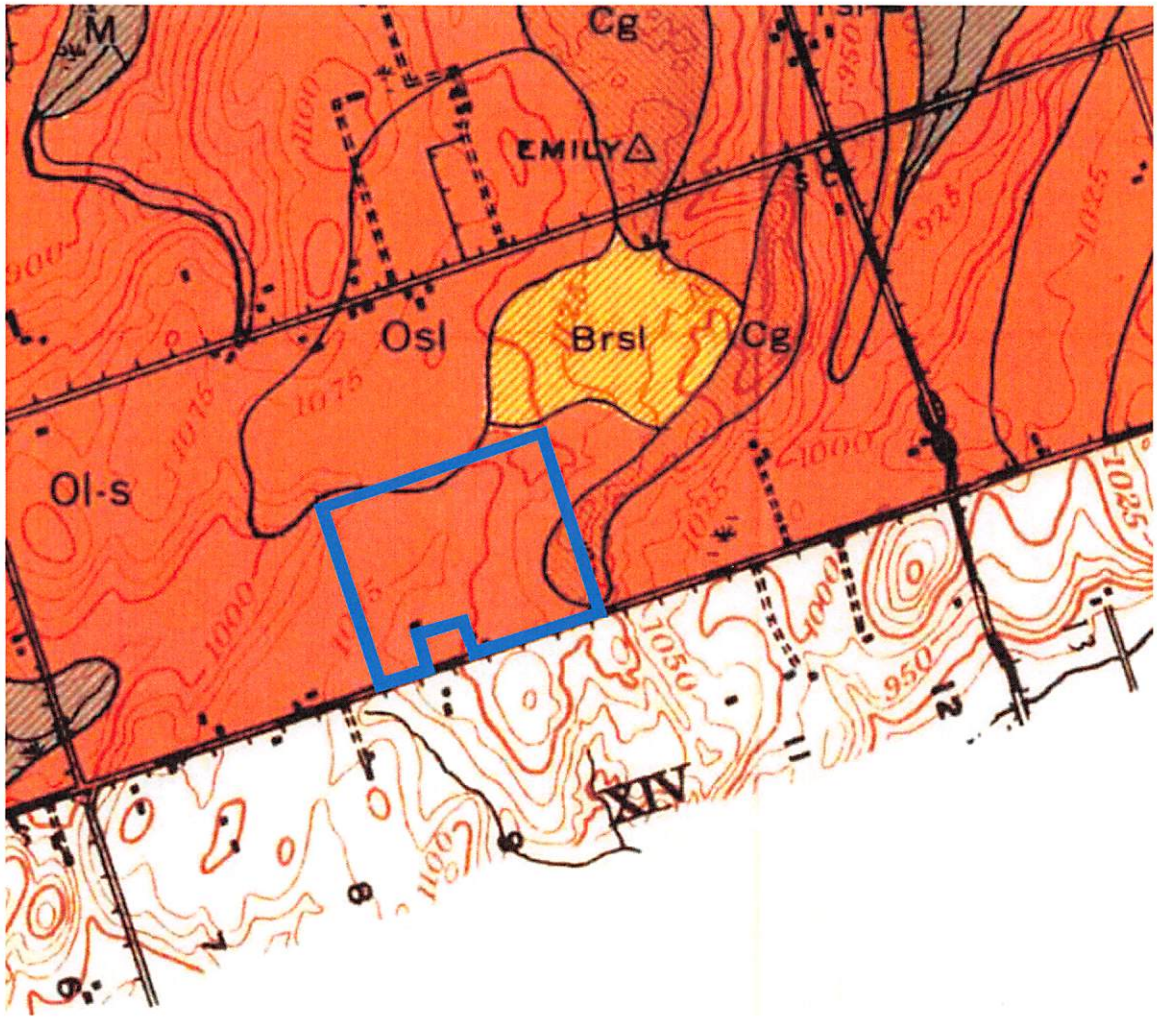
Agriculture and Agri-Food Canada publishes a series of soil surveys arranged by county within the Province of Ontario. The subject lands are shown on the Victoria County Soils Survey on the Soil Map South Sheet. This information is found at: http://sis.agr.gc.ca/cansis/publications/surveys/on/index.html. An excerpt from this map is shown as Figure 5 - *Soil Map.*

The soils map shows the subject land as comprised of Otonabee sandy loam (Osl), Otonabee loam - steep phase (Ol-s) and Cramahe gravel (Cg).

