

AGRICULTURAL IMPACT ASSESSMENT PROPOSED HIDDEN QUARRY



HIGHWAY 7

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PART OF LOT 1, CONCESSION 6
TOWNSHIP OF GUELPH-ERAMOSIA
FORMER TOWNSHIP OF ERAMOSIA
COUNTY OF WELLINGTON

1. INTRODUCTION

1.1 Description of Development

James Dick Construction Limited (JDCL) has operated a commercial aggregate and concrete business in southern Ontario since the early 1960's. The customer base for JDCL's business activities is primarily road construction projects, however JDCL also supplies private sector consumers with construction aggregate and concrete fine and coarse aggregate. In an effort to maintain reserves of high quality aggregate, JDCL purchased the subject property, located on Part of Lot 1, Concession 6 in the Township of Guelph/Eramosa, former Township of Eramosa, County of Wellington (Map 1 – Location Map) in 1989.

JDCL has an extended history of planning related approvals on the subject property. Since 1989 when the site was purchased by JDCL, the property was identified in the Township of Eramosa's Official Plan as an Existing Gravel Pit Operation and designated as Rural Industrial. Surficial aggregate deposits were extracted on the subject property and two aggregate stockpiles still remain on the site. In 1993, when the former Township of Eramosa updated its local Official Plan, the site was identified as an Aggregate Resource area, in recognition of its future possible use as a pit and quarry. JDCL has kept both the Township of Guelph/Eramosa and County of Wellington informed as to its interest in developing a mineral aggregate operation on the subject property.

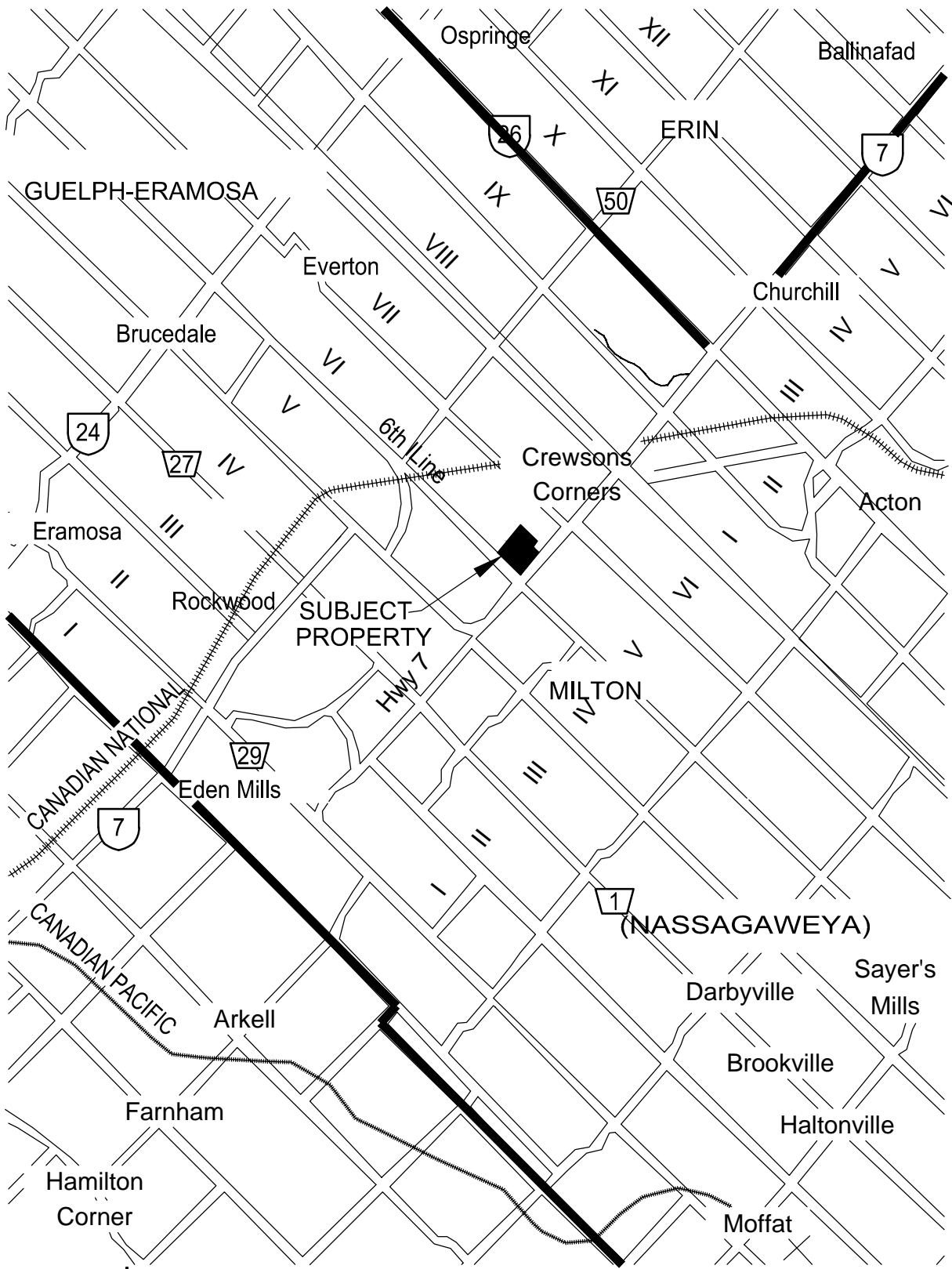
Recently, JDCL has submitted an application for a Zoning By-law Amendment to the Township of Guelph/Eramosa to permit the use of the site as a mineral aggregate operation. An Official Plan Amendment is not required as the site is mapped as a Mineral Aggregate Area in the County of Wellington Official Plan.

The total area of the lands in question is approximately 39.4 ha, however the proposed area to be extracted is approximately 24.9 ha.

1.2 Proposed Planning Amendments

The Hidden Quarry is designated Prime Agricultural and Core Greenlands in the County of Wellington Official Plan (1999). An Official Plan Amendment is not required to permit the establishment of a new aggregate operation on the subject property, given that the site is mapped in a recognized Mineral Aggregate Area in the County of Wellington Official Plan.

The subject land is zoned Agricultural and Environmental Protection in the Township of Guelph-Eramosa Comprehensive Zoning By-law. A Zoning By-law Amendment is required to permit the establishment of a new mineral aggregate operation on the subject land. The Zoning By-law Amendment will change the zone from Agricultural to Extractive Industrial.



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<p>JAMES DICK CONSTRUCTION LTD.</p>	<p>STOVEL and Associates Inc.</p>	<p>HIDDEN QUARRY LOCATION OF SUBJECT LANDS</p>	<p>PART OF LOT 1, CONCESSION 6 TOWNSHIP OF GUELPH-ERAMOSA FORMER TOWNSHIP OF ERAMOSA COUNTY OF WELLINGTON</p>	<p>MAP 1</p>
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1.3 Purpose of the Study

The County of Wellington Official Plan provides the following direction with respect to Agricultural Impact Assessments.

