Walker Environmental Group Inc.

Southwestern Landfill Proposal

Approved Amended Terms of Reference

May 10, 2016

This consolidation consists of:

1. Walker Environmental Group Inc. Southwestern Landfill Proposal Terms of Reference; August 29, 2013.
2. Addendum May 10, 2016, consisting of:
    a. Terms of Reference - Notice of Approval, Environmental Assessment Act Subsection 6(4), Approval of Terms of Reference for the Preparation of an Environmental Assessment; March 17, 2016.
    b. Walker Environmental Group Inc. Southwestern Landfill Proposal – Addenda to the Approved Terms of Reference, Additional Commitments & Errata; May 10, 2016.

These Approved Amended Terms of Reference are also available on the project website, www.walkerea.com.

Walker Environmental Group Inc.
Southwestern Landfill Proposal

Terms of Reference

August 29, 2013

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(Submitted for information – not for approval by the Minister)

1. Introduction

An Environmental Assessment (EA) is proposed by Walker Environmental Group Inc. (WEG) for the '*provision of future landfill capacity at the Carmeuse Lime (Canada) Ltd. (Carmeuse) site in Oxford County for solid, non-hazardous waste generated in the Province of Ontario*'.

This document and its appendices together constitute the Terms of Reference for an Environmental Assessment by Walker Environmental Group Inc. These Terms of Reference are submitted for the approval of the Minister of the Environment for Ontario in accordance with Section 6. (1) of the *Environmental Assessment Act* whereby "*The proponent shall give the Ministry proposed Terms of Reference governing the preparation of an Environmental Assessment for the undertaking*".

This submission describes an environmental project and uses a number of terms and concepts that may not be familiar to some readers. For convenience, WEG provided a Glossary of Terms in Appendix A.

2. Identification of the Proponent

The proponent for these Terms of Reference is Walker Environmental Group Inc. (a subsidiary of Walker Industries Holdings Limited, also referred to more generally as "WEG" or "Walker" in this document as noted above). The contact information for WEG is provided in Table 1.

Table 1 – Proponent Contact Information

Company:	Walker Environmental Group Inc.
Contact:	Joseph P. Lyng P.Eng., MBA General Manager, Strategic Growth
Mailing Address:	P.O. Box 100 Thorold, Ontario L2V 3Y8
Phone:	905 680 3702
Fax:	905 680 1916
Email:	jlyng@walkerind.com

WEG has the knowledge, experience and capability to undertake this Environmental Assessment. It operates waste management facilities in Ontario, primarily in the Regional Municipality of Niagara. In Niagara, WEG has established an integrated waste management system for Ontario industrial, commercial and institutional (IC&I) customers as well as municipally managed wastes from the Regional Municipality of Niagara and other municipalities across Ontario. WEG provides a range of services including:

a) Landfill disposal capacity, currently at the South Landfill, which anchors and supports other parts of an integrated waste management system.

b) Residential and small business recycling, yard waste and waste drop-off (in partnership with the Regional Municipality of Niagara).

c) Composting for organic waste generated by the Regional Municipality of Niagara and elsewhere in Ontario.

d) Landfill gas collection that distributes the gas to help power a large local industry located in the adjacent community of Thorold Ontario, and to on-site electrical power generation in partnership with St. Catharines Hydro.

e) Haulage for waste, organics and recyclables.

f) Bio-solids management.

g) Landfill remediation in partnership with the city of Welland.

h) Waste Transfer which supports the Halton Region's waste diversion programs.

3. How the Environmental Assessment will be Prepared

These Terms of Reference are submitted in accordance with Section 6. (2)(c) of the *Environmental Assessment Act*, whereby *"The proposed terms of reference must … set out in detail the requirements for the preparation of the Environmental Assessment*", and Section 6.1(3) which permits an EA to consist of information other than the generic EA requirements contained in Section 6.1(2) of the *Environmental Assessment Act*.

In other words, these Terms of Reference set out a "focused" EA, as described in the Ministry of the Environment's (MOE) Code of Practice[1].

Notwithstanding the above, these Terms of Reference and the proposed EA together take into consideration all of the generic elements of an Environmental Assessment, as set out in the *Environmental Assessment Act*, namely:

6.1 (2) …the Environmental Assessment must consist of,

a) a description of the purpose of the undertaking;

b) a description of and a statement of the rationale for,

i) the undertaking,

ii) the alternative methods of carrying out the undertaking, and

iii) the alternatives to the undertaking;

c) a description of,

i) *the environment that will be affected or that might reasonably be expected to be affected, directly or indirectly,*

ii) the effects that will be caused or that might reasonably be expected to be caused to the environment, and

iii) the actions necessary or that may reasonably be expected to be necessary to prevent, change, mitigate or remedy the effects

[1] *Code of Practice, Preparing and Reviewing Terms of Reference for Environmental Assessments in Ontario, Ontario Ministry of the Environment, October, 2009, p.12.*

upon or the effects that might reasonably be expected upon the environment, by the undertaking, the alternative methods of carrying out the undertaking and the alternatives to the undertaking; and

d) *an evaluation of the advantages and disadvantages to the environment of the undertaking, the alternative methods of carrying out the undertaking and the alternatives to the undertaking; and*

e) *a description of any consultation about the undertaking by the proponent and the results of the consultation.*

The proposed EA will only differ from these generic requirements related to:

- Section 6.1(2)(b)(i), in as much as the "need" for the undertaking was previously established by WEG in the course of preparing these Terms of Reference, based on its commercial opportunities and its assessment of the need for future waste disposal capacity in the Province of Ontario. Further detail is presented in Sections 4 and 5 of these Terms of Reference, as well as in the Supporting Documents to these Terms of Reference which was prepared in consultation with interested public and Aboriginal Communities. As a result, WEG does not intend to further assess the need for additional Ontario waste disposal capacity in support of the rationale for the undertaking during this EA.
- Section 6.1(2)(b)(iii), in as much as "*the alternatives to the undertaking*" were considered in the course of preparing these Terms of Reference, and it was determined by WEG, in consultation with interested public and Aboriginal Communities, that there are no reasonable alternatives to the undertaking that merit further consideration in the EA aside from the "do nothing" alternative. Further justification is provided in Section 7 and the Supporting Documents to these Terms of Reference.

Two additional documents (Supporting Documents and the Record of Consultation) are submitted under separate covers and are intended to be read together with these Terms of Reference. These documents provide additional information relevant to the development of these Terms of Reference, but are required to be submitted for the approval of the Minister.

WEG believes that an Environmental Assessment carried out in accordance with these Terms of Reference will be consistent with the purpose of the *Environmental Assessment Act* as set out in Section 2, namely "*the betterment of the people of the whole or any part of Ontario by providing for the protection, conservation and wise management in Ontario of the environment.*"

These Terms of Reference have been prepared following extensive consultation with interested parties, including government agencies, Aboriginal Communities and the public who are potentially affected, as required by Section 6. (3) of the *Environmental Assessment Act*. A Record of Consultation has been prepared to accompany these Terms of Reference and provides details of the consultation program. Section 10 of these Terms of Reference contains a detailed plan to continue consultation activities with interested parties throughout the EA.

4. Purpose of the Proposed Undertaking

The purpose of this Environmental Assessment is based on the following analysis of problems and opportunities, and is supported by research carried out by WEG in consultation with its interested parties.

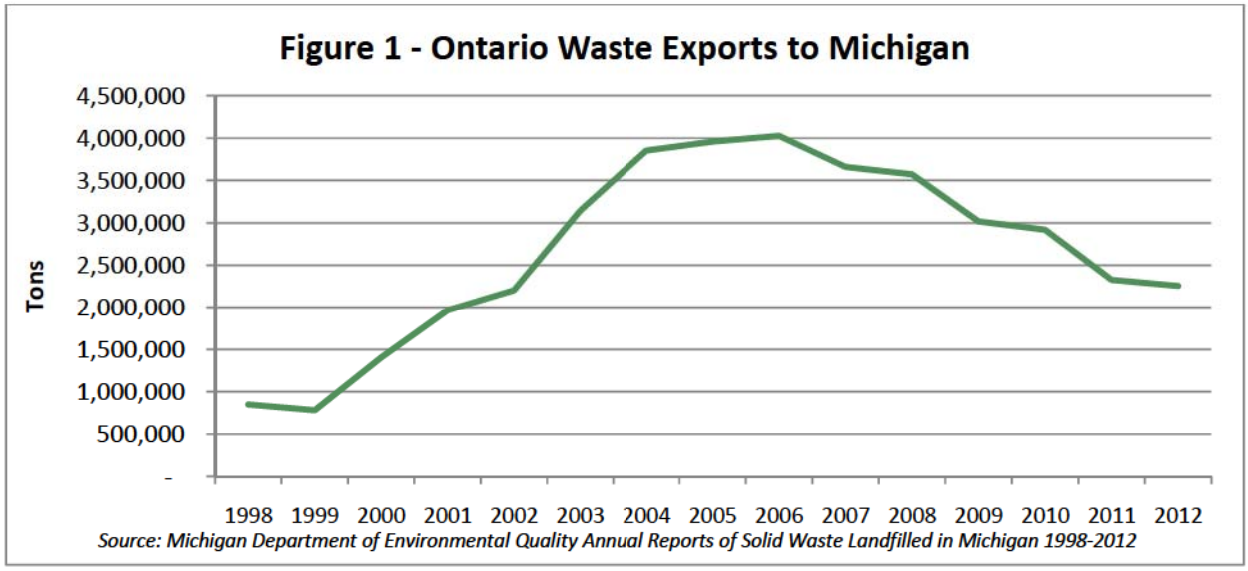
A sustainable waste management system has many components that must work together to provide the safe, reliable and economically sound management of the residual waste There is little doubt that a sustainable waste management system will include programs to reduce, reuse and recycle the wide variety of waste materials produced by Ontario's growing population. These programs can offer unique benefits including resources conservation, environmental protection and support economic development.

However, it is important to recognize that a sustainable waste management system must be supported by safe, reliable and economical disposal facilities. Although Ontario has made significant progress in waste diversion and recycling over the past decades, its waste disposal infrastructure has been consumed to the point where Ontario currently has a significant shortage of waste disposal capacity. Landfills across southern Ontario have been filling up with very little replacement capacity being approved through expansions or the development of new sites. The Association of Municipalities of Ontario notes that between 1989 and 2011, 649 of Ontario's 730 landfills have closed with fewer than 10 landfills being opened during the same time period.2

As the disposal capacity in Ontario is consumed, we become more reliant on disposal sites in the United States to support our waste management systems. Figures from the States of Michigan and New York show that we send close to three million tonnes of solid waste to these two states annually. In fact, statistics compiled by the State of Michigan show that Ontario has shipped 39.9 million tons (36.3 million tonnes) of waste to that state over the past 15 years for an average of 2.6 million tons (2.4 million tonnes) annually. Waste exports to Michigan are shown graphically in Figure 1. In addition, New York State estimates Ontario exports an additional 900,000 tons (818,000 tonnes) of waste annually to their state for disposal.3 Of this volume, WEG estimates approximately 400,000 tonnes originated from southern Ontario.

[2] ***Creating Greener Choices and Less Garbage - Waste Diversion Backgrounder,*** *Association of Municipalities Ontario, June 2013.*

[3] ***Beyond Solid Waste – A Sustainable Materials Management Strategy for New York State,*** *New York State Department of Environmental Conservation, December 27, 2010, pg 223.*



WEG conducted a detailed analysis of Ontario's waste disposal deficit prior to initiating the EA process for this proposal. WEG's analysis shows that without new waste disposal capacity, the waste disposal deficit in Ontario is expected to grow, causing Ontario to become even more reliant on landfills in the United States to manage its wastes. This deficit will continue to grow even if Ontario achieves significant progress in its waste diversion programs. The detailed analysis of Ontario's waste disposal deficit can be found in the Supporting Documents.

Since one of WEG's businesses is the supply of safe and reliable waste disposal services to public and private sector customers in Ontario, the waste disposal deficit represents an opportunity to grow our business. Recognizing that a new landfill in Ontario will require approval under the *Environmental Assessment Act*, WEG started a systematic process of identifying a suitable site for a new modern landfill operation. The preferred site would have a number of attributes that would help WEG establish and maintain a competitive advantage in the Ontario market and provide a sound foundation for a site that could be developed safely and in a way that protects the environment. The criteria included:

Size

When identifying potential sites for a landfill development, WEG determined that a site must have an area of at least 80 hectares (200 acres) to accommodate the fill area and the minimum regulatory buffer. The most desirable site would include control of as much land as possible within 500 m of the fill area to allow for additional buffer.

Location

Many industrial operations establish a competitive advantage by locating their facilities close to their customers and suppliers. These operations have lower costs and environmental impacts associated with transport of materials and products. WEG determined that the most desirable site will be located approximately 150 km from the intersection of Highways 400 and 401. This location represents the approximate centre of waste generation in Ontario.

Transportation Infrastructure

Successful industrial facilities are serviced by well established transportation networks. These networks enable products and supplies to be economically delivered to the facility on a continuous basis. The most desirable site will be located along the major highway corridors. Secondary access to the site would be via major arterials that are designed to accommodate the anticipated truck traffic. Ideally, the access route(s) would pass through few population centres.

Electrical Infrastructure

Successful industrial facilities are serviced by a well established electrical infrastructure. The electrical infrastructure provides the reliable power needed to operate the equipment used within the facility. In the case of a landfill, it may also provide an outlet for electricity generated by the combustion of landfill gas. The most desirable site will have access to a major transmission line.

Watercourse Access

A landfill must manage surface water and leachate. A municipal sewage system or major watercourse is needed to provide discharge options for surface water and treated wastewater. The most desirable site will have direct access to a major watercourse or a municipal sewer system.

Environmental Considerations

Every candidate site will have environmental characteristics that must be evaluated and protected during the development process. Some areas should be avoided because they have legal restrictions that prohibit landfill development or are environmentally sensitive. These areas include greenbelts, the Niagara Escarpment Commission lands, wetlands, conservation areas and areas of scientific or natural interest (ANSIs).

Other Considerations

When locating a landfill site, the most desirable locations will avoid areas that:

- Are located on Class 1 agricultural lands
- Are located within 8 km of any federally regulated airfield
- Have conditions that trigger a federal Environmental Assessment process

The selection criteria were entered into a Graphic Information System (GIS) to help identify areas of the province that could support the development of a new landfill. WEG reviewed the potentially suitable areas in greater detail to identify candidate sites that could support a modern non-hazardous waste landfill. This detailed review of the candidate areas revealed that the Beachville Operation of Carmeuse Lime (Canada) Ltd. (Carmeuse) met the criteria that could support a new landfill site. Specifically, this location is suitable because it:

- Is of appropriate size to accommodate a modern landfill and any ancillary operations
- Is located relatively close to future market areas
- Is well served by transportation infrastructure
- Is well served by electrical infrastructure

- Has a major watercourse in relative close proximity
- Does not include any of the environmental criteria noted above
- Establishing a landfill in a mined quarry will not displace existing agricultural activities
- It is not with 8 km of a federally regulated airfield
- It does not appear to have conditions that would trigger a federal Environmental Assessment

WEG contacted Carmeuse to determine whether they were interested in allowing Walker to develop a landfill and other environmental businesses at their Beachville Operation. After many months of complex negotiations, Walker secured the development rights to the site. Although the details of the agreement are commercially confidential, the agreement included three key features:

- WEG has rights to develop environmental businesses including a landfill on the land associated with Carmeuse's Beachville Operations.
- The environmental businesses cannot interfere with Carmeuse's lime manufacturing operations.
- WEG is responsible for licensing, construction, operation, maintenance, closures, post-closure care and environmental liabilities associated with any environmental business.