The Otonabee soils are among the most important agricultural soils occurring in Victoria County. The soil parent material consists of a sandy loam textured glacial till containing a moderate amount of stone. This material is calcareous since it is derived principally from limestone rock. In general, the texture of the surface soil is loam but in a number of areas the surface texture is sandy loam. Two types have therefore been mapped, namely, Otonabee loam and Otonabee sandy loam. Except for the surface, these soils are very similar.

Otonabee soils having slopes in excess of 15 percent have been mapped as a steep phase. They occur generally in the southern part of Emily Township. Cultivation is difficult on these steep slopes. This is essentially pasture land and pasture crops could be improved on many areas by broadcasting a fertilizer mixture. This is done preferably in early spring every two or three years.

The Cramahe soils mapped in Victoria County are generally found in long ridges known as eskers. The materials are coarse calcareous sand and gravel, cobbles and larger boulders. The coarseness of the materials and steep slopes make cultivation impractical. Such soils are only fair pasture soils and would serve a more useful purpose if used as woodlots. They are important sources of gravel for road building.



	OTONABEE	EMILY	LYONS	BONDHEAD	GUERIN	CRAMAHE
SOIL TYPE, SYMBOL AND ACREAGE	loam Ol 102,900 loam – shallow phase Ol-sh 25,500 loam – steep phase Ol-s 8,000 sandy loam Osl 13,000	loam El 19,000 loam – shallow phase El-sh 2,700	loam Ll 3,700	loam Bl 1,700 sandy loam Bs 9,300	loam Gul 1,300	gravel Cg 10,100
COLOUR						
SOIL MATERIALS		Calcareous loam and sandy loam till.				Calcareous gravel.
DRAINAGE	Good to excessive.	Imperfect.	Poor.	Good to excessive.	Imperfect.	Excessive.
TOPOGRAPHY	Moderately rolling to steep.	Undulating.	Level to slightly depressional.	Moderately rolling to steep.	Undulating.	Hilly.
SURFACE STONINESS	Moderately stony.	Moderately stony.	Moderately stony.	Moderately stony.	Moderately stony.	Stony.
SURFACE REACTION	Alkaline.	Alkaline.	Alkaline.	Slightly alkaline.	Slightly alkaline.	Alkaline.
GREAT SOIL GROUP	Brown Forest.	Brown Forest.	Dark Grey Gleisolic	Grey-Brown Podzolic.	Grey-Brown Podzolic.	Brown Forest.

Figure 5 - Soil Map

4.0 Minimum Distance Separation (MDS)

Minimum Distance Separation (MDS) is a planning tool developed by the Ontario Ministry of Agriculture, Food and Rural Affairs and is used where a non-farm development application may impact neighbouring livestock facilities or where a proposed livestock facility may impact existing non-farm uses. An MDS review is guided by the MDS Implementation Guidelines published by OMAFRA and found at http://www.omafra.gov.on.ca/english/landuse/guide_p4.htm#i2. MDS applies to livestock facilities but does not apply to a variety of farm or livestock uses including pastures, feed storages, field shade shelters, machinery sheds, or temporary nutrient storage facilities.

MDS is applied at the time of planning or development review for a proposed new development. MDS splits new development into two categories called Type A and Type B Developments. Type B development is described as a development with a higher density of human occupancy, habitation or activity.

CCS requested an interpretation of the application of MDS from staff at OMAFRA where a non-rooftop solar PV installation is proposed. Our direction from OMAFRA is that renewable energy projects are typically considered infrastructure and as such do not trigger an MDS I or II setback. CCS has completed a review of barns surrounding the subject lands for the purposes of establishing the level of activity within the local agricultural community. In accordance with Ministry directives an MDS review has not been completed.