Where development is proposed in prime or secondary agricultural areas, a Council may require an assessment of the impacts the development may have on agricultural activities in the area. An assessment may include any or all of the following:

- a) the opportunity to use lands of lower agricultural potential;*
- b) compliance with the minimum distance separation formula for livestock operations;*
- c) the degree to which agricultural expansion may be constrained;*
- d) potential interference with normal agricultural activities and practices;*
- e) potential interference with the movement of agricultural machinery on roads;*
- f) such other concerns as a Council may consider relevant.*

(Taken from: Wellington County Official Plan, May 6, 1999 (Last Revision December 5, 2014).

2. STUDY METHODS AND INFORMATION SOURCES

The study methodology used to complete this Agricultural Impact Assessment is comprised of the following study activities:

- collect and review relevant background information (e.g. correspondence from OMAFRA, soil maps, aerial photography, official plan land use schedule and zoning by-law land use schedule);
- complete an agricultural land use inventory of the study area;
- inventory agricultural operations in the study area;
- review the Operations and Rehabilitation Plan for the proposed quarry;
- assess the potential for impacts on the agricultural resources in the study area based on an evaluation of quarry impact reports – blasting, vibration, noise, dust, traffic and hydrogeology;
- consider the need for mitigation protocol and monitoring programs to protect agricultural resources;
- comparatively evaluate the proposed quarry application in terms of planning policies related to the protection of agricultural resources.

2.1 Background Information Sources

The following background information was reviewed as part of this study:

- Provincial Policy Statement, 2014;
- The Canadian System of Soil Classification;
- County of Wellington Official Plan, 1999;

- Minimum Distance Separation (MDS) Formulae Implementation Guidelines;
- Official Plan for the Township of Eramosa, 1985;
- 2010 Aerial Photography;
- Historic Aerial Photography from Harden Environment, Appendix I;
- Soil Survey of Wellington County;
- 1:50,000 Map – Canada Land Inventory – Soil Capability for Agriculture;
- Soil Survey Map of the subject property (Ecological Services for Planning Ltd. 1997);
- Ontario Geological Survey (OGS) - Aggregate Resources Inventory Papers: Wellington County and Eramosa Township;
- The Physiography of Southern Ontario;
- Class A Site Plans – Hidden Quarry; and
- Correspondence with Township of Guelph/Eramosa and Ministry of Agriculture, Food and Rural Affairs ('OMAFRA').

2.2 Soil Survey

A detailed soil survey of the subject property was completed by Ecological Services for Planning Limited (ESP) in 1997. Soil conditions on the subject lands were assessed using a hand held Dutch Soil Auger, to a minimum depth of 1 m or to refusal due to bedrock or stone obstruction.

Each soil profile was examined to assess inherent soil characteristics. Soil attributes were correlated with Canadian System of classification and the Field Manual for Describing Soils in Ontario. A hand held clinometer was used to assess percent slope characteristics. Slopes were also assessed based on detailed 1 m contour interval mapping for the subject property. Soils were assigned to a soil map unit (series) based on soil texture (hand texturing assessment), soil drainage class and topography (position and slope). Names for the soil series were taken from the Wellington County Soil Survey. Canada Land Inventory (CLI) ratings were assigned to each soil polygon by correlating the soil series with the CLI information presented on the 1:50,000 scale CLI – Soil Capability for Agriculture map.

2.3 Identification of Land Uses

Land uses on the site were identified through an examination of aerial photography and confirmed by onsite surveys.

Agricultural and non-agricultural land uses on the adjacent properties within the study area were identified through the completion of a reconnaissance-level road-side survey (October 2014 and January 09, 2015). This information was supplemented with aerial photography and land use mapping contained within Ontario Base Mapping, and land use schedules set out in the County of Wellington Official Plan and the Township of Guelph/Eramosa Zoning By-law. Agricultural and non-agricultural land uses were noted.

Cropping patterns were identified as part of the agricultural land use survey. Emphasis was placed on identifying specialty crops. Common field crop systems were noted and include such crops as corn, grain, and soy beans. Forage and pasture lands were also noted.

The study area was defined by the applicant, in conjunction with staff from the Township of Guelph/Eramosa (Email Correspondence from G. Sweetnam to L. Howson, September 03, 12 and 15, 2014).

2.4 Minimum Distance Separation (MDS)

As per direction from the Ontario Ministry of Agriculture, Food and Rural Affairs (“OMAFRA”), MDS provisions do not apply to mushroom farms and mineral aggregate resources. This was reinforced by OMAFRA during the 2015 review of MDS when they stated in the summary of key changes to MDS Formulae and Implementation Guidelines that: “...MDS does not apply to extraction of minerals, aggregate and petroleum resources, infrastructure and landfills”. MDS 2 provisions are not impacted negatively by the presence of an adjacent mineral aggregate operation. The potential for agricultural expansion on adjacent agricultural operations will not be affected by the approval of the proposed mineral aggregate operation.

3. MINERAL AGGREGATE RESOURCES ON THE SUBJECT PROPERTY

The subject property is located within an ice-contact stratified drift deposit that forms part of the Paris Moraine. The area has been identified as Selected Sand and Gravel Resource Area 31 and mapped as part of the Mineral Aggregate Area within the County of Wellington Official Plan.

Extraction has occurred at the site in the past. Three former extraction areas have been identified. The 1985 Official Plan for the Township of Eramsoa illustrates the subject property to be an active gravel pit. In the northwestern corner of the site, two existing stockpiles remain.

“Selected Bedrock Resource Area 5 covers an area of the Amabel Formation that is located at the southern boundary of Eramosa Township and extends into Erin Township. The limit of resource area 6 is defined by the 8 m drift thickness contour. The sediments that overlie the bedrock are ice-contact stratified sand and gravel which have been designated as a selected sand and gravel resource area of primary significance. The combined resource potential of this area makes it attractive for resource protection. Bedrock resource area 5 occupies a total of 1054 ha of which 918 ha are available for extraction. Assuming a workable thickness of 18 m the crushed stone resources possibly available for extraction are 440 million tonnes.

Bedrock Resource Area 5 is well situated with respect to road (Highway 7) and rail transport routes and, for the most part, is sparsely populated. Consequently,

it may be well suited for large-scale extractive development” (OGS, 32).

The subject property is unique in that it contains significant mineral aggregate reserves of consolidated bedrock deposit overlain by sand and gravel deposits. The proposed extraction contains approximately 12 million tonnes of the highest quality aggregate in Southern Ontario. Approximately 70% of the onsite aggregate resource is located below the established water table.