Licensing and operating a modern landfill at this location will be a complex process that requires coordination between WEG and Carmeuse operations. The Southwestern Landfill proposal will be evaluated on a 'cumulative' effects basis. This means that any environmental analysis will be based on the combined effects of both the existing Carmeuse operations and any new WEG operation(s). WEG will apply the experience gained through licensing and operating its South Landfill in the Niagara Falls Ontario. Similar to the Carmeuse site, the South Landfill is being developed in a mined quarry and has an active quarry operation immediately adjacent to the site.

4.1 Problem Statement

The Province of Ontario is projected to have a continuing shortfall of landfill capacity for the next several decades, especially for industrial, commercial and institutional wastes generated in the population centres of central and southwestern Ontario.

a) Ontario continues to have a substantial net deficit of disposal capacity for residual wastes generated in the province, as evidenced by the ongoing export of millions of tonnes of waste to Michigan and New York State each year for disposal.

b) The deficit is especially a concern for industrial, commercial and institutional wastes generated in the population centres of central and southwestern Ontario.

c) Long-distance waste haulage results in increased fossil fuel usage and greenhouse gas emissions.

d) Relying on waste exports to another country creates the risk of a disposal crisis should the border be closed due to emergencies or a political mandate, given the lead time necessary to approve and prepare replacement waste disposal capacity in the province.

4.2 Opportunity Statement

Walker Environmental Group Inc. has the opportunity to develop new waste disposal capacity outside the Region of Niagara. This capacity can be developed concurrently with an existing industrial use on land located in Oxford County, Ontario.

a) Carmeuse Lime (Canada) Ltd. owns and operates a major industrial lime quarry and manufacturing plant on a large tract of land north of Highway 401, east of Ingersoll, Ontario. An engineered landfill can be developed in the depleted portion of the quarry.

b) WEG has a business opportunity to develop a landfill at this site to dispose of solid, non-hazardous waste generated in Ontario, particularly those which are currently being exported to the USA.

c) A landfill at this site could provide local waste management services to the citizens and businesses in Oxford County and other neighbouring municipalities.

d) WEG has the technical, construction and financial expertise to design, build, operate and close a landfill at this site in a safe and environmentally responsible manner, and has access to the marketplace to attract appropriate waste to the site. WEG has developed successful landfill and waste management operations in similar quarry settings, most notably a cluster of connected businesses that have evolved over several decades to become a waste management campus enabled by adjacent landfill operations in the Region of Niagara.

e) A landfill at this location will establish a second Ontario business hub for WEG, outside of the Niagara Region.

f) A landfill site at this location could provide the cornerstone for a waste management campus that may include other waste management businesses that benefit from proximity to a landfill, and would be subject to future approvals, such as recycling, composting, waste-to-energy, and biosolids processing; and thereby contribute to further increases in provincial waste diversion rates, and spur further investment in waste management research and education.

g) WEG's business investment could stimulate economic development in a community and create employment in the local municipalities.

h) A landfill site at this location could make use of existing industrial infrastructure such as power, water supply, and haulage routes.

i) Many construction materials required for landfill development are already available on-site as a by-product of the existing quarry and lime operation, such as liner sub-grade and sidewall backfill from the excess overburden soils, and construction aggregates from the limestone quarry.

j) Green energy produced from landfill gas could be fed directly to the lime manufacturing plant, displacing fossil fuels.

k) The eventual rehabilitation and end-use (e.g., agriculture, green-space, recreation) of the landfill could be made compatible with, and complement, those of the surrounding quarry.

l) The proposed landfill presents educational opportunities for local schools, colleges and Aboriginal Communities through partnerships in research and development, and environmental monitoring, similar to those created by WEG in the Niagara Region.

4.3 Purpose Statement

WEG's analysis of the problems and opportunities has resulted in the following purpose statement for the Environmental Assessment:

> ***The provision of future landfill capacity at the Carmeuse Lime (Canada) Ltd. site in Oxford County for solid, non-hazardous waste generated in the Province of Ontario.***

This purpose statement will be refined, if required, as the EA planning process proceeds in consultation with government agencies, Aboriginal Communities and interested members of the public. The final purpose statement will be presented in the EA.

5. Rationale for / Description of the Proposed Undertaking

5.1 Rationale for the Undertaking

WEG made a business decision to proceed with this environmental assessment, based on its evaluation of the Ontario waste management marketplace that forecasts a substantial deficit of waste disposal capacity in the province (Supporting Document) and on a commercial opportunity to lease industrial land from Carmeuse Lime (Canada) Ltd. in the County of Oxford. The deficit of waste disposal capacity in the province and the opportunity at this site form the basis for the preliminary description of the undertaking presented below.

The rationale for proceeding with the undertaking will be developed and presented in the EA based on an assessment of its advantages and disadvantages to the environment, in consultation with government agencies, Aboriginal Communities and interested members of the public.

5.2 Preliminary Description of the Undertaking

The following description of the proposed undertaking is preliminary and will be refined, as necessary, as the EA planning process proceeds. The EA will contain a detailed description of the undertaking.

The proposed landfill is to be located on a portion of Carmeuse's landholdings at its Beachville Operations in Oxford County. Specifically, Carmeuse's Beachville Operations located at 374681 37th Line (Oxford County Rd 6) in the Township of Zorra. The location of the Carmeuse Beachville Operations is shown in Figure 2 while the major portions of these lands are provided in Figure 3.

Figure 2: Location of Carmeuse Lime (Canada) Ltd. Landholdings in Oxford County

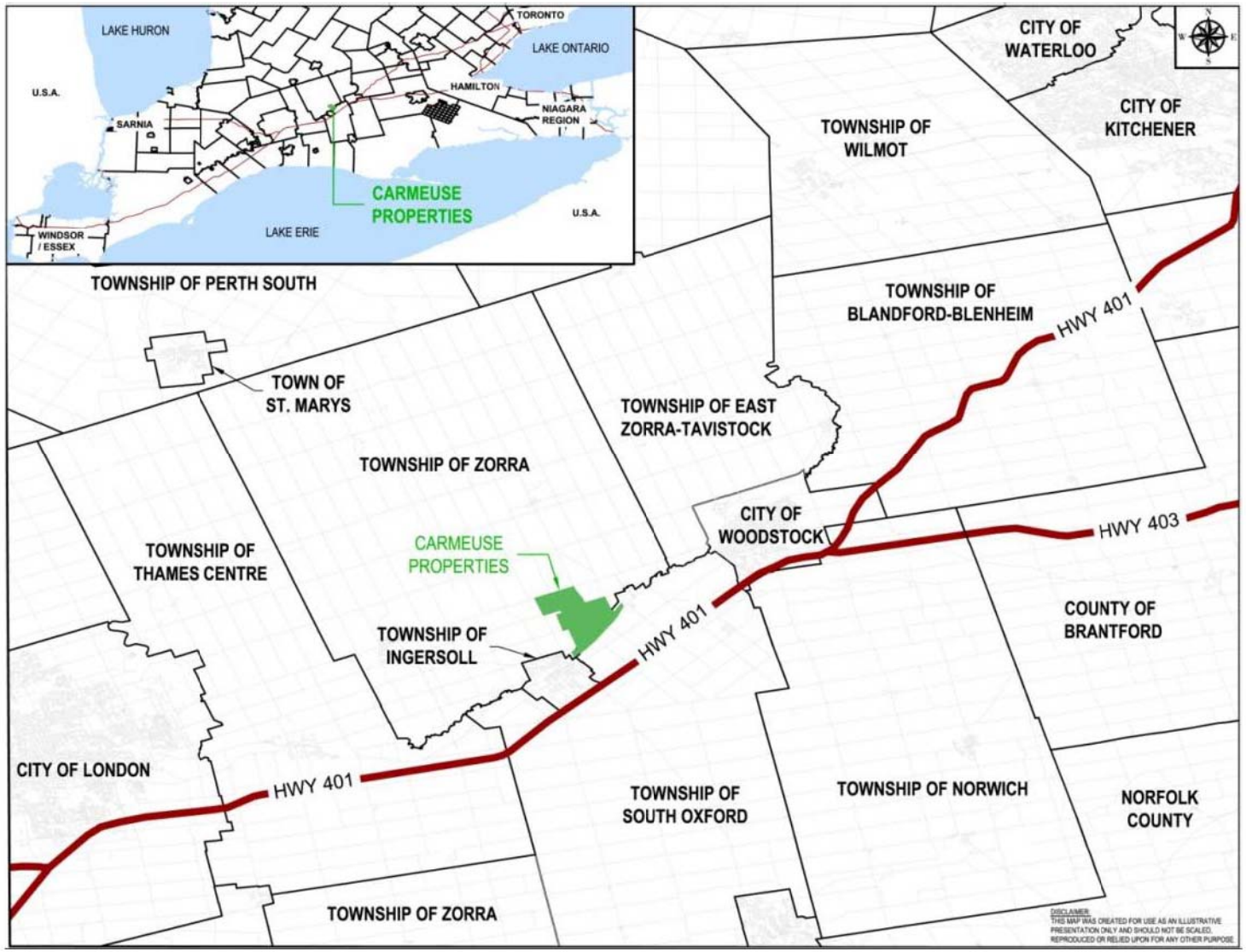
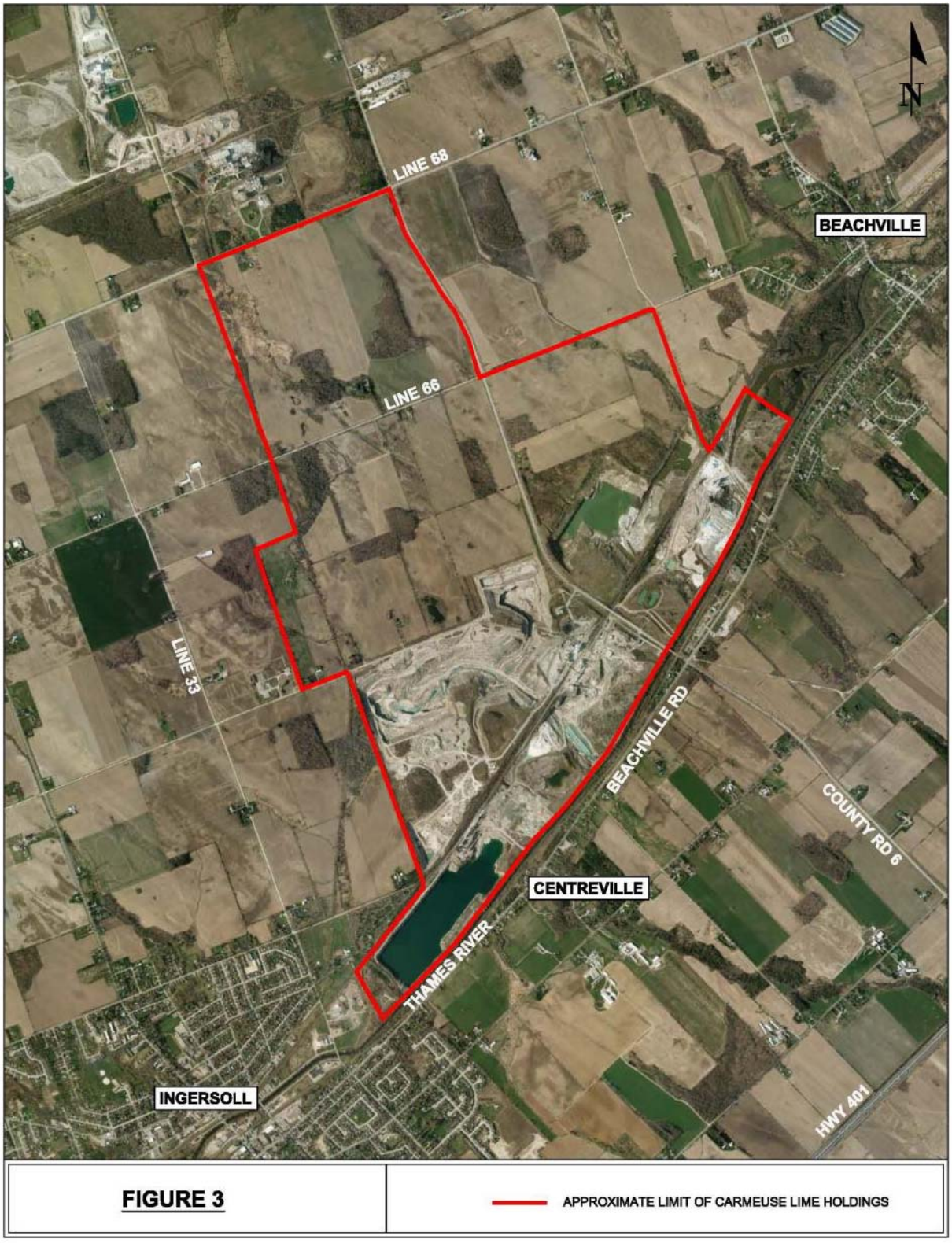


Figure 3: Carmeuse Lime (Canada) Ltd. Landholdings in Oxford County



Although the landfill footprint within the Carmeuse property will be considered during the EA, WEG provided a potential "footprint" location for the proposed landfill in Figure 4 for illustrative purposes. This potential footprint facilitates consultation with interested parties by providing the scope of the undertaking but should not be considered the final configuration of any site. The potential footprint location is in a part of the site where limestone quarrying is in progress. The landfill would occupy the completed quarry area after Carmeuse has removed the limestone that is of suitable quality for lime manufacturing and has backfilled all or a portion of the mined quarry.

The proposed waste quantities to be examined in the environmental assessment are up to 850,000 tonnes *per* year of solid, non-hazardous waste generated in Ontario, with an additional requirement for daily cover material. This volume translates into a truck traffic volume of approximately 100 inbound trips per day. The estimated total waste volume is about 17 million cubic metres over a planning period of approximately 20 years.

The landfill will be designed, operated, closed and maintained in accordance with the requirements of Ontario Regulation 232/98 (the Landfill Standards) under the *Environmental Protection Act*.

An engineered liner and leachate collection system will be constructed in the base of the landfill in order to contain and collect leachate and thereby protect surrounding groundwater and surface water. Alternative designs for the landfill, liner/leachate collection system and leachate treatment system that meet the requirements of the Landfill Standards will be considered in the EA.

Alternative designs will be identified and evaluated during the EA process. However, the alternatives will include the "generic" design for a liner and leachate collection system set out in the Landfill Standards. The generic design consists of a primary system including a layer of crushed stone and piping to collect leachate, underlain by both synthetic and clay liners to contain the leachate in the landfill. The primary system is underlain by a secondary system of similar construction.

The leachate from the site will be treated before being discharged to the environment. Alternatives for leachate treatment will be identified and evaluated during the EA.

A buffer area, where waste will not be deposited, will be provided around the landfill for the purposes of access, monitoring, contingency measures, etc. The dimensions of this buffer area will be established in conjunction with the design during the EA.

The site will include access roads and an area where material arriving at the site can be weighed and inspected. The location of these roads and weighing/inspection facilities will be identified and evaluated during the EA process.

The landfill will be constructed and filled concurrently in a series of cells. The waste will be unloaded from trucks at the "tipping face", spread with bulldozers, and compacted with heavy machinery, where necessary. At the end of each day's operation, waste will be covered with appropriate materials.