5.0 Agricultural Land Use Study

CCS conducted a ground-level agricultural land use survey of the subject land at a distance of 1,000 metres around the subject lands. The purpose of the survey was to identify active and vacant farm land, active livestock operations, vacant or empty livestock barns, cropland utilization, areas of pastureland, local investment in farming including buildings, fencing, woodlot management and field management.

5.1 Area of Review

In preparing the Land Use review, CCS used a 1,000 metre review distance around the subject lands.

The Land Use review was undertaken by CCS on August 5, 2015. The review included locating and observing vacant and active livestock operations, current or seasonal active use of farm land, and the location of non-farm uses including residences and commercial operations, roadways and water bodies.

Figure 3 shows the noted barns, residences and field uses.

The analysis of the review revealed the following land uses:

Active Livestock Operations:
Within the 1,000 metre review area, CCS noted approximately 10 livestock barns. Some of these were vacant and some were occupied. Livestock varied from chickens to horses to cattle.

Crop or Hay Production
A number of fields are cultivated in the review area and growing a variety of crops including corn, soya beans and wheat. Hay fields were noted throughout the review area.

Vacant Land
Few areas of vacant land were noted. These areas were generally wet and/or heavily treed.

Residential
Two roads, Meadowview and Hayes Line, are in the review area. A number of farm and non-farm residences were seen along this road. Fewer farm and non-farm houses are along Hayes Line in the review area.

6.0 LOCAL FARMING OPERATIONS

7.0 PROVINCIAL POLICY STATEMENT (PPS) 2014

The Province presented the Provincial Policy Statement in April 2014 as a document to guide development within the Province including rural development. Agriculture policies contained within the PPS are found in Section 2.3. This document provides for the protection of prime agricultural areas. These are areas predominated by prime agricultural lands and may include specialty crop areas. Prime agricultural areas are designated in the CKL Official Plan. Permitted uses in a prime agricultural area generally include agricultural and agriculture-related uses and on-farm diversified uses. These permitted uses should be compatible with, and not hinder, surrounding agricultural operations. The subject property is designated Rural.

8.0 CONCLUSIONS

Following a desktop review of available information and mapping, CCS made a site visit to the subject lands on August 5, 2015, to physically review the land's capability for agricultural production.

The available information shows the land is primarily Class 4 soils with a small area of Class 1 in the northern wet area and Class 5 around an old gravel pit. Class 4 generally has 'severe limitations that restrict the range of crops or require special conservation practices'. The lands on the farm are not considered in a 'Prime Agricultural Area' within the meaning of the PPS. The site visit showed that an area of the farm is being used to grow soya beans while other areas were used as patureland. An area to the north is heavily treed and wet. A communications tower is on top of a knoll on the east side.

The land is generally stony with surface and subsurface stone. Soil depth varied widely throughout the farm. The farm and the local area is hilly and varies from rolling to steeply rolling topography.

Surrounding agricultural uses are varied producing a variety of livestock and crops. This farm seems to be well integrated into the local agricultural community.

According to the Ontario Ministry of Agriculture, Food and Rural Affairs, an MDS report is not required for this type of land use.