4. DESCRIPTION OF AGRICULTURAL RESOURCES

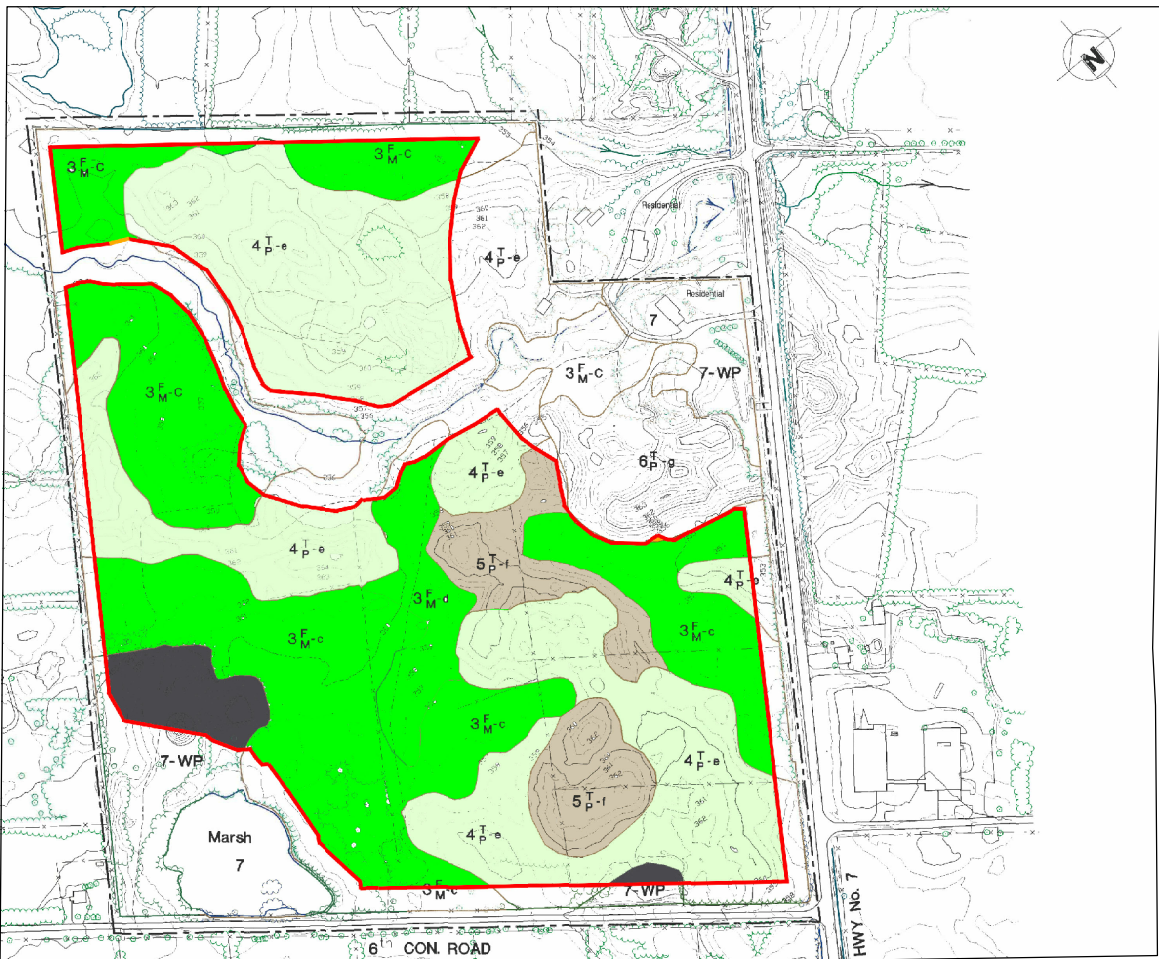
4.1 Soils and Soil Capability for Agriculture

According to the Wellington County Soil Survey (Hoffman and Matthews, 1963) the site is entirely characterized by the Dumfries soil type that is derived from stony calcareous sandy loam till. A typical soil profile exhibits about 30 cm of loam topsoil (A horizon) over 30 cm of clay loam subsoil (B horizon) over parent material (C horizon). Since the porous Dumfries soils occur on irregular, moderately sloping land they are well drained, except in poorly drained potholes that contain surface water during most or all of the growing season. These potholes cannot be easily drained and hence they do not represent arable land. Soil erosion is common on most cultivated slopes. Stones and boulders are abundant on the surface and throughout the soil mass. Consequently, annual stone picking is often required in cultivated fields and the presence of stone pile and fence lines on the subject property confirms this stoniness limitation to agricultural use. All of the land surrounding the site is also characterized by Dumfries soils, except for the lowland forest to the northwest where poorly drained muck and Parkhill loam soils predominate (ESP, 1997).

The 1:50,000 Canada Land Inventory (CLI) mapping of soil capability for agriculture identifies the site as 50% Class 3 soils and 50% Class 5 soils. Where the slopes are less severe the soil is rated as a Capability 3 with low fertility (F) and droughtiness (M) being the major subclass limitations to agricultural production. The Class 5 land is characterized by adverse topography (T) and surface stoniness (P) that impedes tillage, planting and harvesting.

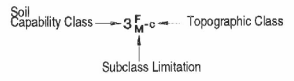
Correspondence from OMAFRA (Carol Neumann, October 1, 1997 to James Parkin) sets out the following direction with respect to the subject property:

“Lot 1, Concession 6, Eramosa Township, Wellington County – The subject property consists of primarily 50% Class 3 and 50% Class 5 lands, with some Class 2 lands, according to the Canada Land Inventory at a scale of 1:50,000. As stated in your letter these lands are designated Rural Industrial. These lands have been designated for a use other than agriculture and are not of provincial interest from an agricultural perspective. The policies of the local plans would apply with respect to rehabilitation.”



- Legend**
- Study Area Boundary
 - Soil Capability Boundary
 - Forest Edge
 - Trail
 - Permanent Stream
 - Intermittent Stream
 - Fence Line
 - Contour Line (1.0m Interval)
 - WP Old Wayside Sand and Gravel Pit
 - APPROXIMATE LIMITS OF EXTRACTION

**Agricultural Soil Capability
Map Convention**



Soil Capability Subclass Limitations

- F - Low Fertility
- M - Low Moisture Holding Capacity (Droughtiness)
- P - Surface Stoniness
- T - Adverse Topography

Topographic Classes

Capability Classes	Simple Slopes	%	Complex Slopes	%
1	A,B,C	0-5	a,b	0-2
2T	D	6-9	c	2-5
3T	E	10-15	d	6-9
4T			e	10-15
5T	F	16-30	f	16-30
6T	G	31-60	g	31-60
7T	H	60+	h	60+



**PROJECT NAME : HIDDEN QUARRY
AGRICULTURAL IMPACT ASSESSMEN**

**PREPARED FOR:
JAMES DICK CONSTRUCTION LIMITE**

**MAP 2 : CLI - SOIL CAPABILITY
FOR AGRICULTURE**

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With the aid of detailed topographic mapping at a scale of 1:2,000 and 1:10,000 aerial photography, the soil capability of the property was re-mapped to more accurately reflect topographic subclass limitations. The refined mapping is presented in Map 2 and it yielded the following area breakdown of map units:

Capability Class	Area (ha)	%
3	15.01	39
4	14.37	38
5	2.31	6.0
6	1.78	5.0
7*	<u>4.61</u>	<u>12</u>
	38.08	100

Notes: * Class 7 includes marsh, old extraction areas and residential development.
Source: ESP, 1997.