The site operation will include an environmental monitoring program designed to evaluate the effectiveness of the environmental controls at the site. Although the specifics will emerge through the EA process, they will include programs related to groundwater, surface water and air quality. Annual monitoring reports will be submitted to the province and made available for interested parties.

Procedures will be in place during the construction and operation of the landfill to control off-site effects related to blowing dust and litter, noise, visibility, birds and other vermin, and odours.

A gas collection system will be installed in the landfill. Gas produced by the landfill may be combusted in a flare or put to some beneficial use. Alternatives for gas management will be considered in the EA.

Once each section of the landfill reaches its final grade (height), a final cover will be applied in compliance with O. Reg. 232/98. Completed sections of the landfill may be used for compatible land uses. Possible land uses will be identified during the EA process.

Precipitation falling on the landfill site will be segregated. Clean water that has not come in contact with the waste will be drained through a storm water management system to remove any sediment, and then discharged off-site once its quality is suitable or possibly used for environmental controls on-site. Any precipitation that has come in contact with the waste will be collected separately and treated with the landfill leachate.

When the landfilling is complete, the post-closure care period begins. During this time all of the systems necessary to manage and monitor leachate and landfill gas will continue to be maintained and operated for as long as they have the potential to contaminate the environment.

As a private sector proponent, WEG will be required to supply financial resources to the Ontario government for contingency plans, closure and post-closure care. This 'financial assurance' guarantees the province has sufficient money to address environmental issues that may arise at the site should WEG be unable to address them. The formulas for calculating financial assurance are set out in O. Reg. 232/98.

6. Environment Potentially Affected by the Undertaking

6.1 Preliminary Description of the Environment

The following is a preliminary description of the environment that could potentially be affected by the undertaking. It has been prepared for context, and to assist with the development of the appropriate criteria and studies included in Appendix B to these Terms of Reference. The information in this section is not intended to be exhaustive. Additional details on the environment that could be affected will be gathered and/or developed by the technical experts in consultation with interested parties including the local community and Aboriginal groups during the EA process.

The Environmental Assessment will include a further evaluation of the environment potentially affected by the undertaking, as required in accordance with Section 6.1(2)(c) of the *Environmental Assessment Act*.

For the purposes of these Terms of Reference, and for the subsequent environmental assessment, the broad definition of the "environment" is adopted in accordance with Section 1(1) of the *Environmental Assessment Act*. As indicated in Section 1(1)(f) of the *Environmental Assessment Act*, this includes any

part or combination of elements of the environment and the interrelationships between any two or more of these elements.

The ***lands*** potentially available to be leased by WEG for the proposed landfill are a portion of those owned by Carmeuse Lime (Canada) Ltd. at the Beachville Operations in Oxford County (see Figure 3). Parts of this land are currently in industrial use by Carmeuse as a limestone quarry licensed under the *Aggregate Resources Act*. A potential "footprint" location for the proposed landfill is shown in Figure 4 for illustrative purposes. Alternative footprint locations on the Carmeuse property will be considered during the EA. The potential footprint location is in a part of the site where limestone quarrying is in progress. The landfill would occupy the completed quarry after Carmeuse has removed all of the limestone that is of suitable quality for lime manufacturing.

A mix of industrial, institutional, rural residential, general agricultural uses and transportation corridors characterizes the existing built landscape at the Carmeuse site and the surrounding area. The Carmeuse property itself contains several quarries at various stages of development along with lime processing plants. The property has been used for industrial limestone quarrying since the late 19th century. The other lands owned by Carmeuse, generally to the north of the current quarries, remain in agricultural or rural uses. Some of this land is currently licensed under the Aggregate Resources Act for future extraction, while other portions may represent future extraction opportunities.

Agriculture

The lands around the potential site have extensive agricultural operations. Although most of the agricultural activities relate to field crops (typically corn, soybeans and wheat), there are livestock operations in the area including:

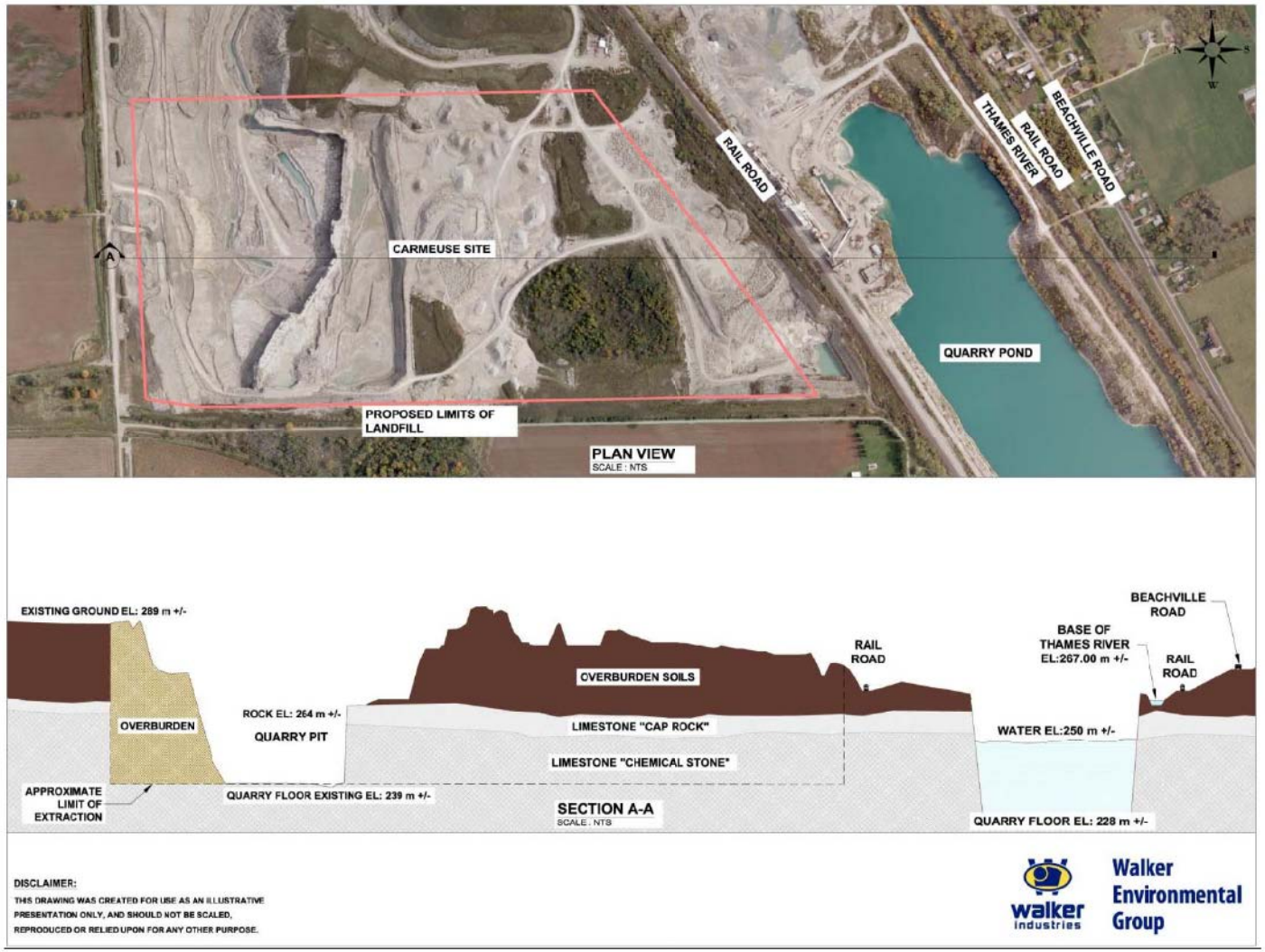
- A pig farm approximately 2 km to the northwest
- An active dairy operation approximately 1.5 km to the south
- A horse breeding and boarding operation 800 m to the southeast
- Poultry operations approximately 1.5 km to the south

Air Quality

The air quality in the area is currently affected by a mix of land uses. Dust, noise and odour sources include quarry operations, lime and cement plant operations, traffic (Highway 401, County and local roadways), agricultural operations, and urban activities.

The Province of Ontario has historically noted issues with air quality in this area, particularly related to dust. Approximately 10 years ago, the local lime and cement industries in consultation with the MOE implemented a voluntary air quality monitoring program. Air quality monitoring has continued until the present. Although the MOE has expressed concern over the quality of some of this data, the results from this monitoring program will be reviewed by WEG, and if appropriate and with MOE consent, may be used to establish background air quality standards (subject to approval by the MOE).

Figure 4: Potential Landfill Footprint/Schematic Cross Section



Archaeology

The Thames River was used as a major transportation corridor by Aboriginal Communities and early settlers of Oxford County. Although there may be significant archaeological resources in portions of the Thames Valley, the lands in and around the quarry site have been channelized and quarried for over 100 years. Consequently, the site is highly disturbed and may not have significant archaeological potential.

Culture/Heritage

The pre-build heritage of the area dates back over 11,000 years. The Thames River valley has been continuously occupied during this period by a variety of Aboriginal peoples from the Iroquois and Ojibwa. These people used this area for hunting, gathering and agriculture activities. They also relied upon the Thames River as a major transportation corridor. Several Aboriginal communities were identified as having interests in this area either by treaty or through traditional uses. These groups include both Iroquois and Ojibwa communities from Brantford to the Windsor area. Additional detail on the Aboriginal consultation program is included in Section 10.3.

The area around the proposed site was initially settled by Europeans in the late 1790s. The settlers found the area to be a rich agricultural area capable of supporting many activities, particularly dairy operations. Limestone quarrying began in this area in the late 1800s with lime production beginning in the late 1920s. Towns and settlements grew to support the growing agricultural and industrial activities.

The site is located within Oxford County. Oxford County currently has a population approaching 100,000 and operates under a two-tier government structure. The County takes the lead on issues that cross municipal boundaries such as land use planning, waste management, water and wastewater treatment, arterial roads, community health and social assistance. The Towns and Townships focus on local issues such as roads, water distribution, wastewater collection, parks and emergency services.

The proposed site is located in the southern portion of Zorra Township. Zorra is a predominantly rural community with a population of 8,125.

The site is located approximately 500 m from the border of the Township of South West Oxford. South West Oxford is also a predominantly rural community. Its population is approximately 7,500.

The Town of Ingersoll, located approximately 1 km east of the site became an agricultural centre with a specialty in cheese production. Ingersoll has grown to be an urban centre with an economy based on automotive manufacturing and agriculture. It remains the largest community around the site with a population approaching 12,000.

The community of Centreville is located approximately 1 km south of the site. Historically, Centreville was home to mills to process lumber and grain from local farmers. The community is currently a residential area. A mill pond remains at its centre as a recreational feature.

Beachville is a community of approximately 900 people located 2 km east of the site. Although there are some commercial operations in Beachville, it is primarily a residential settlement. Beachville was initially settled in the late 1700s and was the host to the first recorded baseball game.

Ecology

The plant life on and around the site is dominated by agricultural fields or residential lawns and gardens. There are woodlots and hedgerows in the vicinity and along the Thames River. As this stretch of the Thames River is a transitional area between the Carolinian and Great Lakes-St. Lawrence forests, the aquatic and terrestrial plants in and around the proposed site are expected to reflect traits associated with these floristic classifications.

The Thames River valley is home to a wide variety of animal species. As with the flora, the fauna in and around the site is expected to be influenced by both the Carolinian and Great Lakes-St Lawrence forests. The Thames River and its tributaries provide habitat for many species including fish[6], insects, mussel species[6], reptiles and amphibians. Other animals including birds and mammals may use the river and tributaries as a migration corridor or find habitat in the woodlots and hedgerows on and around the site.

Species of concern within this reach of the Upper Thames River include the Canada Warbler, the Rapids Clubtail Dragonfly, the American Badger, the Snapping and Spiny Softshell turtles, as well as the Rainbow and Round Pigtoe mussels.[6]

Economic

The economy of the area around the site is diversified with a mix of agriculture, industrial and service activities. Located within less than a half hour drive from London and a 1 hour drive to Hamilton and Kitchener-Waterloo area, the communities around the site have a number of people who commute in and out of the area for employment.

Geology

The site lies in the physiographic region of southwest Ontario known as the Oxford till plain[7]. The surface soils consist of the Guelph loam deposit, underlain for the most part by rather substantial thicknesses of glacial till (e.g., typically up to about 30 m thick at the Carmeuse site, but thinning southwards into the Thames River valley). This till is generally silty in texture but can vary widely in places to include various amounts of clay, sand, and gravel as well. The underlying bedrock is limestone of the Lucas Formation, which is up to about 30 m thick in the vicinity of the Carmeuse property, where the rock is being quarried for lime production.

A geological Area of Natural or Scientific Interest (ANSI) is located in a mined quarry immediately south of the active quarry.

Groundwater

Groundwater is the primary source of potable water for the communities in the area. The Town of Ingersoll relies upon community wells operated by Oxford County. The wells supplying Ingersoll are protected by a Source Water Protection Plan developed by the Thames-Sydenham Source Protection Committee. The well nearest to the proposed site (Well 8) is located approximately 1 km west of the Carmeuse property boundary. The well head protection zone for this well extends north and west of the well, away from the Carmeuse property.

[6] *Upper Thames Conservation Authority, 2012. South Thames 2012 Watershed Report Card*
[7] *Chapman, L.J. and Putnam, D.F., 1984. The Physiography of Southern Ontario. Third Edition. Ontario Geological Survey.*

People outside the Town of Ingersoll rely upon dug or drilled wells for domestic and agricultural supplies.

The local groundwater is recharged by infiltration and seepage into the surface soils (collectively referred to as overburden). The groundwater in the overburden then moves laterally though the soils or vertically into the underlying bedrock. The Thames River valley is a discharge point for some of the groundwater flowing within the overburden layers, and as a result, groundwater in the overburden tends to follow the land contours, flowing towards the river valley.

The natural flow of groundwater within the bedrock in the area is generally from the north to the south (toward Lake Erie). However, groundwater flow on and around the site has been affected by dewatering operations that facilitate quarry operations. Carmeuse actively dewaters groundwater from its quarries (under permits issued by the Province of Ontario), thereby intercepting and collecting some of the bedrock groundwater flow (along with precipitation captured in the quarry). Carmeuse then discharges it overland into the Thames River. As a result, the quarry floor is mainly dry despite being below the original, natural groundwater table level in the area which is estimated to be 40-45 m below the ground surface.

The lands in and around the active quarry have been identified by the Upper Thames Region Conservation Authority as areas having a highly vulnerable aquifer because of Carmeuse's quarrying and dewatering operations.

Surface Water

The southern limit of the site is bordered by the South Branch of the Upper Thames River. This watershed has a total area of approximately 24,410 hectares and a 15-year average flow of 6.1 m^3/second[8]. The flow of the Thames is augmented by the Pittock Dam/Reservoir in Woodstock.

The Thames River was included in the Parks Canada Canadian Heritage River System (CHRS) in 2000. The Upper Thames River quality was characterized in 1998 in preparation of the CHRS designation[9].The Upper Thames tends to have medium turbidity (a measure of 'cloudiness') with a slightly alkali character attributed to the limestone bedrock. It also tends to be nutrient rich with elevated levels of nitrogen and phosphorus compounds that accompany agriculture and urban runoff. This runoff and sewage treatment discharges from both upstream and downstream sources also tend to produce elevated bacteria levels. Although 15 years old, this characterization is consistent with the South Thames 2012 Watershed Report Card published by the Upper Thames Conservation Authority.