Sincerely,

Bob Clark, P.Eng., P.Ag., MCIP, RPP, OLE
Principal Planner

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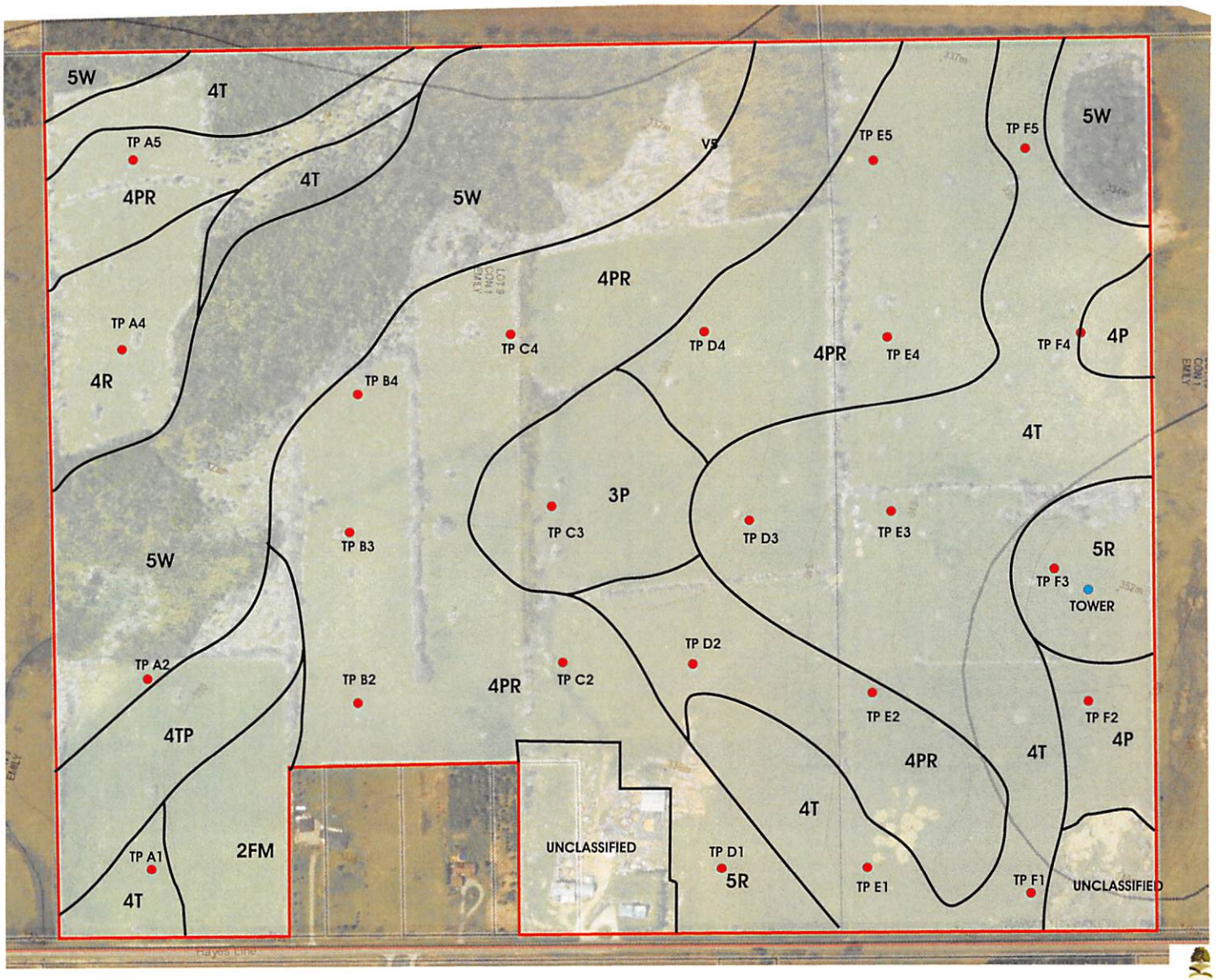
ATTACHMENT "A"
Test Pit Logs

ATTACHMENT "B"
City of Kawartha Lakes - Council Resolution

ATTACHMENT "C"
Agriculture and Agri-food Canada
Overview Of Classification Methodology for Determining Land Capability For Agriculture

ATTACHMENT "D"
Curriculum Vitae of Robert K. Clark

Figure 6 - Capability Assessment
Canadian Solar - Mount Pleasant
CON 1 PT lot 9 and 10,
676 Hayes Line, Emily Township,
City of Kawartha Lakes



Legend	Class	Constraint
2FM	Class 2	Lack of natural fertility and lack of moisture retention limits use for agriculture
3P	Class 3	Excess stoniness limits use for agriculture
4T	Class 4	Topography affects use for agriculture
4R	Class 4	Shallow soils over bedrock Slope constraints and excess stoniness limits use for agriculture
4TP	Class 4	Slope constraints and excess stoniness limit use for agriculture
4PR	Class 4	Excess stoniness and shallow soils over bedrock limit use for agriculture
5R	Class 5	Shallow soils over bedrock limits use for agriculture
5W	Class 5	Excess water, other than from flooding, limits use for agriculture
unclassified		

Subject Lands
● TP 16 Test Pit

CLARK

ATTACHMENT "A"

Test Pit Logs

Project:	Mount Pleasant
CCS:	2606
Soil Dig Date:	August 5, 2015
Weather:	Sunny with clouds and a breeze.