The results of the detailed soil survey generally corroborate the background manuscript mapping; the property does not contain any CLI – Soil Capability for Agriculture Class 1 or 2 soils and the balance of the property consists of a mixture of lower agricultural potential soils, i.e. Classes 4, 5, 6 and 7 soils. The property is not considered prime agricultural land.

Based on a review of the proposed extraction plan, it is estimated that approximately 7.9 ha of Class 3 soils will be removed as a result of the proposed quarry operation.

Prime Agricultural Land is defined as specialty crop areas and/or CLI Class 1, 2 and 3 lands, as amended from time to time, in this order of priority for protection (Provincial Policy Statement, 46).

Prime Agricultural Area means areas where prime agricultural lands predominate. This includes areas of prime agricultural lands and associated CLI Class 4 through 7 lands, and additional areas where there is a local concentration of farms which exhibit characteristics of ongoing agriculture. Prime agricultural areas may be identified by OMAFRA using guidelines developed by the Province as amended from time to time. A prime agricultural area may also be identified through an alternative agricultural land devaluation system approved by the Province (Provincial Policy Statement, 46).

4.2 Onsite Capital Investment Related to Agriculture

There are no buildings or structures related to agriculture on the subject property.

4.3 Agricultural and Non-agricultural Land Uses

Map 3 illustrates the distribution of agricultural and non-agricultural land uses on the subject property and in the immediate area.

There are no agricultural land uses on the subject property other than the managed conifer plantation. The subject property consists of the following non-agricultural land uses:

- Woodlands,
- Wetlands,
- Disturbed lands associated with former extraction operations.

The study area is approximately 600 ha in size and includes lands in both the Township of Guelph/Eramosa and the Town of Milton. Highway 7 cuts through the central portion of the study area. Municipal roads mark the periphery of the study area except in the northern extent, which is marked by the CNR railroad.

Cropping patterns within the study area include the following systems: hay/pasture/forage systems, small grains (such as wheat), corn and soybeans. It is estimated that approximately 300 ha or 50 % of the study area consists of agricultural land uses. There are no specialty crops within the study area. Neither the subject land or study area is identified as a Specialty Crop Area.

Specialty crop area means 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:

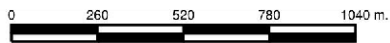
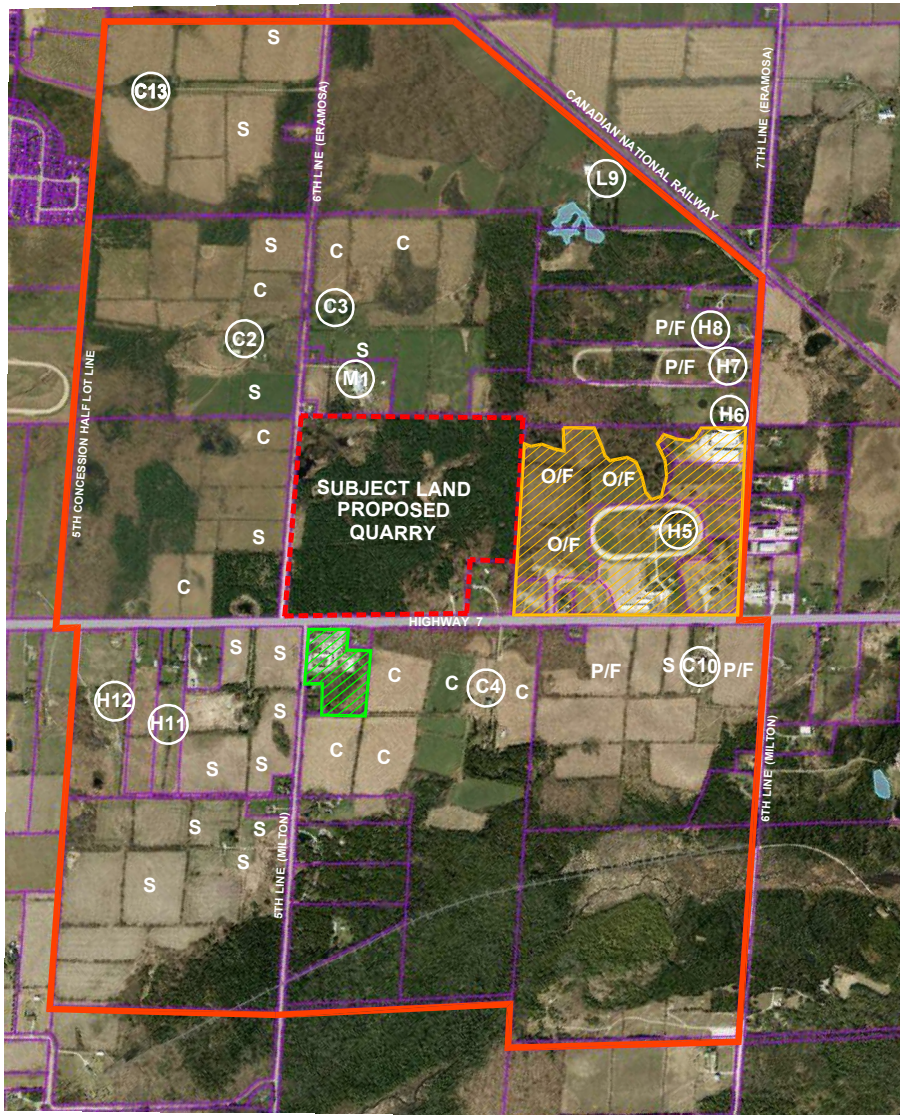
- a) *soils that have suitability to produce specialty crops, or lands that are subject to special climatic conditions, or a combination of both;*
- b) *farmers skilled in the production of specialty crops, and*
- c) *a long-term investment of capital in areas such as crops, drainage, infrastructure and related facilities and services to produce, store, or process specialty crops. (Provincial Policy Statement, 49).*

Non-agricultural land uses within the study area consist of the following:

- Rural industrial subdivision immediately east of the subject property,
- Rural commercial facility, i.e. System Fencing,
- Woodlands and wetlands,
- Rural non-farm residential lands.