The lands in the proposed landfill footprint (see Figure 4) lay at a surface elevation at or around 294 metres above sea level (mASL) prior to quarrying taking place. The land slopes gently to the south and west, into the south branch of the Thames River valley which lies at an elevation of about 267 mASL at the river and receives surface water drainage from the adjacent lands. Surface water is pumped by Carmeuse from the quarry floor at an elevation of approximately 238 mASL up into the Thames River, under approvals from the Province of Ontario. Figure 4 is a schematic cross section illustrating the general relationship of the local topography, quarry and river valley.

[8] *Upper Thames Conservation Authority, 2012. South Thames 2012 Watershed Report Card*

[9] *Thames River Background Study Research Team, 1998. A Background Study for Nomination Under the Canadian Heritage Rivers System pg 18-19*

Transportation

Vehicle traffic in the area moves on a well-established network of provincial highways, arterial roadways and local streets. Trucks accessing Carmeuse's quarry and lime plant primarily use County Road 6 (Folden's Line) to access Highway 401 (approximately 2 km south of the site) or to travel north toward Stratford.

Accidents and weather conditions close Highway 401 from time-to-time. When the highway closes, traffic is diverted onto designated Emergency Detour Routes. In the area between Exit 216 (Harris St Ingersoll) and Exit 230 (Sweaburg Rd) the EDRs are located on arterial roads south of the highway. Within Woodstock, between Exits 230 and Exit 238, the EDRs pass north of the highway along major urban roads.

Two major railway lines pass along the southern portion of the site. There are no federally regulated airports within 8 km of the site. The London International Airport is approximately 20 km west of the site.

6.2 Study Areas & Durations

For the purposes of assessing the potential effects of the proposed undertaking, the **study areas** will be defined by the experts responsible for assessing the potential effects of the proposal on a variety of technical criteria including groundwater, surface water, air quality, socio-economic impacts and ecology. These study areas will be generally centred on the Carmeuse Lime (Canada) Ltd. landholdings in Oxford County as shown in Figure 2.

Three principal ***study areas*** are proposed:

On-Site and in the Site Vicinity:	*On-site* includes the proposed waste disposal facility plus the associated buffer zones. *Site vicinity* is the area immediately adjacent to the waste disposal facility property that is directly affected by the on-site activities. Its size is variable depending on the particular criteria being addressed.
Along the Haul Routes:	The primary route along which the waste disposal facility truck traffic would move between a major provincial highway and the proposed waste disposal facility site entrance, plus the properties directly adjacent to these roads.
Wider Area:	The broader community, generally beyond the immediate site vicinity. Depending on the particular criteria this may include neighbourhoods, local municipalities, the Oxford County, or the Province of Ontario.

Further rationale for the study areas is contained in Appendix B to these Terms of Reference. In particular, the EA Criteria tables included in Appendix B indicate which of these three general study areas are proposed to be addressed for each of the 41 individual criteria.

The boundaries of these study areas are not intended to be fixed; each technical discipline will identify which of these study areas are related to the effects being evaluated, and the extent of the associated study area(s). Figure 5 depicts initial estimates of the *On-Site and in the Site Vicinity*, and the *Along the Haul Routes* study areas using the potential landfill footprint. (Note: The *Wider Area* study area is not

easily depicted on a map since it can extend province-wide for some criteria.) It should be noted, though, that these preliminary study areas are for illustration purposes only and are subject to further refinement during the EA (e.g., following the assessment of alternative methods). The final study areas will be refined during the EA process in consultation with government agencies, Aboriginal Communities and interested members of the public.

WEG also proposes to explicitly examine the ***duration*** (or time frames) in which potential environmental effects can occur. There are two key periods that will be evaluated in this assessment:

Operational Period	The time during which the waste disposal facility is constructed, filled with waste, and capped. These activities are combined since they occur progressively (i.e., overlap) on a cell-by-cell basis, and they have a similar range of potential effects because of things like heavy equipment on site and active landfill operations.
Post-Closure Period	The time after the site is closed to waste receipt and final cover is applied. Activities are normally limited to operation of the leachate and gas control systems, routine property maintenance and monitoring, and thus have a more limited range of potential effects.

Note that in this EA, the *Operational Period* includes the landfill construction as well, since they will be concurrent.

Further rationale for the study durations is contained in Appendix B to these Terms of Reference. In particular, the EA Criteria tables included in Appendix B indicate which of these two study durations are proposed to be addressed for each of the 41 individual criteria.

Figure 5: Preliminary Study Area(s) Map

6.3 Potential Effects on the Environment

The EA will examine the potential effects of the alternatives and the undertaking on all components of the environment. The EA will examine the actions necessary to prevent, change, mitigate or remedy any negative environmental effects. The examination of the potential effects and mitigation measures will be conducted in consultation with government agencies, Aboriginal Communities and interested members of the public.

In developing these Terms of Reference, WEG considered the potential effects of its proposed landfill based on the broad definition of the "*environment*" defined in Section 1.(1) of the *Environmental Assessment Act*:

a) Air, land or water;
b) Plant and animal life, including human life;
c) The social, economic and cultural conditions that influence the life of humans or a community;
d) Any building, structure, machine or other device or thing made by humans;
e) Any solid, liquid, gas, odour, heat, sound, vibration or radiation resulting directly or indirectly from human activities; or,
f) Any part or combination of the foregoing and the interrelationships between any two or more of them.

Appendix B to these Terms of Reference contains a table listing 41 criteria that describe potential effects on the environment in detail. These criteria are based on the MOE Guidelines Manual and organized into four major groups, each of which reflects similar or related environmental effects:

- Public Health and Safety
  The potential for an effect directly related to the proposed landfill to impact the health and safety of people within the study areas.
- Social and Cultural
  The potential for an effect directly related to the proposed landfill to impact 'quality of life' issues of communities within the study areas.
- Economics
  The potential for an effect directly related to the proposed landfill to impact the financial or economic interests of people and organizations within the study areas.
- Natural Environment & Resources
  The potential for an effect directly related to the proposed landfill to impact the natural environment or the use of natural resources.

The *Definition/Rationale* column of the criteria table in Appendix B indicates what each criterion means, and why it is necessary to include it in the environmental assessment. The criteria in Appendix B fully describes the range of potential effects that the proposed landfill could have on the environment, as well as providing the associated durations and study areas that are expected to be related to each of the criteria.

It is important to note that the criteria are grouped and defined as potential effects, rather than individual study disciplines (e.g., "groundwater", "traffic", etc.). The criteria table in Appendix B identifies the discipline that will have primary, or lead responsibility for each criterion. However,

effective assessment of each criterion will often require input from a variety of experts. The lead expert will be responsible for coordinating the input from other experts as well as providing information needed by other lead experts. This approach permits a better accounting of cumulative, overlapping or additive effects.

As an example, consider the criterion 10 – *Disruption to use and enjoyment of residential properties*. Although the Social expert has primary responsibility for reporting on this criterion, they will rely on input from a variety of other experts including those studying noise, dust, odour, litter and traffic. If taken as individual disciplines, the experts could conclude that all applicable standards are met for their discipline so there would be no effect. By encouraging collaboration based on a broader criterion, the experts can more effectively assess the cumulative effects.

7. Consideration of Alternatives

This section of the Terms of Reference details the reasonable range of alternatives that are to be considered during the Environmental Assessment, in accordance with Section 6.1(2) of the *Environmental Assessment Act*.

7.1 Consideration of 'Alternatives To' the Proposed Undertaking

"*Alternatives to a proposed undertaking are functionally different ways of approaching and dealing with a problem or opportunity*" (MOE Code of Practice, p. 15)

WEG carefully regarded the advice provided by the Ministry's *Code of Practice* (p. 16-17) in considering the reasonable range of alternatives to its proposed landfill:

> "*The range of alternatives that will be considered should address the problem or opportunity and be within the scope of the proponent's ability to implement.*
>
> *When determining the alternatives that will be considered in the environmental assessment, the proponent should, at a minimum, consider the following:*
>
> - *Do they provide a viable solution to the problem or opportunity to be addressed?*
> - *Are they proven technologies?*
> - *Are they technically feasible?*
> - *Are they consistent with other relevant planning objectives, policies and decisions (for example, Official Plan, Provincial Policy Statement, Growth Plans under the Places to Grow Act, 2005)?*
> - *Are they consistent with provincial government priority initiatives (for example, waste diversion, energy efficiency, source water protection, reducing greenhouse gas emissions)?*

- *Could they affect any sensitive environmental features (for example, provincially significant wetlands, prime agricultural area, endangered species habitat, floodplains, archaeological resources, built heritage)?*
- *Are they practical, financially realistic and economically viable?*
- *Are they within the ability of the proponent to implement?*
- *Can they be implemented within the defined study area?*
- *Are they appropriate to the proponent doing the study?*
- *Are they able to meet the purpose of the Environmental Assessment Act?"*

Do Nothing

The 'do nothing' alternative is not a feasible or reasonable alternative for WEG to pursue. It does not deal with the primary problem being addressed in this EA – the deficiency of provincial waste disposal capacity. Furthermore, it would not allow WEG to develop any of the business opportunities it identified in this EA (as outlined in Section 4.2). Consequently, the 'do nothing' alternative is not a reasonable alternative in these circumstances because it does not provide a viable solution to the problem or opportunity to be addressed, nor is it appropriate to the proponent doing the study.

However, the MOE Code of Practice (p. 18) recommends that:

"The consideration of the do nothing alternative assists all participants. It is a benchmark against which the consequences of the alternatives can be measured in order to determine, amongst other things, the extent to which other alternatives address the problem or opportunity. The do nothing alternative can also highlight the benefits of proceeding with the proposal. A clear presentation of the do nothing alternative also helps the Minister in deciding whether the undertaking should be allowed to proceed. It is generally considered to be good environmental assessment practice to include the do nothing alternative. Proponents can then compare other alternatives with the do nothing alternative."

The 'do nothing' alternative will be carried forward in this EA in the form of the environmental baseline conditions for the assessment of the proposed undertaking. These conditions will be explicitly described during the evaluation of the proposed undertaking, and the environmental advantages and disadvantages of the proposed undertaking will be systematically compared to the 'do nothing' alternative in order to determine whether the proposed undertaking is appropriate (see Section 8.2 of these Terms of Reference for more information on the evaluation process).

Further Waste Diversion

WEG considered whether further waste diversion could be a reasonable alternative to its proposed landfill, and carried out research on the subject. This research is provided in the Supporting Documents to these Terms of Reference.

As a private-sector company, WEG does not have any regulatory authority to mandate waste diversion on municipalities or other businesses in the province. WEG has established a number of businesses to assist its customers in waste diversion efforts and has adapted its transfer station in Burlington to

support Halton Region's diversion activities. WEG expects to continue to expand its waste diversion business in the future where and when it is technologically and economically justifiable to do so.

As set out in the Supporting Documents, further increases in the overall provincial waste diversion rate for non-hazardous waste would reduce the quantities of waste requiring landfill disposal in Ontario. However, even if the most optimistic projected waste diversion rates could be achieved, Ontario will continue to have a net deficit of waste disposal capacity that would exceed the proposed capacity for the Southwestern Landfill Proposal. Increased waste diversion implemented by others through public policy at a provincial scale would be complementary to the problem WEG identified in this EA. It would reduce the shortfall of provincial waste disposal capacity, but it will not eliminate the need for additional disposal capacity.

In Supporting Documents, WEG examined the extent of additional diversion that it could implement on the wastes that are likely to be disposed of at the proposed Southwestern Landfill. The analysis determined that while further diversion efforts may be feasible as technology and economics evolve, WEG's diversion efforts could not replace the need for this proposal. The quantity of waste WEG will divert from the landfill would be more than offset by the additional waste volumes that require disposal. In effect, WEG's further waste diversion programs would be a component of the overall increase in provincial waste diversion discussed above. Consequently, enhanced waste diversion by WEG is not a feasible alternative to the Southwestern Landfill proposal in this circumstance. It is however, something WEG can, and will, pursue separately and *in addition*, as business opportunities arise.

In conclusion, further waste diversion is not a reasonable alternative available to WEG in this circumstance because it will not replace the need for additional disposal capacity in the province. It does not completely meet WEG's business objectives, nor is it within WEG's regulatory ability to implement. Nevertheless, as noted above, WEG will continue to pursue and implement further diversion programs in addition to the proposed landfill, if and as they are technologically and economically viable.

Incineration/Thermal Treatment Technologies

WEG considered whether some type of thermal waste disposal technology would be a reasonable alternative to the proposed landfill. The Supporting Documents include a research paper prepared by WEG on this matter; a brief summary follows.

The research concluded that incinerators and other thermal technologies are substantially more expensive to build and operate than landfills, even accounting for the offsetting revenues from energy recovery and the sale of any additional materials recovered from the waste stream. As a private-sector company, WEG does not have any regulatory power to capture and direct waste to an incinerator or thermal treatment plant at a price high enough to offset its cost (i.e., no regulatory "flow control"). The wastes would simply be contracted to other landfills (e.g., in Michigan) at a lower cost, and the incinerator or thermal plant would fail.

Based on its analysis presented in the Supporting Documents, WEG has demonstrated that in the existing circumstances, incineration and other types of thermal waste treatment technologies are not reasonable alternatives to its proposed landfill because they are not economically viable for WEG to implement.

Other Sites

WEG considered whether there were any other sites that could constitute a reasonable alternative to the proposed landfill at the Carmeuse Lime (Canada) property in Oxford County. The Supporting Documents include a research paper prepared by WEG dealing with this subject; following is a brief overview.

WEG cannot reasonably examine any other site that it does not own or control, because it has no regulatory powers of expropriation. That is, even if WEG were to carry out a broad-based candidate site search, it would have no authority to require a landowner to sell the site. Private sector proponents must own or negotiate the development rights for sites it can consider as alternatives in the EA process.

Negotiating development rights is a complex, uncertain and expensive process that requires two willing parties and very high levels of confidentiality. In the circumstance related to the siting of waste management facilities such as a landfill development, the complexity is compounded by the sensitive and uncertain nature of the proposal. It is very difficult to bring even a single negotiation to a successful conclusion.

It is not reasonable for a private sector proponent to have multiple sites from unrelated parties as alternatives in an EA process. In the case of an open search process (one where the proposal is announced before development rights are secured), a private sector proponent could not acquire the development rights at any reasonable value. This approach would effectively exclude private sector proponents from projects that require approval under the *Environmental Assessment Act*.

It is also unreasonable for a private sector proponent to have agreements with multiple landowners. As noted above, the negotiating process is complex, expensive and uncertain and there is no guarantee that any agreement can be reached. The willingness of a landowner to even negotiate would diminish if they understood that their site may not ultimately be chosen as the preferred location. As stated in the Code of Practice (p. 17), "*A private sector proponent's ability to expropriate land or implement public programs will influence the range of alternatives that it may examine*".

Before identifying the Carmeuse Beachville site as the candidate site, WEG examined the inventory of the other properties it (or parent company Walker Industries), owns outside of the Niagara Region, along with any other sites owned by Carmeuse to determine if any other properties were suitable as candidate sites.[12]

Of these 37 sites, only six were determined to be large enough to accommodate the proposed landfill. Each of these six sites was then examined to see if it was feasible; following is a brief summary:

- Duntroon Quarry, Clearview Township, Simcoe County – Walker Aggregates
    - Not permitted by provincial legislation.
    - Lies within the Niagara Escarpment Plan Area (NEPA). A new or expanded waste disposal site is expressly prohibited in the NEPA in accordance with the *Environmental Protection Act*, Section 27(2).