Test Pit No. A1

Surface Condition:	pasture	
A Horizon:	0-16"	dark brown silt loam
B Horizon:	16-30"	reddish silty sand
C Horizon:	30"	rock
Soil Type:	Otonabee loam-shallow phase (Ol-s)	
Soil Capability for Agriculture:	4T	

Test Pit No. A2

Surface Condition:	pasture surface stones	
A Horizon:	0-8"	dark brown sandy loam
B Horizon:	8-20"	brown sandy loam with stones
C Horizon:	20"	rock
Soil Type:	Otonabee loam-shallow phase (Ol-s)	
Soil Capability for Agriculture:	5W	

Test Pit No. A4

Surface Condition:	pasture	
A Horizon:	0-8"	dark brown silt loam
B Horizon:	8-16"	reddish silty sand
C Horizon:	16"	rock
Soil Type:	Otonabee loam-shallow phase (Ol-s)	
Soil Capability for Agriculture:	4R	

Test Pit No. A5

Surface Condition:	pasture - surface stones	
A Horizon:	0-6"	dark brown sandy loam with stones
B Horizon:	6-24"	reddish fine sand
C Horizon:	24"	rock
Soil Type:	Otonabee loam-shallow phase (Ol-s)	
Soil Capability for Agriculture:	4PR	

Test Pit No. B2

Surface Condition:	pasture
A Horizon:	0-10" brown sandy loam
B Horizon:	10-20" reddish brown sand with stones
C Horizon:	20" rock
Soil Type:	Otonabee loam-shallow phase (Ol-s)
Soil Capability for Agriculture:	4PR

Test Pit No. B3

Surface Condition:	pasture
A Horizon:	0-8" brown gravel
B Horizon:	8-12" stones
C Horizon:	12" rock
Soil Type:	Otonabee loam-shallow phase (Ol-s)
Soil Capability for Agriculture:	4PR

Test Pit No. B4

Surface Condition:	pasture
A Horizon:	0-6" brown sandy loam with stones
B Horizon:	6-10" reddish brown sand with stones
C Horizon:	10" rocks
Soil Type:	Otonabee loam-shallow phase (Ol-s)
Soil Capability for Agriculture:	4PR

Test Pit No. C2

Surface Condition:	edge of bean field
A Horizon:	0-10" brown sandy loam with stones
B Horizon:	10-24" reddish brown sandy with stones
C Horizon:	24" rock
Soil Type:	Otonabee loam-shallow phase (Ol-s)
Soil Capability for Agriculture:	4PR

Test Pit No. C3

Surface Condition:	pasture - well used
A Horizon:	0-14" dark brown sandy loam some stones
B Horizon:	14-24" reddish brown sand
C Horizon:	24" rock
Soil Type:	Otonabee loam-shallow phase (Ol-s)
Soil Capability for Agriculture:	3P

Test Pit No. C4

Surface Condition:	pasture	
A Horizon:	0-6"	brown sandy loam with stones
B Horizon:	6-10"	reddish brown sand with stones
C Horizon:	10"	rocks
Soil Type:	Otonabee loam-shallow phase (Ol-s)	
Soil Capability for Agriculture:	4PR	

Test Pit No. D1

Surface Condition:	bean field, gentle slope down to north east	
A Horizon:	0-4"	dark brown silt loam with stones
B Horizon:	4"	rock
Soil Type:	Otonabee loam-shallow phase (Ol-s)	
Soil Capability for Agriculture:	5R	