There are several agricultural operations in the study area as described below:

<u>No.</u>	<u>Address</u>	<u>Description</u>	<u>Comments</u>
M1	4999 6 th Line	W & T Mushroom	Barn (with manure storage)
C2	4958 6 th Line	Cash Crop	Several structures – no livestock seen
C3	4963 6 th Line	Cash Crop	Rockwood Farm – no livestock seen
C4	5134 Hwy 7 (Milton)	Cash Crop	No livestock observed



SOURCE GRCA AERIAL PHOTOGRAPHY, 2010

LEGEND

Agricultural Land Use Systems

Unimproved Land=U
 Pasture/Forage System= P/F
 Row Crop= RC
 Small Grains= SG
 Soybeans= S
 Corn= C
 Old Field= OF

Agricultural Operations

① = Agricultural Operation Reference
 M = Mushroom Farm
 H = Horse Farm
 L = Livestock Farm
 A = Abandoned or Remnant Farmstead
 C = Cash Farm Crop

STUDEY AREA

SUBJECT LANDS

RURAL INDUSTRIAL LAND

SYSTEM FENCING AND TACK SHOP



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PROJECT NAME:
**HIDDEN QUARRY
 AGRICULTURAL IMPACT
 ASSESSMENT**

PROJECT TITLE:
**AGRICULTURAL
 LAND USE MAP**

MAP
3

H5	4922 Hwy 7 (Eramosa)	Horse Farm*	Located adjacent to Rural Industrial Use
H6	4944 7 th Line	Horse Farm	
H7	4952 7 th Line	Horse Farm	
H8	4960 7 th Line	Horse Farm	Farm For Sale
L9	4970 7 th Line	Walnut Hill Farm	Livestock
C10		Cash Crop	Barns are in poor repair – not in use
H11		Hobby Horse	
H12		Hobby Horse	
C13	5006 6 th Line	Cash Crop	No Livestock observed at time of survey

*Note: a re-zoning application (ZBA 05/14) has been submitted to the Township of Guelph-Eramosa to permit industrial uses and to remove the existing equine use on the subject property. At the time of preparation of this report, it is not known as to whether the re-zoning application was approved.

4.4 Agricultural Drainage

The subject property is not tile drained. Drainage is complex and is either infiltrated or flows into the onsite ponds/wetland systems or creek that flows through the property.

Offsite drainage flows into the creek that flows through the subject property.

4.5 Agricultural Water Supply

The adjacent farm operations are supplied by private wells; municipal water services are not available in the study area. Harden Environmental Services Inc. completed a Hydrogeological Impact Assessment. The results of this assessment are summarized in section 6.5.

5. DESCRIPTION OF MINERAL AGGREGATE OPERATION

Extraction on the subject property will occur above and below the established water table. The processing area will be established in the southwest portion of the mineral aggregate operation. Figure A – Operations Plan illustrates the operational phases of the proposed mineral aggregate operation.

It is estimated that the central processing will be located approximately +/- 450 m from the mushroom farm and +/- 1000 m from the horse farm.

Extraction below the water table involves the drilling and blasting of dolostone. Once the dolostone has been broken up, the raw aggregate will be removed from the water by an excavator or drag-line, trucked and stockpiled in the main processing area. In the main processing area, the aggregate will be crushed/screened/washed, stockpiled and then loaded for transport to market.

Mitigation measures include:

- a) perimeter berming for acoustic shielding,
- b) tree screens to limit sight lines into the quarry,
- c) a main processing area where the processing plant will be shielded by 10 and 12 m high stockpiles:

- the processing area elevation is below grade,
- the location of the processing area is in the southernmost part of the site, and
- water treatment of internal haul roads and processing area.

In terms of operating hours, JDCL will use the following:

- Extraction and processing operations may occur between the hours of 7 am and 7 pm, Monday to Fridays and 7 am to 1 pm on Saturdays; and
- Loading and hauling operations may occur between the hours of 6 am and 6 pm, Mondays to Fridays, and 6 am to 1 pm on Saturdays;
- Drilling and Blasting will occur from 8 am to 5 pm weekdays (no drilling or blasting on weekends).

These operational protocols are addressed in the Noise Impact Study and set out on the Site Plans.

An extensive water-monitoring program has been developed to ensure that water-related impacts do not occur. The water-monitoring program includes a set of trigger values for each monitoring well and a contingency program. Water-related effects and mitigation measures are further described in section 6.2.5 of this report.

Rehabilitation will include the following:

- The two cells that will be extracted below the water table will be rehabilitated to diverse shorelines that include wetland areas along the shoreline and deep and shallow water fish habitat.
- Tableland areas, including setback areas, will receive suitable application of subsoil and topsoil.
- The rehabilitated tableland areas will be suitable for the establishment of agricultural cropping and/or reforested with native trees and shrubs.

6. ASSESSMENT OF IMPACTS ON AGRICULTURE

The following paragraphs address the potential for onsite and offsite agricultural impacts. Potential onsite agricultural impacts include: a) removal of prime agricultural lands; b) consumption or retirement of infrastructure related to agriculture. Offsite impacts concern the potential for indirect effects on adjacent agricultural resources.

6.1 Direct Impacts

The subject land is not comprised primarily of CLI Classes 1-3 agricultural soils. Therefore, the proposed mineral aggregate operation will not result in a significant consumption good quality agricultural land.

The subject land does not have any barns or agricultural tile drainage systems. The proposed mineral aggregate operation will not result in the consumption or retirement of infrastructure related to agriculture.

6.2 Offsite Impacts

The following section deals with the potential for offsite impacts on adjacent agricultural resources.

The proposed quarry will not impact on offsite agricultural crops or cropping patterns. There are no specialty crop lands on adjacent parcels. Agricultural cropping patterns on adjacent lands are comprised mainly of common field crop systems; the proposed quarry will not affect the agricultural potential of these offsite lands.

Based on a review of the Agricultural Land Use Map, there are 13 active and former agricultural operations in the study area: 1 mushroom farm, 1 livestock operation, 5 cash crop farms, and 6 horse and/or small-scale hobby horse farms. Two hobby horse farms (H11 and H12) are located over 300 m southwest of the subject property. These hobby farms are located south of Highway 7 in the Town of Milton and are set on small properties with limited agricultural land bases (i.e. less than 4 ha of tillable land). No horses were observed at the time of survey, but it is anticipated that, in the past, horses may have pastured on these properties. Four of the horse and/or small-scale hobby farms, located east of the subject property, abut or are in close proximity to existing rural industrial lands. The closest horse farm is the subject of a zoning by-law amendment application that will result in additional rural industrial uses being permitted and the existing equine facility will be removed. The closest agricultural operation is the mushroom farm that is located immediately north of the proposed quarry.

It is reasonable to anticipate that potential impacts on offsite agricultural resources could be most noticeable at the farm operations that are located closest to the proposed mineral aggregate operation. In this regard, specific attention has been focused on: a) mushroom farm located immediately north of the proposed quarry (Lot 2), and b) the horse farms located east and northeast of the proposed quarry. The potential for effects on these farm operations has taken into consideration the following types of issues: noise, vibration and blasting, dust, water, traffic and nuisances. The results of this assessment are described below.

6.2.1 Noise

A Noise Impact Study for the proposed operation was completed by Aercoustics Engineering Limited (“Aercoustics”). Based on this assessment, it was concluded that noise emissions from the proposed mineral aggregate operation does not exceed MOE guidelines. The mitigation measures recommended by Aercoustics were included on the Site Plans.