[12] *Carmeuse properties were included since they have expressed a willingness to lease land to WEG in Oxford County; however, there is no agreement between the companies related to any other sites at this time.*

- Severn Quarry, Severn Township, Simcoe County – Walker Aggregates
  - Not economically viable or consistent with provincial planning policies.
  - Walker Industries will not be extracting to the full depth of the economically viable and licensed aggregate reserves within the timeframe necessary to permit construction of the proposed landfill.
  - Landfilling would sterilize licensed aggregate reserves beneath the current quarry floor, which is not consistent with Section 2.5.2.3 of the *Provincial Policy Statement*.

- Durham Pit, West Grey Municipality, Grey County – Walker Aggregates
  - Not economically viable or consistent with provincial planning policies.
  - Walker Industries will not be extracting to the full depth of the economically viable and licensed aggregate reserves within the timeframe necessary to permit construction of the proposed landfill.
  - Landfilling would sterilize licensed aggregate reserves remaining in the pit, which is not consistent with Section 2.5.2.3 of the *Provincial Policy Statement*.

- McGregor & Amherstburg Quarries, Town of Amherstburg, Essex County – Walker Aggregates
  - Not financially realistic or economically viable.
  - Directly adjacent to Michigan - would not be economically viable to compete with large, established landfills in Michigan; no competitive advantage related to haulage distance or cost.

- Clarksburg Pit, Town of Blue Mountains, Grey County – Walker Aggregates
  - Not permitted by provincial legislation.
  - A pit which is partially filled with water. Section 27(3.1) and (3.2) of the *Environmental Protection Act* prohibits the establishment of a landfill site in a lake.

- Carmeuse Hespler Quarry, Puslinch Township, Wellington County - Carmeuse
  - Not permitted by provincial legislation.
  - Inactive quarry which is filled with water. Section 27(3.1) and (3.2) of the *Environmental Protection Act* prohibits the establishment of a landfill site in a lake.

For the various reasons noted above, none of these sites are reasonable alternatives for WEG to consider.

Summary

As a result of these deliberations, including the research carried out by WEG contained in the Supporting Documents to these Terms of Reference, WEG concluded that there are no feasible alternatives to the proposed landfill at the Carmeuse Beachville Operations in Oxford County that can reasonably be considered by WEG in this EA. However, as noted above, the 'do nothing' alternative is proposed to be carried forward in the EA as the baseline to the assessment of the proposed undertaking. Furthermore, WEG will continue to pursue and implement additional waste diversion opportunities separately from, and in addition to, the proposed landfill, if and as they are economically viable.

7.2 'Alternative Methods' for Carrying Out the Proposed Undertaking

"*Alternative methods are different ways of performing the same activity*" (MOE Code of Practice, p. 15)

Section 3 of these Terms of Reference, established the purpose of this EA as "*The provision of future landfill capacity at the Carmeuse Lime (Canada)Ltd. site in Oxford County for solid, non-hazardous waste generated in the province of Ontario*". On that basis, WEG identified the following range of candidate 'alternative methods' for carrying out the proposed undertaking:

Table 2: Alternative Method Candidate Evaluation

'Alternative Methods' Candidates	Description	Rationale
Landfill Footprint	Different locations or configurations on the Carmeuse Lime (Canada) site where the landfill could be located and developed.	The Carmeuse landholdings in Oxford County are extensive; there may be one or more alternative locations on these properties where the proposed landfill could be developed.
Landfill Design Alternatives	Different landfill configurations (above ground, below ground or a combination) along with compatible liner designs (generic or site-specific, as *per* the Landfill Standards).	The size and shape of the existing quarry may offer several possible designs for the landfill and liner system that are capable of meeting the requirements of O. Reg. 232/98 (Landfill Standards).
Leachate Treatment Alternatives	Different ways of treating and disposing of landfill leachate, including sewer discharge and/or on-site treatment.	The location of this site in proximity to serviced urban lands and receiving streams may offer one or more feasible alternatives for the treatment of landfill leachate.
Landfill Gas Management Alternatives	Different ways of managing the landfill gas, including flaring, industrial fuel, and/or power generation.	The location of this site in proximity to industries and the power grid may present one or more feasible alternatives for management of the landfill gases.
Haul Route/Site Entrance Alternatives	Different ways for the waste to be transported to the site, including road routes/entrances from Highway 401 and/or rail haulage.	The location and configuration of this site in proximity to existing highways and two railways may offer one or more feasible alternatives for haul route(s) and entrance(s).

During the Environmental Assessment, WEG will establish and evaluate specific alternatives within each of these five categories of alternative methods, in consultation with government agencies, Aboriginal

Communities and interested members of the public. The methodology for the assessment and evaluation of the alternatives is set out in Section 8 of these Terms of Reference.

8. Assessment and Evaluation Methodology

8.1 Comparative Evaluation of the Alternatives

The 'alternative methods' of carrying out the proposed undertaking will be evaluated during the Environmental Assessment in accordance with the requirements of Section 6.1(2)(c) and (d) of the *Environmental Assessment Act*. The evaluation methodology will describe the following in relation to each of these alternatives:

- The environment potentially affected;
- The effects that will be caused on the environment;
- The actions necessary to prevent, change, mitigate or remedy the effects on the environment;
- An evaluation of the advantages and disadvantages to the environment.

A comparative evaluation methodology is proposed to be used for this purpose, as described below. Note that these steps will be repeated, in consultation with government agencies, Aboriginal Communities and the general public as key interested parties, for each set of alternatives:

1. Prepare a ***description*** of, and ***rationale*** for, the alternative methods.
   - *Develop a list of reasonable alternative methods within the overall categories listed in Section 7.2 of the Terms of Reference.*
   - *"Reasonable" alternatives will be based on the guidance provided in the Ministry's Code of Practice (p. 16-17).*
   - *Describe each of the alternatives in terms of its basic design and operations concept, in sufficient detail to permit the comparative evaluation and including the typical or normal mitigation measures that would be incorporated.*
   - *Prepare a rationale for each of the alternatives explaining why it is included in the evaluation.*

2. Evaluate the alternatives against the following feasibility screening criteria:
   a) Must be consistent with the stated purpose of the environmental assessment.
   b) Must be reasonably capable of approval pursuant to the statutes of Ontario and Canada.
   c) Must be technically feasible and proven technology

d) Must be commercially viable.

This initial analysis will result in the identification of a "short list" of remaining feasible alternatives for further evaluation, and the elimination of those alternatives which do not meet the requirements of the feasibility screening criteria.

- *These screening criteria represent basic, minimum requirements for an alternative to be considered feasible for WEG to implement. They are a subset of the criteria presented in the Code of Practice (p. 16-17).*
- *An alternative failing to pass any one of the feasibility screening criteria will be eliminated from further consideration; WEG does not propose to carry forward any alternatives that are not fundamentally feasible.*
- *Document the evaluation and rationale for the screening.*

3. Evaluate each of the environmental assessment criteria listed in Appendix B against the following screening criteria:

   a) must apply to, and be relevant to, the effects that might be caused by the short list of alternatives;

   b) must allow for a meaningful differentiation in environmental effects between the short list of alternatives.

   This analysis will result in the establishment of a "short list" of comparative evaluation criteria.

   - *Prepare a set of tables listing each of the EA criteria, along with an analysis of whether each criterion applies to the comparison of these alternatives, and will differentiate the alternatives.*
   - *Based on that analysis, indicate in the tables which criteria are screened out and which are retained for use in the comparative evaluation.*

4. Prepare a description of the ***environment potentially affected*** by each of the short list alternatives.

   - *Prepare a description of the environment potentially affected within each of the related study areas, including figures and maps where appropriate.*
   - *The environmental description will be related to the specific short-listed criteria retained for the evaluation (see Step 3).*

5. Develop comparative evaluation indicators for each of the short list of comparative evaluation criteria.

   - *For each criterion retained for the comparative evaluation, develop one or more indicators that can be used to measure or describe the net effects of the alternatives relative to one another.*

- *For example (only): For the criterion "Disruption of Farm Operations", a comparison of different haul route alternatives could use the indicator "Number of field entrances along the haul route".*

6. Describe the ***net effects on the environment*** for each alternative relative to the other short list alternatives, taking into account reasonable ***mitigation*** methods.
   - *Prepare an evaluation matrix (table) listing the short-list of comparative evaluation criteria and indicators against the short-list of alternative methods.*
   - *For each criterion and indicator, and for each relevant study area and study duration, measure and/or describe the net effects on the environment for each alternative method, relative to the other alternatives.*
   - *Prepare a commentary on whether any further mitigation measures incorporated into the design and operations would significantly alter the relative net effects.*

7. Evaluate the ***advantages and disadvantages to the environment*** for each of the short list of alternatives, and prepare a rationale for the preferred alternative(s).
   - *Prepare a qualitative analysis summarizing and weighing the relative positive and negative net effects (advantages and disadvantages to the environment) for each of the alternative methods.*
   - *Document the rationale for the preferred alternative based on the balance of advantages and disadvantages to the environment.*

8.2 Evaluation of the Proposed Undertaking

The Environmental Assessment will include an evaluation of the proposed undertaking in accordance with the requirements of Section 6.1 (2)(c) and (d) of the *Environmental Assessment Act*. The evaluation method will describe the following in relation to the proposed undertaking:

- The environment potentially affected;
- The effects that will be caused on the environment;
- The actions necessary to prevent, change, mitigate or remedy the effects on the environment;
- An evaluation of the advantages and disadvantages to the environment.

The evaluation of the proposed undertaking, incorporating the preferred alternatives resulting from the evaluation described in Section 8.1 above, will be carried out using a comprehensive impact assessment methodology. The assessment will be complete in accordance with the environmental assessment criteria and studies described in Appendix B to these Terms of Reference. The steps in the evaluation

will be conducted in consultation with government agencies, Aboriginal Communities, the general public and any other interested parties and will consist of the following:

1. Develop a set of ***facility characteristics*** describing, in conceptual terms, the design and operating assumptions for the proposed undertaking, and incorporating a range of basic mitigation measures that will prevent and/or limit environmental impacts.

    - *Combine the preferred alternative methods for the proposed landfill into a design and operating concept, in sufficient detail to provide working assumptions for the impact assessment evaluation.*
    - *Include the typical or normal mitigation measures that would be incorporated into a landfill of this size and type.*
    - *Prepare a facility characteristics report including figures and plans, where appropriate. Include assumptions regarding all of the basic elements of landfill design and operations set out in O. Reg. 232/98 (the Landfill Standards).*

2. Describe the ***environment potentially affected*** by the proposed undertaking, including both the existing environment as well as the environment that would otherwise be likely to exist in the future without the proposed undertaking (i.e., the environmental baseline conditions, or the "*do nothing*" alternative).

    - *Select common reference periods or milestone dates for the environmental baseline conditions assessment (e.g., existing, start of construction, 10-year mark, closure, etc.).*
    - *Prepare a forecast of future land uses in the Site & Site Vicinity, and Along the Haul Routes, using data from municipal official plan documents, and in consultation with municipal planning staff, with specific assumptions regarding the reference periods.*
    - *Select common receptor points for the assessment of overlapping effects between study disciplines.*
    - *Within each study discipline, collect secondary source and field data to characterize the existing environmental baseline conditions.*
    - *Within each study discipline, forecast the future environmental baseline conditions at the reference periods, taking into considerations all of the forecast land uses except for the proposed landfill (i.e., the 'do nothing' alternative).*
    - *Consolidate and document the existing and future baseline conditions in order to characterize the environment potentially affected by the proposed landfill.*

3. Carry out an evaluation of the potential ***environmental effects*** of the proposed undertaking, using the environmental assessment criteria and studies described in Appendix B to these Terms of Reference.

   - *Prepare appropriate indicators for each of the EA criteria listed in Appendix B to these Terms of Reference.*
   - *Within each study discipline, carry out analyses to evaluate the potential effects of the proposed landfill facility on the environmental baseline conditions. Evaluate these against the criteria, indicators, study areas and study durations assigned to each respective study, incorporating input from other studies in order to assess any cumulative effects.*
   - *Prepare an overall matrix (tables) summarizing and characterizing (describing) the potential environmental effects of the proposed landfill for each of the criteria, indicators study areas and study durations.*

4. Carry out an evaluation of any additional actions that may be necessary to ***prevent, change or mitigate environmental effects***, in order to identify the net effects, and incorporate those that are reasonable and feasible into the design and operations plan for the proposed undertaking.

   - *For any negative environmental effects that are identified in the analysis, carry out an assessment to determine if there are any further actions that could be reasonably be taken to reduce or eliminate the effect.*
   - *Incorporate any further feasible and reasonable mitigation measures into the design and operating concept for the landfill facility. Update the facility characteristics report accordingly.*
   - *Update the evaluation of environmental effects (i.e., Step 3 above), as necessary, to incorporate the additional mitigation measures.*
   - *Update the overall matrix (tables) to characterize the positive and negative net effects of the proposed landfill versus the environmental baseline conditions (i.e., the "do nothing" alternative) for each of the criteria, indicators study areas and study durations.*

5. Prepare a description and evaluation of the ***environmental advantages and disadvantages*** of the proposed undertaking, based on the net environmental effects that will result following mitigation.

   - *Prepare a descriptive analysis summarizing and weighing the relative positive and negative net effects (advantages and disadvantages to the environment) for the proposed undertaking.*
   - *Document the rationale for the proposed undertaking based on the balance of advantages and disadvantages to the environment.*
   - *Prepare a final description of the undertaking based on the revised design and operating concept referenced in Step 4, above.*

- *Prepare appropriate monitoring and contingency plans.*
- *Prepare appropriate impact management plans.*
- *Document all of the above (including the evaluation of Alternative Methods) in an Environmental Assessment report suitable for submission to the Minister of the Environment for approval under the Environmental Assessment Act.*

The proposed criteria, study areas, durations and technical studies to be employed during the Environmental Assessment are presented in Appendix B to these Terms of Reference. The scope of work for each of the necessary technical studies to support the evaluation of the proposed undertaking is also included in Appendix B.

WEG, and its technical experts, have also created draft work plans for each of the technical studies. WEG carried out consultation with government agencies, Aboriginal Communities and interested members of the public on these preliminary study plans during the preparation of these Terms of Reference. WEG intends to refine then finalize these draft work plans during the EA, once the preferred alternatives have been selected, in further consultation with government agencies, Aboriginal Communities and interested members of the public. These will include detailed descriptions of the specific study area(s), study durations, criteria, indicators and data sources associated with each study.

9. Commitments & Monitoring Framework

The EA will include a comprehensive list of commitments made by WEG during the development of these Terms of Reference, and identify where or how they have been addressed within the EA. The EA will also include a comprehensive list of commitments made by WEG during the preparation of the Environmental Assessment, which will include:

- Mitigation and impact management measures;
- Additional works and studies to be carried out;
- Monitoring and reporting;
- Consultation with interested parties;
- Contingency planning; and
- Documentation and correspondence.

The EA will also include a monitoring and reporting framework for all phases of the proposed undertaking including both compliance monitoring and effects monitoring, as set out in the MOE *Code of Practice* (Section 4.2.8, p. 26). As defined in the Code of Practice, compliance monitoring is "*an assessment of whether an undertaking has been constructed, implemented and/or operated in accordance with the commitments made in the environmental assessment and the conditions of the Environmental Assessment Act approval*". Effects monitoring "*consists of activities carried out by the proponent after approval of the undertaking to determine the environmental effects of the undertaking*".