Test Pit No. D2

Surface Condition:	bean field	
A Horizon:	0-12"	brown sandy loam some stones
B Horizon:	12-30"	reddish sand
C Horizon:	30-36"	stone layer
D Horizon:	36"	rock
Soil Type:	Otonabee loam-shallow phase (Ol-s)	
Soil Capability for Agriculture:	4PR	

Test Pit No. D3

Surface Condition:	pasture on slope and stones	
A Horizon:	0-8"	brown sandy loam with stones
B Horizon:	8-12"	light brown sand with stones
C Horizon:	12"	rock
Soil Type:	Otonabee loam-shallow phase (Ol-s)	
Soil Capability for Agriculture:	4T	

Test Pit No. D4

Surface Condition:	pasture	
A Horizon:	0-10"	brown sandy loam with stones
B Horizon:	10-24"	reddish brown sand with stones
C Horizon:	24"	rock
Soil Type:	Otonabee loam-shallow phase (Ol-s)	
Soil Capability for Agriculture:	4PR	

Visual No. D5

Surface Condition:	surface rock in bush

Test Pit No. E1

Surface Condition:	bean field, steep slope to south west	
A Horizon:	0-8"	brown sandy loam with stones
B Horizon:	8-16"	reddish brown sand with stones
C Horizon:	16"	rock
Soil Type:	Otonabee loam-shallow phase (Ol-s)	
Soil Capability for Agriculture:	4T	

Test Pit No. E2

Surface Condition:	bean field	
A Horizon:	0-8"	brown sandy loam with stones
B Horizon:	8-16"	reddish sand with stones
C Horizon;	16"	rock
Soil Type:	Otonabee loam-shallow phase (Ol-s)	
Soil Capability for Agriculture:	4PR	

Test Pit No. E3

Surface Condition:	bean field surface stories	
A Horizon:	0-12"	brown sandy loam with stones
B Horizon:	12-30"	reddish brown sand with stones
C Horizon:	30-32"	stones
D Horizon:	32"	rock
Soil Type:	Otonabee loam-shallow phase (Ol-s)	
Soil Capability for Agriculture:	4T	

Test Pit No. E4

Surface Condition:	pasture	
A Horizon:	0-12"	brown sand
B Horizon:	12-24"	reddish brown sand
C Horizon:	24"	rock
Soil Type:	Otonabee loam-shallow phase (Ol-s)	
Soil Capability for Agriculture:	4PR	

Test Pit No. E5

Surface Condition:	pasture	
A Horizon:	0-12"	brown sand
B Horizon:	12-24"	reddish brown sand
C Horizon:	24"	rock
Soil Type:	Otonabee loam-shallow phase (Ol-s)	
Soil Capability for Agriculture:	4PR	

Test Pit No. F1

Surface Condition:	edge of gravel pit, extensive stone and rocks at surface
A Horizon:	0-12" gravel
B Horizon:	12" refusal
Soil Type:	Otonabee loam-shallow phase (Ol-s)
Soil Capability for Agriculture:	4T

Test Pit No. F2

Surface Condition:	edge of bean field, extensive stone at surface
A Horizon:	0-12" gravel with stones
B Horizon:	12-36"+gravel with stones
Soil Type:	Cramahe gravel (Cg)
Soil Capability for Agriculture:	4P

Test Pit No. F3

Surface Condition:	fallow area west of Tower
A Horizon:	0-8" brown sandy loam with stones
B Horizon:	8" rock
Soil Type:	Cramahe gravel (Cg)
Soil Capability for Agriculture:	5R

Test Pit No. F4

Surface Condition:	pasture - slope to north
A Horizon:	0-18" brown sandy loam with stones
B Horizon:	18-24" reddish brown sand
C Horizon:	24" rock
Soil Type:	Otonabee loam-shallow phase (Ol-s)
Soil Capability for Agriculture:	4P

Test Pit No. F5

Surface Condition:	pasture - near pond
A Horizon:	0-8" brown sandy loam with stones
B Horizon:	8-10" stones
C Horizon:	10" rocks
Soil Type:	Otonabee loam-shallow phase (Ol-s)
Soil Capability for Agriculture:	4T

ATTACHMENT "B"

City of Kawartha Lakes

City of Kawartha Lakes – Council Resolution CR2013-511:

Council passed a resolution that requests for municipal support for solar projects located on Canada Land Inventory Class 1 through 4, and Class 5 and 6, if there is at least 6 inches of topsoil where it may be productive for agricultural purposes, be rejected. As such, the proponent will be required to provide a report from a qualified Agrologist that the proposal will have minimal impact to agricultural production.