Noise emissions will not impact on the operation of the mushroom farm. In the vicinity of the mushroom farm, noise mitigation measures were specified to ensure that noise levels meet (or are below) the specified limits.

The potential for interference related to noise emissions from the quarry on the adjacent horse farms is considered to be minimal. The adjacent horse farms to the east/northeast of the subject property are well separated and buffered from the proposed quarry. The estimated setbacks from the closest of these adjacent horse farms are as follows:

- Setback from the closest portion of the extraction face to the closest track = +/- 250 m,
- Setback from the closest portion of the extraction face to the closest horse barn = +/- 450 m,
- Setback from the closest portion of the central processing area to the closest track = +/- 550 m, and
- Setback from the closest portion of the central processing area to the closest horse barn = +/- 750 m.

In calculating these distances, it is important to recognize that the lands between the horse farm and the proposed quarry form part of an approved Industrial subdivision and much of these lands are designated Rural Industrial. The closest horse farm is also the subject of a re-zoning application. If approved, the zoning amendment would result in the removal of the existing equine use. Regardless, farm H5 is designated Rural Industrial and is constrained by the presence of the adjacent industrial land uses.

6.2.2 Blasting

A Blast Impact Analysis was completed by Explotech Engineering Ltd. ("*Explotech*") for the proposed mineral aggregate operation. Explotech provided a series of recommendations related to blasting, all of which have been implemented on the Site Plans. The key recommendations that relate to adjacent agricultural operations are as follows:

- *An attenuation study shall be undertaken by an independent blasting consultant during the first 12 months of operation in order to obtain sufficient quarry data for the development of site-specific attenuation relations. This study will be used to confirm the applicability of the initial guideline parameters and assist in developing future blast designs.*
- *All blasts shall be monitored for both ground vibration and overpressure at the closest privately owned sensitive receptors adjacent the site, or closer, with a minimum of two (2) digital seismographs, - one installed in front of the blast and one installed behind the blast. Monitoring shall be performed by an independent third party engineering firm, with specialization in blasting and monitoring.*

- *Orientation of the aggregate extraction operation will be designed and maintained so that the direction of the overpressure propagation and flyrock from the face will be away from structures as much as possible.*
- *Blast designs shall be continually reviewed with respect to fragmentation, ground vibration and overpressure. Blast designs shall be modified as required to ensure compliance with applicable guidelines and regulations. Decking, reduced hole diameters and sequential blasting techniques will be used to ensure minimal explosives per delay period initiated.*
- *Once blasting progress encroaches to within 250 m of any offsite sensitive receptor, a formal review of accumulated blast records including vibration data and blast designs shall be undertaken. This review will identify what modifications to blasting protocol and procedure are required to address the reduced separation distance.*
- *Primary and secondary dust collectors will be employed on the rock drills to keep the level of rock dust to a minimum.*
- *Blasting procedures such as drilling and loading shall be reviewed on a yearly basis and modified as required to ensure compliance with industry standards.*
- *Detailed blast records shall be maintained.*

Based on the Explotech assessment, it was concluded that vibrations and overpressure related to blasting will remain minimal at the nearest receptors and will be compliance with applicable guideline limits.

The Explotech study was peer reviewed by Novus. Novus stated that they are in agreement with the guidelines used, the assessment techniques, and with the general conclusions of the study. Golder Associates also reviewed the Blasting Impact Analysis and determined that the recommendations were reasonable and acceptable.

From an agricultural perspective, there is not anticipated to be any impact from blasting or vibration on the adjacent mushroom farm.

The potential for blasting-related interference on the adjacent horse farm is considered to be minimal given that the horse farms are well separated and screened from the proposed mineral aggregate operation.

To ensure that impacts on the adjacent horse farms are minimized, monitoring along the easterly licence limit should be implemented during Phase 2 of the mineral aggregate operation.

As part of the operations program, it is important to implement a complaint protocol. This will provide neighbouring farm operators with an established procedure to record a complaint and to ensure corrective action.

6.2.3 Dust

Dust will be controlled through the regular application of water, on an as needed basis.

A requirement to mitigate dust-related impacts is set out in Prescribed Conditions under the Aggregate Resources Act. Prescribed Conditions are appended to the licence. The Prescribed Conditions that relate to the control of dust are as follows:

- 3.1 Dust will be mitigated on site.*
- 3.2 Water or another provincially approved dust suppressant will be applied to internal haul roads and processing areas as often as required to mitigate dust.*
- 3.3 Processing equipment will be equipped with dust suppressing or collection devices, where the equipment create dust and is being operated within 300 m of a sensitive receptor.*

RWDI Inc. has completed an Air Quality Assessment for the proposed Hidden Quarry. The following recommendations were developed to ensure that the proposed quarry operates within acceptable limits and to ensure that sensitive land uses are not impacted:

- 1. The quarry is limited to 12 hours of operation per day, from 7:00 am to 7:00 pm for site preparation, drilling, blasting, excavation, processing operations and rehabilitation activities, and 6:00 am to 6:00 pm for shipping operations.*
- 2. The maximum processing rate of 6,000 tonnes per day is not exceeded.*
- 3. Equipment-specific controls (tailpipe emission tiers, dust suppression, speed limits, etc.) listed in Appendix B of this report will be implemented;*
- 4. An Environmental Compliance Approval under Section 9 of the Environmental Protection Act (EPA) will be obtained.*
- 5. A Best Management Practices Plan will be developed and implemented.*
- 6. The processing plant should be located approximately as shown on the site plans.*

7. *Stripping of overburden should be limited to times when extraction, production and shipping activities are well below the estimated peak rate of 6,000 tonnes per day.*

Sensitive land use means buildings, amenity areas or outdoor spaces where routine or normal activities occurring at reasonably expected times would experience one or more adverse effects from contaminant discharges generated by a nearby major facility. Sensitive land uses may be part of the natural or built environment. Examples may include, but are not limited to: residences, day care centres, and educational and health facilities (PPS, 48).

The potential for adverse effects from dust emissions on the adjacent mushroom farm is considered minimal, given that dust emissions have been mitigated at the property line. Mitigation measures have been implemented along the northerly property line to assist in buffering the adjacent mushroom farm. During Phase 1 of the proposed quarry, additional dust monitoring along the northerly quarry limits should be considered to ensure that airborne particulate, beyond acceptable concentrations do not disperse on the mushroom farm.

It is unlikely that there will be an adverse effect of dust on the adjacent horse farms. The adjacent horse farms are well separated and buffered from the proposed quarry. The potential for interference with normal agricultural activities and practices is considered to be minimal.

6.2.4 Transportation

Cole Engineering Limited (2012) prepared a Traffic Impact Study for the proposed quarry. As set out in the conclusions of this study, the potential for impacts related to transportation is minimal.