Any EA approval will likely commit WEG to provide an EA compliance report annually during the operating life of the site. The report will describe compliance with the commitments made during the EA and the conditions of any environmental approvals. The details of the monitoring program will emerge through the EA process. However, based on the monitoring programs required by other modern landfills, the program is expected to include reports on:

Operations Management

- Waste receipt and placement statistics
- Routine inspection reports
- Complaints management program

Site Construction

- Description of major construction projects undertaken
- Copies of engineering drawings
- Copies of construction Quality Assurance/Quality Control reports

Groundwater

- Groundwater flow analysis
- Groundwater quality analyses
- Leachate quantity and quality analyses

Surface Water

- Upstream water quality analyses
- Downstream water quality analyses
- Site storm water quality
- Summary of any storm water discharge events

Air Quality

- Particulate monitoring
- Landfill gas monitoring
- Noise monitoring

Financial Assurance

- Status of financial assurance

The monitoring program will likely be compiled into two reports: the EA Compliance Report and the Monitoring and Engineering Report. The EA Compliance Report will focus on commitments made during the EA process while the Monitoring and Engineering Report will likely include the results and interpretation of the environmental monitoring programs and the need for or status of any contingency plans. The reports will be submitted to the Ministry of the Environment and made available to interested parties for review.

The monitoring and reporting requirements will continue into the post-closure period. The details of these requirements are expected to be consistent with the reports prepared during the operating phase of the site. Because the site would no longer be an active operation, information on Operations Management and Site Construction may have a more limited scope.

During the consultation process related to the draft Terms of Reference, WEG made the following commitments:

Joint Municipal Coordination Committee (JMCC) Peer Review

- Funding the objective and transparent peer review administered by the JMCC.
- Allowing the JMCC reasonable access to information needed for the peer review
- Expanding the peer review to include a Human Health Risk Assessment expert
- Obtaining input from the JMCC peer review team prior to finalizing the technical work plans

Community Liaison Committee (CLC)

- Maintaining the CLC as a consultation vehicle during the EA process
- Obtaining input from the CLC at key points in the process including the initiation of the EA process, the finalization of the technical work plans and the completion of the draft EA report

Aboriginal Communities

- Funding a common peer review that will be available to all Aboriginal Communities
- Conducting reasonable additional peer review work that may be requested by individual communities
- Completing the engagement processes outlined by individual Aboriginal Communities, where applicable

10. Consultation and Engagement

Section 5.1 of the *Environmental Assessment Act* states that consultation with "such persons as may be interested" should take place during the preparation of the Terms of Reference. Section 6.3 of the *Environmental Assessment Act* also requires that the proponent provides a description of any consultation and the results of that consultation.

The purpose of this section is to provide a brief description of how WEG consulted with interested parties during the Terms of Reference process and outline the Southwestern Landfill Proposal Consultation Plan to be implemented during the EA process.

10.1 Overview of Consultation and Engagement Activities Carried Out During the Preparation and Review of the Draft Terms of Reference

Identification of Interested Parties

WEG conducted a comprehensive consultation program to introduce the organization and its Proposal, to increase its awareness and understand of local issues and concerns, to begin to establish communications and relationships with and to obtain input from interested parties in and around the Carmeuse Beachville Operations site. The Southwestern Landfill Proposal generated significant local

interest from individuals and organizations. This section provides a summary of the consultation activities associated with the preparation of the Terms of Reference submission. Additional detail on all the consultation activities and copies of the documents supplied during the consultation process can be found in the Record of Consultation.

The initial members of the public identified as having an interest in the Southwestern Landfill Proposal were those that could be directly affected by its development. This group included the Carmeuse Beachville Operations employees and residents located within approximately 1 km of the site. The Carmeuse employees were introduced to WEG and the Southwestern Landfill Proposal at a staff meeting on March 1, 2012. WEG provided the employees an initial information package on the proposal and answered questions.

At that same time, WEG conducted a door-knocking campaign for local residents. The residents were provided with an information package, a stamped comment card and an invitation to the first Open House.

Contact information from these two initiatives was gathered to start the project mailing list. This list has grown through direct and indirect contact with people who have an interest in the proposal. WEG has been in contact with interested people since March 2012 through Open Houses, formal and informal meetings, telephone conversations, mail and email correspondence. The project mailing list of parties interested in project updates has grown to over 750 mail entries plus 100 email entries.
In addition to the initial members of the public, WEG identified the following parties as having an interest in the Southwestern Landfill proposal:

Government Organizations

The Municipal Governments

- County of Oxford
- Town of Ingersoll
- Township of South-West Oxford
- Township of Zorra

Provincial Government

- Ministry of the Environment
- Ministry of Natural Resources
- Ernie Hardeman, Member of Provincial Parliament, Oxford

Federal Government

- David MacKenzie, Member of Parliament, Oxford

Other Government Organizations

- Upper Thames Region Conservation Authority
- The Thames-Sydenham Source Water Protection Committee

Non-Government Organizations

- Canadian Autoworkers Local 88
- Carmeuse Lime (Canada) Ltd.
- Oxford People Against Landfill (OPAL) Alliance
- Woodstock-Ingersoll & District Real Estate Board

- Ingersoll District Chamber of Commerce
- Ingersoll Naturalist Club
- Ingersoll Rotary Club
- Woodstock Environmental Advisory Committee
- Oxford Federation of Agriculture
- National Farmers Union (Perth-Oxford, Ontario)
- Christian Farmers Federation of Ontario

Consultation Methods

The primary objectives of the consultation program were to open lines of communication, begin to build relationships with, to provide information to interested parties and to receive input on the proposal. WEG used many tools to achieve these objectives. The following table (Table 3) provides a summary of the major tools WEG used to distribute information about the company and the Southwestern Landfill Proposal to the community.

Table 3: Major Terms of Reference Information Tools

Item	Date	Description	Distribution
Notice of Commencement	Mar 28, 2012	Notice advising of the commencement of the Terms of Reference process	Ingersoll Times Oxford Review Project Website WEG Ingersoll Office
Newsletter #1	Mar 2012	Introduction to: • WEG • The Southwestern Landfill Proposal • The EA process	Aboriginal Communities Carmeuse Employees Door-Knocking WEG Ingersoll Office Project Website Open House No. 1
Newsletter #2	Jun 2012	• The next steps in the EA process • Changes to the consultation program based on input • WEG Health & Safety Program • WEG Sustainable Purchasing Policy	Ingersoll Times Oxford Review Woodstock Sentinel-Review Mailing list Aboriginal Communities WEG Ingersoll Office Project Website Open House No. 2
Newsletter #3	May 2013	• Description of the technical studies • Description of alternatives • Overview of the Peer Review process • Next Steps in the EA process	Aboriginal Communities Mailing list WEG Ingersoll Office Project Website Open House No. 3
Community Exchange #1	Mar 2013	• What WEG heard from the community during consultation	Ingersoll Times Oxford Review Woodstock Sentinel-Review Mailing list

Item	Date	Description	Distribution
			Project Website WEG Ingersoll Office
Community Exchange #2	Apr 2013	• Information on groundwater	Ingersoll Times Oxford Review Mailing list Project Website WEG Ingersoll Office
Community Exchange #3	May 2013	• Information on surface water	Ingersoll Times Oxford Review Mailing list Project Website WEG Ingersoll Office
Notice of Circulation for Comment	May 14/15, 2012	Notice advising that the draft Terms of Reference was available for public comment	Ingersoll Times Oxford Review Mailing list Project Website WEG Ingersoll Office
Community Exchange #4	Jun 2013	• Information on air quality	Ingersoll Times Oxford Review Mailing list Project Website WEG Ingersoll Office
Community Exchange #5	Jul 2013	• Information on social/economic impacts	Ingersoll Times Oxford Review Mailing list Project Website WEG Ingersoll Office

In addition to these items, WEG participated in formal and informal meetings with individuals from the community to discuss the proposal and other WEG operations.

WEG provided many opportunities to provide input on important issues related to the development of the Terms of Reference. These opportunities included three Open House events, tours of the Walker Industries Environmental Campus and South Landfill, formal meetings with interested groups, a Community Liaison Committee (CLC) process, a peer review process is administered by a Joint Municipal Coordination Committee (JMCC) consisting of representatives from Oxford County, the Town of Ingersoll and the Townships of South West Oxford and Zorra, and a separate peer review process undertaken by interested Aboriginal Communities.

A summary of the major consultation events are outlined in Table 4. Specific details of these activities are provided in the Record of Consultation.

The CLC process was established as an additional vehicle to obtain input into the Terms of Reference. The committee provided individual members of the community a way to explore the EA process and related issues in greater depth. The committee consisted of:

- Local citizen volunteers
- Independent EA Advisor
- Local government agencies (Oxford County, Ingersoll, South West, Oxford Zorra)
- The Upper Thames Conservation Authority
- Agricultural organizations
- WEG representatives
- EA advisor

Although the committee did not 'represent' the community, it provided an opportunity to receive a direct feedback from some community members. To facilitate this feedback, WEG provided resources for an independent EA Advisor selected by members of the CLC. The CLC meetings covered the key aspects of an environmental assessment including the EA process and the major technical studies. All CLC meetings and workshops were held at the WEG office in Ingersoll and were open to the public; public 'observers' that wanted to attend were asked to contact WEG prior to meetings as space was limited. Information presented at CLC meetings was posted on the project website.

WEG also entered into an agreement with the local municipalities to provide an objective and transparent peer review process. The peer review process is administered by a Joint Municipal Coordination Committee (JMCC) consisting of representatives from Oxford County, the Town of Ingersoll and the Townships of South West Oxford and Zorra. The JMCC Peer Review Team provided input on the draft Terms of Reference submission and will provide additional input on the technical work plans and the draft EA Report during the EA process.

Table 4 – Major Terms of Reference Consultation Activities

Item	Date	Description	Issues Identified[1]
Open House No. 1	Apr 4, 2012	• Introduction to WEG • Proposal Description • Next Steps in the EA process	Groundwater contamination Surface water contamination Property Values Traffic impacts Odours Dust Site location (proximity to Ingersoll) Site design concerns Pest (bird/rodent) control Human health effects
Open House No. 2	Sep 26, 2012	• Information on WEG • Southwestern Landfill Proposal description • The Need Study • The EA Criteria • Next Steps in the EA process	Same as Open House No. 1 Need for the proposal Ecology effects Agricultural effects Noise and vibration Economic effects

Item	Date	Description	Issues Identified[1]
Open House No. 3	May 13, 2013	• Information on WEG • Proposal description • Technical Studies • Alternatives • Next Steps in the EA process	Same as Open Houses No. 1 & 2
Niagara Tours	Apr 23, 2012 May 9, 2012 May 12, 2012 Sep 12, 2013	• Closest Residents • Interested public • CLC members	Groundwater contamination Traffic Property Values Dust emissions Odour emissions EA process Airborne pathogens/toxins Visual impacts Site Maintenance Impacts on wildlife Litter Liner construction Post closure care
CLC Meetings	May 2012 to Jul 2013	• EA Process • Need • EA Criteria • Technical Studies • Alternatives • Draft Terms of Reference	Consultation matters EA process questions Accuracy of the Need Study EA criteria changes Technical studies clarifications Human health risks Need for alternatives to landfill
CLC – Technical Expert Tour	Sep 18, 2012	Tour of the Carmeuse site with the CLC and the EA technical experts, providing the technical experts the opportunity to better understand community interests and issues	Social impact assessment Traffic patterns Groundwater Surface water Ecology Property Values
CLC Technical Workshop	Apr 13, 2013	Open discussion with EA technical experts to answer outstanding questions	Study areas Study methodologies Data collection Peer review process Human health effects
Woodstock-Ingersoll District Real Estate Board	Jun 19, 2012	Overview of the Southwestern Landfill Proposal and EA process	Groundwater contamination Liner design Air quality (dust & odour) Litter Birds Property values
Ingersoll District Chamber of Commerce	Jan 15, 2013	Overview of the Southwestern Landfill Proposal and EA process	Liner design Landfill operations Traffic Odour control

Item	Date	Description	Issues Identified[1]
Oxford Federation of Agriculture	Feb 7, 2013	Overview of the Southwestern Landfill Proposal and EA process	Groundwater contamination Air quality Legacy issues Site design Property taxes Property values
Woodstock Environmental Advisory Committee	Feb 11, 2013	Overview of the Southwestern Landfill Proposal and EA process	Groundwater contamination Surface water Air quality
National Farmers Union	Feb 26, 2013	Overview of the Southwestern Landfill Proposal and EA process	Waste source & acceptance Liner technology Economic benefits Long-term liabilities Property values
Ingersoll Rotary Club	Mar 7, 2013	Overview of the Southwestern Landfill Proposal and EA process	Use of rail to deliver waste Source & types of waste The EA process Landfill design Blasting effects Liner design Economic effects Traffic
JMCC Peer Review Team Orientation	Mar 12, 2013	Overview of the Southwestern Landfill Proposal Tour of the Carmeuse site Tour of the local community	Details related to the technical studies

1 – Sample of Issues raised are not necessarily arranged in order of significance

It should be noted that at each Open House event, WEG prepared specific publications, printed copies of the poster board displays and posted poster boards on the project website. WEG also held many formal and informal meetings with individuals and organizations at the Ingersoll office and within the community.

Interested Parties Consultation Results

To assist community members in tracking how their input was attended to during the consultation process, input received by WEG during the preparation of the Terms of Reference was categorized into two categories: input received from interested members of the public and input received from members of the Community Liaison Committee. WEG received input from interested members of the public through a variety of means including:

- Conversations and comment cards at Open House events
- Conversations during formal and informal meetings in the community
- Meetings with the public at the WEG office in Ingersoll
- Email and comment forms received through the project website

WEG classified input from interested parties into categories that corresponded to the EA Criteria presented in Appendix B. Each EA criterion was in turn, assigned to a technical expert for detailed study during the EA process. It should be noted that addressing some input categories and criteria require

input from several technical disciplines. In this case, the lead technical expert will draw upon the work of any other technical expert they determine necessary to properly evaluate the criterion. A matrix to illustrate some of the relationships between experts is also provided in Appendix B. Additional details of the input received from interested members of the public are included in the Record of Consultation. A summary of this input and WEG's response is provided in Table 5.

WEG also received input from members of the community through the CLC process. Several CLC members raised issues similar to those noted by members of the public but members also provided additional input into the Terms of Reference because of their significant involvement in the process. CLC members influenced the Terms of Reference through changes to both the CLC consultation process and the final Terms of Reference submission itself. Specific details on the CLC consultation process are included in the Record of Consultation.