ATTACHMENT "C"

Agriculture and Agri-food Canada
Overview Of Classification Methodology for Determining Land Capability For Agriculture

http://sis.agr.gc.ca/cansis/nsdb/cli/classdesc.html

Overview Of Classification Methodology for Determining Land Capability For Agriculture

The CLI agriculture product shows the varying potential of a specific area for agricultural production. It indicates the classes and subclasses according to the Soil Capability Classification of Agriculture, which is based on characteristics of the soil as determined by soil surveys. The mineral soils are grouped into 7 classes and 13 subclasses according to the potential of each soil for the production of field crops. Organic soils are not a part of the classification and are shown as a single separate unit (0).

These agricultural capability maps can be used at the regional level for making decisions on land improvement and farm consolidation, for developing land-use plans, and for preparing equitable land assessments.

Some of the important factors on which agricultural classification is based are: 1) The soils will be well managed and cropped, under a largely mechanized system. 2) Land requiring improvements, including clearing, that can be made economically by the farmer, is classed according to its limitations or hazards in use after the improvements have been made. Land requiring improvements beyond the means of the farmer is classed according to its present condition. 3) The following are not considered: distances to marker, kind of roads, location , size of farms, type of ownership, cultural patters, skill or resources of individual operations, and hazard of crop damage by storms. 4) The classification does not include capability of soils for trees, tree fruits, small fruits, ornamental plants, recreation, or wildlife. 5) The classes are based on the intensity, rather than kinds, of their limitations for agriculture. Each class includes many kinds of soil, and many of the soils in any class require unique management and treatment. 6) Land given a capability classification of 6 or 7 will never warrant irrigation since the benefits derived from irrigation would be negligible. For this reason, capability Classes 6 and 7 will always appear in the non-irrigated portion (Classes A to C) of a land unit classification.

You can find out more about the CLI mapping project at geogratis.

Land Capability Class Descriptions for Agriculture

The classes indicate the degree of limitation imposed by the soil in its use for mechanized agriculture. The subclasses indicate the kinds of limitations that individually or in combination with others, are affecting agricultural land use.

Classes

Note: To see a further description of each class, select each class in the following table.

Classes	Description
Class 1	Soils in this class have no significant limitations in use for crops.
Class 2	Soils in this class have moderate limitations that restrict the range of crops or require moderate conservation practices.
Class 3	Soils in this class have moderately severe limitations that restrict the range of crops or require special conservation practices.
Class 4	Soils in this class have severe limitations that restrict the range of crops or require special conservation practices.
Class 5	Soils in this class gave very severe limitations that restrict their capability in producing perennial forage crops, and improvement practices are feasible.
Class 6	Soils in this class are capable only of producing perennial forage crops, and improvement practices are not feasible.
Class 7	Soils in this class have no capacity for arable culture or permanent pasture.
Class 0	Organic Soils (not placed in capability classes).

Subclasses

Note: To see a further description of each subclass, select each class in the following table.

Subclasses	Description
C	Adverse climate
D	Undesirable soils structure and/or low permeability
E	Erosion
F	Low fertility
I	Inundation by streams or lakes
M	Moisture limitations
N	Salinity
P	Stoniness
R	Consolidated Bedrock - this subclass includes soils where the presence of bedrock near the surface restricts their agricultural use. Consolidated bedrock at depths greater than 3 feet from the surface is not considered as a limitation except on irrigated lands where a greater depth of soil is desirable.
S	Combination of subclasses
T	Topography
W	Excess water
X	This Subclass is comprised of soils having a limitation resulting from the cumulative effect of two or more adverse characteristics

ATTACHMENT "D"

Curriculum Vitae of Robert K. Clark