The annual extraction rate of the proposed quarry is set at a maximum of 700,000 tonnes per year. The Traffic Impact Study is conservative and under normal conditions, truck traffic will be substantially less than evaluated in the Study.

The proposed quarry will use Concession Road 6 to gain access to Highway 7. The entrance will be located approximately 200 m north of the intersection of Highway 7 and Concession 6. Both the entrance and the intersection at Highway 7 provide clear sight lines. JDCL will complete improvements to the haul road, to the satisfaction of the municipality and Ministry of Transportation, thus ensuring that the haul road is safe.

On Concession Road 6, the haul road will not result in trucks passing residences or farm operations. The quarry will provide sufficient storage within the site to ensure that trucks will not park on the township road. Based on the fact that township road will be widened and paved in proximity to the quarry, the potential

interference with the movement of agricultural machinery on roads is anticipated to be minimal.

6.2.5 Water-Related Effects

Harden Environmental Services Ltd. (“Harden”) completed a Hydrogeological Impact Assessment. The groundwater model presented by Harden predicts a 1.6 m water level change in the dolostone aquifer for the nearest water well (i.e. mushroom farm). Harden concludes that, *“It is our profession opinion, based on our knowledge that dolostone aquifer has a relatively high transmissivity, that a water level change of 1.6 m will not adversely affect the availability of water to any domestic well. A rigorous on-site monitoring program will be instituted to confirm this opinion. JDCL has also agreed to conduct a voluntary private well survey commencing well in advance of any below-water table extraction. The combination of the two programs will allow for the early detection of possible changes in the potentiometric elevation on the site and in neighbouring wells”* (Harden, 6).

In addition, JDCL has retained a water well contractor and Harden Environmental Services Ltd. on stand-by to address any water quantity or quality issue that arises. In the event of a water shortage a supply of bottled water for drinking/cooking will be delivered within 12 hours of the complaint and an alternative water supply will be delivered within 24 hours of the complaint being received. A similar commitment will be made by JDCL for agricultural operations; should an adjacent farm operation (within the study area) experience water quality or quantity issues, a supply of clean water will be delivered within 24 hours of a complaint being received.

Within 48 hours, JDCL will initiate a hydrogeological investigation conducted by an independent hydrogeologist to determine the cause of the water issue. The investigation will include but not be limited to the following actions:

- Confirmation of water levels in on-site groundwater monitoring wells.
- Review of historical trends in groundwater levels and groundwater quality obtained in on-site groundwater monitoring wells.
- Review of historical measured precipitation rates.
- Interview with resident regarding well complaint.
- Investigation of subject well including flow testing, water level measurements and water quality testing, if necessary.
- Written report summarizing the findings.

In the event that quarry activities are likely to be the cause of the complaint, James Dick Construction will undertake appropriate mitigative measures such as:

- Lowering the level of the pump within the well.
- Extending the cased portion of the well.
- Deepening the well.

- Well replacement.
- Water Treatment.
- Modification of quarry activities.

Based on the aforementioned assessment, there are no anticipated water-related impacts on adjacent agricultural operations. The potential for interference on adjacent agricultural operations is considered to be minimal.

7. AGRICULTURAL POLICY FRAMEWORK

The subject property is designated Prime Agricultural and Core Greenlands in the County of Wellington Official Plan (1999). An Official Plan Amendment is not required to permit the establishment of a new aggregate operation on the subject property, given that the site is mapped in a recognized Mineral Aggregate Area in the County of Wellington Official Plan.

Permitted uses in the Prime Agricultural designation includes agricultural uses, secondary uses including home businesses and farm businesses, agriculture-related uses, single detached homes, forestry uses, licensed aggregate operations, among others.

One of the objectives of the Prime Agricultural designation is to promote agricultural uses and to protect normal farm practices.

Within the Prime Agricultural designation, known areas of high potential for mineral aggregate extraction are shown as an overlay on the land use schedule. The overlay for mineral aggregate areas only indicates that aggregate deposits are likely to be available; it does not presume that all conditions are appropriate to allow extraction or processing of the resource to proceed. The intention is to make as much aggregate resources available as close to the market as is realistically possible.

Therefore, policies within the County of Wellington Official Plan contemplate and direct mineral resource extraction to recognized Mineral Aggregate Areas within the Prime Agricultural designation.

With regard to the Provincial Policy Statement (2014), the following policy provides direction with respect to rehabilitation:

2.5.4.1 In prime agricultural areas, on prime agricultural land, extraction of mineral aggregate resources is permitted as an interim use provide that the site will be rehabilitated back to an agricultural condition.

Complete rehabilitation to an agricultural condition is not required if:

- a) *outside of a specialty crop area, there is a substantial quantity of mineral aggregate resources below the water table warranting extraction, or the depth of planned extraction in a quarry makes restoration of pre-extraction agricultural capability unfeasible;*
- b) *in a specialty crop area, there is a substantial quantity of high quality mineral aggregate resources below the water table warranting extraction, and the depth of planned extraction makes restoration of pre-extraction agricultural capability unfeasible;*
- c) *other alternatives have been considered by the applicant and found unsuitable. The consideration of other alternatives shall include resources of Canada Land Inventory Class 4 through 7 lands, resources on land identified as designated growth areas, and resources on prime agricultural lands where rehabilitation is feasible. Where no other alternatives are found, prime agricultural land shall be protected in this order of priority: specialty crop areas, Canada Land Inventory Class 1, 2 and 3 lands; and*
- d) *agricultural rehabilitation in remaining areas is maximized.*

It has been determined that the subject property is not comprised mainly of prime agricultural land. The proposed quarry will result in the extraction of a substantial quantity of mineral aggregate resources below the water table. Therefore, complete rehabilitation to an agricultural condition is not required.

Agricultural condition means:

- a) *in regard to specialty crop areas, a condition in which substantially the same areas and save average soil capability for agriculture are restored, the same range and productivity of specialty crops common in the area can be achieved, and, where applicable, the microclimate on which the site and surrounding area may be dependent for specialty crop production will be maintained or restored; and*
- b) *in regard to prime agricultural land outside of specialty crop areas, a condition in which substantially the same areas and same average soil capability for agriculture are restored. (Provincial Policy Statement, 38).*

8. SUMMARY AND CONCLUSION

James Dick Construction Limited has proposed to establish a mineral aggregate operation on Part of Lot 1, Concession 6 in the Township of Guelph/Eramosa, in the County of Wellington. The proposed quarry will extract above and below the water table without dewatering. Access to the quarry will be from Concession 6 to

Provincial Highway 7. The quarry will be rehabilitated to naturalized greenland area with two ponds, wetland systems and re-forested tablelands.

The subject property was previously designated for Rural Industrial uses in the Official Plan of Eramosa Township (1985). In addition, the property was identified as having and existing gravel pit operation. When the County of Wellington Official Plan replaced the Official Plan of Eramosa Township, the County of Wellington planning department confirmed that the subject property is mapped as part of the Mineral Aggregate Area. For over the past 30 years, the subject property has not been cultivated for pasture, forage or row crops and there has been no agricultural livestock or cultivation operations since these Official Plans were in force.