Changes to the Consultation Process in Response to Comments from Members of the CLC:

- Tours on the Niagara campus for interested CLC members
- Expanded CLC committee membership to include three local agricultural organization representatives
- Adjusted consultation schedule to advance review and discussion of technical work plans in the consultation process
- Modified the meeting administration to include a written transcripts
- Included additional meetings and a one-day workshop with technical experts to address issues important to the interested CLC members
- Adjusted technical expert presentation formats to better identify issues important to interested CLC members
- Included electronic versions of expert presentations, with recorded voice-overs, on the project website
- Proposed a Human Health Risk Assessment meeting and presentation for Fall, 2013

Changes to the Terms of Reference Document in Response to Input from Interested Parties and CLC Members:

- Clarification of Study Area definitions
- Adjustment of the preliminary Study Areas
- Adjustments to the EA Criteria
- Added a criteria to include disruption to agricultural operations
- Included an expert reference matrix to show possible relationships between experts
- Addition of the review of the Emergency Detour Routes as a traffic contingency
- Inclusion of rail transport as an alternative method
- Inclusion of a Human Health Risk Assessment in the technical work plans

Table 5 – Summary of Interested Public Input

Local Interested Party Input[1]	EA Criteria	WEG Response[1]	Lead
Air & Water			
• There will be increased cancer in the community • There will be increased asthma in the community	Effects on health of community members	WEG included a Human Health Risk Assessment to the list of technical studies.	Health Risk
• Emissions from trucks and landfill gas • Details related to monitoring any program • Possible receptor locations	Effects due to exposure to air emissions	The technical experts were provided summary of comments for consideration in the final work plan that will be developed during the EA process.	Air Quality
• Area has poor air quality because of the quarry • Concern over what will be in the dust	Effects due to fine particulate exposure	The technical experts were provided summary of comments for consideration in the final work plan that will be developed during the EA process.	Air Quality
• Standards to be used in analysis • The proximate cemetery is prone to flooding • Site discharge will increase erosion in the Thames	Flood hazard	The technical experts were provided summary of comments for consideration in the final work plan that will be developed during the EA process.	Surface Water
• Contaminated groundwater or surface water will make people sick	Effects due to contact with contaminated groundwater or surface water	Included a Human Health Risk Assessment to the list of technical studies.	Health Risk
• Porous rock may be a channel for contamination • No guarantee the water will be safe • Landfill gas could affect groundwater • Need to also assess quarry effects	Effects due to contact with contaminated groundwater or surface water	The technical experts were provided summary of comments for consideration in the final work plan that will be developed during the EA process.	Groundwater
• Contaminated groundwater may impact the Thames River • Dust from the site may contaminate the river • Need to assess quarry effects	Loss/Disturbance of surface water resources	The technical experts were provided summary of comments for consideration in the final work plan that will be developed during the EA process.	Surface Water
• The quarry is dewatering millions of litres. • The Proposal will affect the natural springs	Impact on the availability of groundwater supply to wells	The technical experts were provided summary of comments for consideration in the final work plan that will be developed during the EA process.	Groundwater
Public Health and Safety			
• Gas may affect houses in the area	Explosive hazard due to combustible gas accumulation in confined spaces	The technical experts were provided summary of comments for consideration in the final work plan that will be developed during the EA process.	Groundwater
• Need to make sure rodents don't affect livestock • The site will attract more gulls and crows	Disease transmission *via* insects or vermin	The technical experts were provided summary of comments for consideration in the final work plan that will be developed during the EA process.	Ecology
• The highway exit is not safe • Beachville Rd will be more dangerous • The 401 closes regularly	Potential for traffic collisions	The technical experts were provided summary of comments for consideration in the final work plan that will be developed during the EA process.	Traffic

Local Interested Party Input[1]	EA Criteria	WEG Response[1]	Lead
• The site is in line with London airport	Aviation impacts due to bird interference	The London Airport is >8 km from the site	Ecology
Social and Cultural			
• Noise and vibration has an impact on human health	Disruption to use and enjoyment of residential properties	Included a Human Health Risk Assessment to the list of technical studies.	Health Risk
• The site may displace the Town of Ingersoll	Displacement of residents from houses	The technical experts were provided summary of comments for consideration in the final work plan that will be developed during the EA process.	Social Impact
• Odours and noise will impact residential activities • The funnel effect of the valley will make things worse in Woodstock and/or Ingersoll • Trucks will smell • There will be garbage blowing all over the place • Should be further away from populated areas • Comments on study methods	Disruption to use and enjoyment of residential properties	The technical experts were provided summary of comments for consideration in the final work plan that will be developed during the EA process.	Social Impact
• The proximate cemetery will be affected • Will impact Ingersoll activities (festivals and tourism) • Local daycares should be considered sensitive	Disruption to use and enjoyment of public facilities and institutions	The technical experts were provided summary of comments for consideration in the final work plan that will be developed during the EA process.	Social Impact
• The additional trucks are unwelcome • We should use rail to reduce the trucks • We shouldn't use rail because the lines pass through other communities • Effects on local roads when the 401 closes • The existing interchange is sub-standard • Comments on traffic study methods	Disruption to local traffic networks	The technical experts were provided summary of comments for consideration in the final work plan that will be developed during the EA process.	Traffic
• Should be further away from populated areas • People don't want to see the site • People want to see operations • Should consider sight of trucks driving by homes	Visual impact of the waste disposal facility	The technical experts were provided summary of comments for consideration in the final work plan that will be developed during the EA process.	Visual Impact
• Need to make sure rodents don't affect livestock • The site will attract more gulls and crows	Nuisance associated with vermin	The technical experts were provided summary of comments for consideration in the final work plan that will be developed during the EA process.	Ecology
• The potential for the site to pollute the valley and lose community heritage	Displacement/disturbance of cultural/heritage resources.	The technical experts were provided summary of comments for consideration in the final work plan that will be developed during the EA process.	Culture & Heritage

Local Interested Party Input[1]	EA Criteria	WEG Response[1]	Lead
• What Aboriginal Communities are affected? • Have Walker consulted these communities? • Aboriginal heritage should be protected	Effects on land resources, traditional activities or other interests of Aboriginal Communities	The WEG Project Team has developed an engagement plan to identify and address Aboriginal interests related to the Proposal site.	WEG Project Team
• Roads will deteriorate with truck use • The Ingersoll wastewater treatment plant is not appropriate for leachate treatment	Effects on other public services	The technical experts were provided summary of comments for consideration in the final work plan that will be developed during the EA process.	Land Use
• The site will change character of the community • Concern over the ability of Walker to live up to its long term obligations • Concern over the long term impacts of the site	Changes to community character/cohesion	The technical experts were provided summary of comments for consideration in the final work plan that will be developed during the EA process.	Social Impact
• We should look at alternative uses for quarry (water sports, residential area) • Need to know the end-use of the landfill	Compatibility with municipal land use designations and official plans	The expert studying Land Use Planning will assess the Proposal for compatibility with municipal land use and official plans.	Land Use
Economic			
• The site will impact Carmeuse operations and workers • Need to assess the impact of the site on tourism • Need information on how the Proposal will impact agriculture	Displacement/disruption of businesses or farms	The technical experts were provided summary of comments for consideration in the final work plan that will be developed during the EA process.	Economics
• The study must capture impacts on farm values and along entire agricultural value chain.	Displacement/disruption of businesses or farms	The technical experts were provided summary of comments for consideration in the final work plan that will be developed during the EA process.	Economics
• The site could affect farming operations and the ability to sell their products • There are chicken and cattle operations nearby – the site may impact food quality	Displacement/disruption of businesses or farms	The technical experts were provided summary of comments for consideration in the final work plan that will be developed during the EA process.	Agriculture
• The Agricultural study should include baseline measurements of soil	Displacement/disruption of businesses or farms	The technical experts were provided summary of comments for consideration in the final work plan that will be developed during the EA process.	Agriculture
• The Agricultural study area should be sized to account for prevailing winds	Displacement/disruption of businesses or farms	The technical experts were provided summary of comments for consideration in the final work plan that will be developed during the EA process.	Agriculture
• Values will drop because of the landfill • Value drop will impact retirement plans • Value drop is already being seen in existing sales • Study methodologies	Property value impacts	The technical experts were provided summary of comments for consideration in the final work plan that will be developed during the EA process.	Economics

Local Interested Party Input[1]	EA Criteria	WEG Response[1]	Lead
• Ingersoll will lose jobs because of stigma of this Proposal • The site be run out of Niagara – no local people	Direct employment in waste disposal facility construction and operation	The technical experts were provided summary of comments for consideration in the final work plan that will be developed during the EA process.	Economics
• What's in it for Ingersoll • Need to understand how the Proposal will impact local businesses/tourism • Should account for the jobs lost because the site is here	New business opportunities related directly to waste disposal facility construction and operation	The technical experts were provided summary of comments for consideration in the final work plan that will be developed during the EA process.	Economics
• Concern over long term obligations and impacts • Concern that there will be leaks • What happens if Walker sells the site to others	Public costs for indirect liabilities	The technical experts were provided summary of comments for consideration in the final work plan that will be developed during the EA process.	Economic
• Concern over tax increases because of the site • Ingersoll won't benefit from the Proposal • The benefits aren't balanced	Effects on the municipal tax base	The technical experts were provided summary of comments for consideration in the final work plan that will be developed during the EA process.	Economic
Natural Resources			
• The surface water may be contaminated • The Proposal will affect the natural springs	Effects on stream base flow quantity/quality	The technical experts were provided summary of comments for consideration in the final work plan that will be developed during the EA process.	Surface Water
• Need to assess the effects of the bird controls on existing bird populations • Need to assess how the site will affect local animals and plants • The crow population will increase • Concern over the Mill Pond in Centreville	Loss/disturbance of terrestrial ecosystems	The technical experts were provided summary of comments for consideration in the final work plan that will be developed during the EA process.	Ecology
• The site will affect turtle habitat • The site will affect fishing in the Thames	Loss/disturbance of aquatic ecosystems	The technical experts were provided summary of comments for consideration in the final work plan that will be developed during the EA process.	Ecology
• The site will prevent use of resource Carmeuse does not mine	Sterilization of industrial mineral resources	Carmeuse has extracted the resource that can be used to manufacture lime. The material left by Carmeuse is not a resource.	WEG Design & Operations Team
• A baseline study of the life in and on the lake south of the proposed site should be completed.	Loss/disturbance of aquatic ecosystems	The technical experts were provided summary of comments for consideration in the final work plan that will be developed during the EA process.	Ecology
• Add agriculture to the list of experts that the ecology expert interacts with	Effects on agricultural land	The technical experts were provided summary of comments for consideration in the final work plan that will be developed during the EA process.	Agriculture
Other Comments			

Local Interested Party Input[1]	EA Criteria	WEG Response[1]	Lead
• Site is too small • What are the leachate treatment options • Must assess earthquake effects on the liner • Details on the workmanship of liner installation • Blasting will damage/break the liner	Site Design/Footprint	The WEG project team will be developing a site design through the EA process that must meet or exceed the design standards outlined in Ontario Reg. 232/98. The design will be thoroughly reviewed by the MOE before making a decision on the Proposal.	WEG Project Team
• Details on landfill Operations • Details on who will be responsible for operating • How wastes going into the site are monitored • Types of waste to be received	Site Maintenance	The WEG project team will be developing a site operating plan through the EA process that must meet or exceed the standards outlined in Ontario Reg. 232/98. The operating plan will be thoroughly reviewed by the MOE before making a decision on the Proposal.	WEG Project Team
• There are better ways to manage waste than landfilling • Incineration is better • There should be more recycling • Each municipality should look after its own waste	Need/Rationale for the Undertaking	The WEG project team has conducted an assessment of the alternatives to the development of the Southwestern Landfill Proposal including increased waste diversion and thermal treatment. None of the options assessed represent viable alternatives to the Southwestern Landfill Proposal.	WEG Project Team
• The need study does not accurately reflect waste generation and disposal in Ontario • Questions about data presentation and references	Need/Rationale for the Undertaking	The Need study is accurate and properly referenced. The fact is that Ontario exports 45% of its waste requiring disposal to the US. Even with aggressive diversion targets, this deficit will exist through the 20 year project life.	WEG Project Team
• Information on who was consulted on this project • Concern over the ability of the public to participate in the process • More information is needed before a decision is made • Concern that the politicians have already been 'paid off'	Consultation/Engagement	The Consultation Plan implemented during the Terms of Reference process has provided the public with many opportunities to get information and provide feedback. A consultation program will be implemented for the Environmental Assessment phase that will also provide many opportunities for the public to receive information and give feedback.	WEG Project Team
• Suggestions on future consultation programs • Providing opportunities to come and discuss information is important	Consultation/Engagement	The Consultation Program during the Environmental Assessment phase of the project will include many opportunities for the public to get information and provide feedback.	WEG Project Team
• The EA criteria table notes 'gulls'. There is a significant crow population in this area that should be studied.	The Environmental Assessment Process	The reference to 'gulls' in the EA criteria table was changed to 'birds'.	WEG Project Team

Local Interested Party Input[1]	EA Criteria	WEG Response[1]	Lead
• Information requests on Walker quarry operations • Information requests on Ontario waste classification process • Information requests on other Walker projects	Other	The WEG project team will continue to provide information on the Ontario waste management industry and other WEG operations. Some information requests cannot be fulfilled because they involve confidential or proprietary information.	WEG Project Team
• Carmeuse blasting/dust already impacts the community • Carmeuse needs to follow their closure plan • Blasting affects groundwater flow • The site will have effects on Carmeuse workers	Impacts of Carmeuse Operations	WEG will work with Carmeuse to develop the Southwestern Landfill in a manner that will not negatively impact Carmeuse' operations.	WEG Project Team

1 – More detail on the Local Interested Party input and WEG responses can be found in the appendices of the Record of Consultation.

Interested Parties Outstanding Concerns

WEG could not resolve the following issues during the draft Terms of Reference consultation process:

- Funding of peer reviews beyond the scope of the JMCC Peer Review. The Town of Ingersoll has requested funding for a review by experts retained on their behalf. WEG has an agreement with all the local municipalities (Oxford County, the Town of Ingersoll, the Township of South West Oxford and the Township of Zorra) to conduct an objective and transparent peer review through the Joint Municipal Coordination Committee and will not be responsible for any costs beyond the scope of this process.

Commitments to Interested Parties

WEG made the following commits during the draft Terms of Reference consultation process:

- WEG will provide copies of all comments received on the draft Terms of Reference to the EA technical experts. The experts will review the comments and consider the input provided by interested parties when developing the final technical work plans.
- WEG will fund the JMCC Peer Review Team through the EA process.
- WEG will provide the JMCC Peer Review Team with an opportunity to provide input on the technical work plans prior to commencement of any field work.
- WEG will include a Human Health Risk Assessment in the technical studies associated with the Southwestern landfill proposal.
- WEG will expand the scope of the JMCC Peer Review Team to include a Human Health Risk Assessment expert.
- WEG will continue with the CLC process providing interested CLC members with opportunities to have formal input at three key points during the EA process: the launch of the EA, the finalization of the technical work plans and the preparation of the draft EA Report.
- WEG will voluntarily provide a 60 day comment period on for the Terms of Reference submission to allow interested parties including the JMCC, Aboriginal communities, the CLC, local organizations and members of the public additional time to prepare responses.

Aboriginal Consultation

Identification of Interested Aboriginal Communities

Prior to the launch of the Southwestern Landfill Proposal, WEG created a list of Aboriginal Communities that may have an interest in the project. This section provides a summary of how the interested communities were identified. Additional details can be found in the Record of Consultation.