The following study findings have been based on the aforementioned assessment:

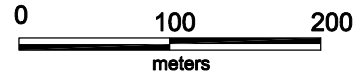
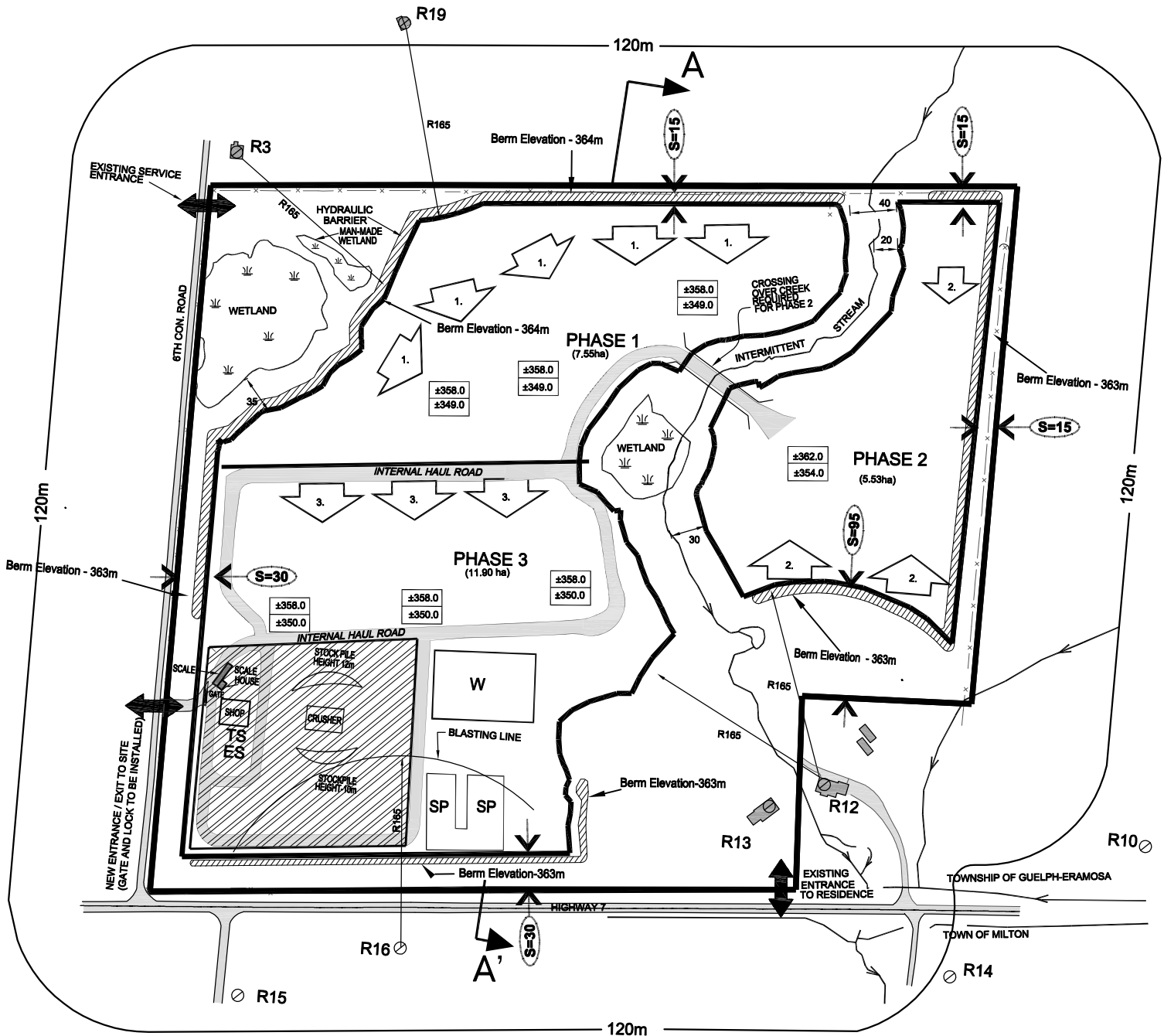
- The subject property is not located in a known specialty crop area,
- There is a substantial quantity of mineral aggregate resource below the water table warranting extraction,
- The subject lands are comprised mainly of lower capability agricultural soils,
- Complete rehabilitation to an agricultural condition is not required,
- The proposed mineral aggregate operation will not result in a loss of capital investment related to agriculture,
- The proposed mineral aggregate operation will not conflict with provisions of MDS 1 or 2, as MDS provisions do not apply,
- The proposed mineral aggregate operation will not affect the potential future expansion opportunities or existing farm practices of adjacent agricultural operations,
- Based on the extensive engineering reports, there is not anticipated to be any potential interference with normal agricultural activities and practices.
- Extensive technical recommendations have been implemented on the Site Plans to ensure that potential impacts are mitigated and monitored as necessary; and
- The proposed mineral aggregate operation is not anticipated to interfere with the movement of agricultural machinery on municipal roads.
- The applicant will complete improvements to the municipal road system. This will ensure that the roads are safe and accessible for agricultural machinery, trucks and automobiles in accordance with the accepted engineering standards.

Two agricultural operations have been closely considered: mushroom farm to the north and horse farm(s) to the east. The main concern related to the mushroom farm focuses on the potential for impacts related to dust. Design features are set out on the Site Plan, i.e. berm and vegetative screening, to mitigate impacts.

The closest horse farm to the east is set in an Industrial development. A zoning amendment, submitted by the landowner, will remove the equine facility. The main concern related to the horse farm is blasting. Given the large vegetated setback/buffer between the proposed quarry and the horse farm(s), blasting-related impacts are anticipated to be minimal. The potential for effects on the other horse farms located to the east/northeast have also been considered. Given the technical recommendations included within the blasting, hydrogeology, dust and noise reports, impacts on these adjacent horse farms are considered to be minimal.

It is important to note that an extensive monitoring program and a complaint protocol has been established to ensure that concerns from adjacent residents and farmers are quickly addressed.

In conclusion, Stovel and Associates Inc. have completed an Agricultural Impact Assessment of the proposed Hidden Quarry. Impacts on the agricultural resource base and on adjacent agricultural operations are anticipated to be minimal. Monitoring measures are implemented on the Site Plans to ensure that adjacent sensitive land uses and farm operations are not negatively affected by the mineral aggregate operation.



<p>JAMES DICK CONSTRUCTION LTD.</p>	<p>STOVEL and Associates Inc.</p>	<p>OPERATIONS</p>	<p>HIDDEN QUARRY PART OF LOT 1, CONCESSION 6 TOWNSHIP OF GUELPH-ERAMOSIA FORMER TOWNSHIP OF ERAMOSIA COUNTY OF WELLINGTON</p>	<p>FIGURE: A</p>
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