Prior to the launch of the Southwestern Landfill Proposal, WEG had established relationships with Aboriginal Communities with interests in the areas where we do business. In addition to these relationships, WEG sent 'information request letters' to federal and provincial agencies looking for guidance on identifying Aboriginal Communities that may have an interest in the Proposal and its location. The government agencies contacted included:

- Ontario Ministry of Aboriginal Affairs
- Ontario Ministry of the Attorney General
- Aboriginal Affairs and Northern Development Canada (formerly Indian and Northern Affairs Canada):
    - Portfolio Manager, Research
    - Director, Litigation Portfolios, Operations and Negotiation
    - Director, Comprehensive Claims Branch
    - Claims and Historical Research Centre

WEG also consulted secondary sources and guidance materials for further information on Aboriginal Communities that may have an interest in the Proposal and its location and to gain insight on suggested engagement approaches. These secondary sources included:

- Anishinaabe Chi-Naaknigewin, the Anishinabek Nation constitution
- Chiefs of Ontario, First Nations Map
- London District Chiefs Council website
- Report of the Ipperwash Inquiry
- Métis Nation of Ontario, Lands, Resources and Consultations Branch website
- Province of Ontario Ministry of Aboriginal Affairs online map
- The Aboriginal Affairs and Northern Development Canada First Nations Profiles Interactive Map
- The Aboriginal Affairs and Northern Development Canada Specific Claims Reporting Centre
- Ontario Ministry of Aboriginal Affairs *Draft Guidelines on Consultation with Aboriginal Peoples Related to Aboriginal Rights and Treaty Rights*

WEG also researched information on treaties in the wider region to identify Aboriginal interests within the Thames River watershed. When assessing this information, WEG considered the following connections to the project and the project location:

- Treaty rights
- Harvesting rights and interests – hunting, fishing, harvesting for medicinal purposes, etc.
- Water ways for travel, harvesting and species of interest
- Wider harvesting interests related to traditional use within the overall watershed including trapping areas, wildlife migration routes and travel and trade routes

- Potential current uses of traditional lands and waters in project study areas
- Potential culturally significant sites such as sites associated with Aboriginal social, cultural, sacred or ceremonial purposes, including burial grounds, traditional teaching or meeting places, ceremonial lands
- Sites of archaeological significance within project study areas

WEG then held introductory meetings with several Aboriginal Communities, prior to publishing a Notice of Commencement and requested direct input from community leaders in Aboriginal Communities that might have a potential interest in the Proposal and the site. Based on the input received WEG prepared an initial list of potentially interested Aboriginal Communities:

- Chippewas of the Thames First Nation
- Delaware Nation, Moravian of the Thames
- Métis Nation of Ontario
- Mississaugas of the New Credit First Nation
- Munsee Delaware First Nation
- Oneida Nation of the Thames
- Oneida of the Thames Traditional Chiefs and Council
- Six Nations of the Grand River
- Walpole Island First Nation

Input from the initial meetings resulted in WEG adding four (4) potentially interested Aboriginal Communities. These groups included:

- Aamjiwnaang First Nation
- Caldwell First Nation
- Chippewas of Kettle and Stoney Point First Nation
- Haudenosaunee Confederacy Chiefs Council

Prior to issuing a Notice of Commencement for the Proposal, WEG staff and/or their representatives met with, spoke with and emailed several of the above Aboriginal Community representatives. The purpose of these meetings was to:

- understand the communities' engagement processes
- gain insight into appropriate approaches for community engagement
- share initial information and background about the Proposal
- establish some initial community contacts
- commence the community engagement process
- determine what issues might be of interest
- understand if the community would be interested in the Proposal
- see what other kinds of information could be of value to the communities

Aboriginal Consultation Methods

The primary objectives of the consultation program were to provide information to interested Aboriginal Communities and to receive input on the proposal. WEG used many tools to achieve these objectives.

Table 6 provides a summary of the major tools WEG used to distribute information on the company itself and the Southwestern Landfill Proposal to the community.

Table 6 – Major Draft Terms of Reference Aboriginal Consultation Tools

Item	Date	Description
Notice of Commencement	Mar 28, 2012	Notice advising of the start of the Terms of Reference process
Newsletter #1	Mar 2012	Introduction to: • WEG • The Southwestern Landfill Proposal • The EA process
Newsletter #2	Jun 2012	• The next steps in the EA process • Changes to the consultation program based on input • WEG Health & Safety Program • WEG Sustainable Purchasing Policy
Newsletter #3	May 2013	• Details on the technical studies • Description of alternatives • Overview of the Peer Review process • Next Steps in the EA process
Community Exchange #1	Mar 2013	• What WEG heard from the community during consultation
Community Exchange #2	Apr 2013	• Information on groundwater
Community Exchange #3	May 2013	• Information on surface water
Community Exchange #4	Jun 2013	• Information on air quality
Community Exchange #5	Jul 2013	• Information on social/economic impacts
Notice of Circulation for Comment	May 15, 2013	Notice advising that the draft Terms of Reference is open for comment

In addition to these items, WEG participated in formal and informal meetings with individuals from the community to discuss the proposal and other WEG operations.

In addition to the information items distributed to interested parties, WEG provided opportunities to provide input on important issues related to the development of the Terms of Reference. The major events are outlined in Table 7.

Table 7 – Major Draft Terms of Reference Aboriginal Consultation Events

Item	Date	Description	Issues Identified[1]
Niagara Tours	Jun 4, 2012 Jun 19, 2012	• Aamjiwnaang • Caldwell • Chippewas of the Thames • Mississauga of the New Credit • Walpole island	Leachate management Bird control Liner design Odour control Source of wastes Business opportunities

Item	Date	Description	Issues Identified[1]
			Relationships with community End-use programs Environmental monitoring Ecological enhancement opportunities
Workshop No. 1 Introduction to the Project and the EA Process	Oct 1-2, 2013	• Aamjiwnaang • Caldwell • Chippewas of the Thames • Chippewas of Kettle and Stoney Point • Delaware Nation, Moravian on the Thames • Mississauga of the New Credit • Munsee Delaware • Oneida of the Thames • Six Nations of the Grand • Walpole island	Water quality protection Landfill gas management Odour control Post closure care and costs Local community opposition Opportunities to enhance the Thames How First Nations might benefit Air quality Effects on wildlife Noise and vibration effects
Southwestern Landfill Tour	Oct 3, 2012	• Aamjiwnaang • Caldwell • Chippewas of the Thames • Chippewas of Kettle and Stoney Point • Mississauga of the New Credit • Oneida of the Thames • Six Nations of the Grand • Walpole Island	Proposal location Carmeuse operations Relationship to the Thames River Landfill design and operations Surface water management Leachate management Proximity to neighbours Historic use of area by First Nations The relationship and use of rail
Workshop No. 2 Draft ToR	May 7-8, 2013	• Aamjiwnaang • Caldwell • Chippewas of the Thames • Chippewas of Kettle and Stoney Point • Delaware Nation, Moravian on the Thames • Mississauga of the New Credit • Munsee Delaware • Oneida of the Thames • Six Nations of the Grand • Walpole Island	Operating a landfill in a quarry Long-term life of a landfill Change in ownership Financial assurance Technical studies and experts Monitoring plans Liner technologies Water contamination Groundwater flow Peer review process Decommissioning plans

1 – Sample of Issues raised are not necessarily arranged in order of significance

It should be noted that at each workshop event, WEG prepared specific reference materials for use during the event. Copies of these materials are included in the Record of Consultation.

Aboriginal Community Consultation Results

The results of the consultation with interested Aboriginal Communities are summarized in Table 8.

Table 8 – Aboriginal Community Consultation Activities

Aboriginal Input	EA Criteria/Issue	WEG Response	Lead
• Air quality effects (dust)	Effects due to fine particulate exposure	The technical experts will assess the potential for the proposal to affect dust emissions in and around the proposed site. The dust emissions will be compared to standards developed by the MOE. The lead expert may draw upon information produced by other experts on the WEG team. The final work plan will be developed during the EA process.	Air Quality
• Archaeology of the area	Displacement/Destruction of archaeology resources	Technical experts will study the archaeology of areas disturbed by the development of the proposal. The lead technical expert will use procedures developed or approved by the MOE. The final work plan for the archaeology expert will be developed during the EA process.	Archaeology
• Groundwater contamination	Effects due to contact with contaminated groundwater or surface water	The technical experts studying Groundwater and Surface Water will assess the potential for the proposal to affect groundwater and surface water quality in and around the proposed site. The assessment will also include an analysis of the interaction between local groundwater and surface water resources. The final work plan will be developed during the EA process.	Groundwater or Surface Water
• Groundwater levels	Impact on the availability of groundwater supply to wells	The technical experts assessing the availability of groundwater will study the potential for the proposal to affect groundwater levels in and around the proposed site. This expert may draw upon information provided by other technical experts on the WEG Team. The final work plan will be developed during the EA process.	Groundwater

Aboriginal Input	EA Criteria/Issue	WEG Response	Lead
• Effects on wildlife	Loss/disturbance of terrestrial ecosystems	The technical experts will assess the potential for the proposal to affect terrestrial and aquatic ecosystems in and around the site. The assessment will use standards developed or accepted by the province. The lead expert may draw upon information produced by other experts on the WEG team. The final work plan will be developed during the EA process.	Ecology
• Business opportunities/procurement,	New business opportunities related directly to waste disposal facility construction and operation	The technical experts will study the potential for the proposal to create new business opportunities in and around the site. WEG will explore opportunities to work with Aboriginal Communities to determine if these opportunities could include Aboriginal businesses.	Economics
• Post closure liabilities	Public costs for indirect liabilities	The technical experts will assess the potential for the proposal to generate in-direct public costs. The Lead Expert will use standards and procedures developed or approved by the MOE and may rely upon information generated by other technical experts. The final work plan will be developed during the EA process.	Economic
• Proximity to neighbours	Disruption to use and enjoyment of residential properties	The technical experts will assess the potential for the proposal to disrupt the use and enjoying of residential properties. The assessment will use standards and practices developed or accepted by the MOE. The lead expert may draw upon information produced by other experts on the WEG team. The final work plan will be developed during the EA process.	Social Impact
• The generation of odours	Disruption to use and enjoyment of residential properties	The technical experts will assess the potential for the proposal to disrupt the use and enjoying of residential properties. The	Social Impact

Aboriginal Input	EA Criteria/Issue	WEG Response	Lead
		assessment will use standards and practices developed or accepted by the MOE. The lead expert may draw upon information produced by other experts on the WEG team. The final work plan will be developed during the EA process.	
• Noise from the site	Disruption to use and enjoyment of residential properties	The technical experts assessing noise will compare expected noise emissions to standards established by the MOE. Information they generate may be used by the expert assessing possible disruption to residential properties. The final work plan will be developed during the EA process.	Social Impact
• Surface water contamination	Loss/Disturbance of surface water resources	The technical experts will study the potential loss/disturbance to surface water resources in and around the proposed site. The assessment will also include an analysis of the interaction between local groundwater and surface water resources. The final work plan will be developed during the EA process.	Surface Water
• Water drainage on-site	Flood hazard	Technical experts will assess the potential for the proposal to create or be affected by flooding in and around the proposed site. The lead expert will use standards developed by the UTRCA and local municipalities and may draw upon information produced by other experts on the WEG team. The final work plan will be developed during the EA process.	Surface Water
• Use of rail transport	Disruption to local traffic networks	The technical experts will assess the potential for the proposal to disrupt local traffic networks. The assessment will use	Traffic

Aboriginal Input	EA Criteria/Issue	WEG Response	Lead
		standards and practices developed or accepted by the MTO. The lead expert may draw upon information produced by other experts on the WEG team. The final work plan will be developed during the EA process.	
• Visual impact from the Thames River	Visual impact of the waste disposal facility	The expert studying Visual Impact of the proposal will assess the how the site will be viewed within the community.	Visual Impact
• Aboriginal Consultation and Accommodation	Effects on land resources, traditional activities or other interests of Aboriginal Communities	The WEG Project Team has developed an Engagement Plan to identify and address Aboriginal interests in and around the proposal site.	WEG Project Team
• Effective ways to communicate with Aboriginal Communities	Engagement	The Engagement Plan that may be implemented during the Environmental Assessment phase of the project will include many opportunities for Aboriginal Communities to get information and provide feedback. The program will be launched if the Terms of Reference is approved by the MOE.	WEG Project Team
• Use of European technologies to enhance recycling	Need/Rationale for the Undertaking	The WEG project team has conducted an assessment of the alternatives to the development of the Southwestern Landfill Proposal including increased waste diversion and thermal treatment. None of the options assessed represent viable alternatives to the Southwestern Landfill Proposal. WEG will continue to support waste diversion with its customers but does not have the authority to regulate Reduce/Reuse/Recycle initiatives.	WEG Project Team
• Source of waste	Need/Rationale for the Undertaking	If approved, the Southwestern Landfill proposal will receive non-hazardous waste from the Province of Ontario.	WEG Project Team

Aboriginal Input	EA Criteria/Issue	WEG Response	Lead
• Carmeuse Aboriginal relations	Engagement	WEG will work with Carmeuse and Aboriginal Communities and seek to facilitate a relationship between the parties.	WEG Project Team
• The EA process	Engagement	WEG will work with Aboriginal Communities to provide information and include each interested group in the Engagement Plan	WEG Project Team
• Communication with Aboriginal peoples	Engagement	The Engagement Plan that may be implemented during the Environmental Assessment phase of the project will include many opportunities for Aboriginal groups to get information and provide feedback. The program will be launched if the Terms of Reference is approved by the MOE.	WEG Project Team
• Site design/footprint • Site design features	Site Design/Footprint	The WEG project team will be developing a site design through the EA process that must meet or exceed the design standards outlined in Ontario Reg. 232/98. The design will be thoroughly reviewed by the MOE before making a decision on whether to approve the proposal.	WEG Project Team
• Blasting effects on landfill liners	Site Design/Footprint	The WEG project team will be developing a site design through the EA process that must meet or exceed the design standards outlined in Ontario Reg. 232/98. The design will be thoroughly reviewed by the MOE before making a decision on whether to approve the proposal.	WEG Project Team
• Pre-settlement history of the area	Site History	WEG will work with the Aboriginal Communities in parallel to the EA process to develop a strategy to assess the pre-settlement history and culture of the area.	WEG Project Team

Aboriginal Community Outstanding Concerns

The issue of pre-built heritage in the Beachville-Ingersoll area remains an issue that has not been fully addressed by the consultation activities to this point. WEG will continue to explore ways to investigate the pre-built heritage in the Beachville-Ingersoll area in consultation with the interested Aboriginal Communities in parallel with the EA process.

Commitments to Aboriginal Communities Parties

During the consultation process WEG made 3 commitments to the Aboriginal Communities with an interest in the Southwestern Landfill Proposal:

- Funding of a peer review that could be shared among the interested Aboriginal Communities
- Separately funding reasonable peer review investigations requested by individual Aboriginal Communities
- Participating in the engagement processes established in the Aboriginal Communities. If such a process does not exist, WEG will update designated representatives within the community (e.g. Chief and Council) with regular updates.

Changes to the Draft Terms of Reference

In May and June of 2013, WEG solicited comments on a draft Terms of Reference. This event allowed interested parties an additional opportunity to provide input prior to the completion the final Terms of Reference submission. Copies of the draft ToR were distributed to interested parties including:

- The Ministry of the Environment
- Government agencies that may have a role during the EA process
- The Community Liaison Committee
- Interested Aboriginal Communities

In addition to the specific distribution, WEG provided a 30 day pubic review period for members of the public; WEG wanted to address all public comments and therefore accepted and responded to Draft ToR comments up to 45 days after the Draft had been submitted Copies of the draft Terms of Reference and the associated supporting documents were made available at public places including:

- The Ministry of the Environment
    - Southwest Regional Office, London
    - EA Branch, Toronto
- The Ministry of Agriculture, Woodstock
- Oxford County, Woodstock
- Town of Ingersoll
    - Town Office
    - Ingersoll Library
- Township of South West Oxford Office, Dereham Centre

- Zorra Township
    - Township office
    - Thamesford Library
- WEG Office, Ingersoll

A summary of the circulation and listing of the comments received are provided in Table 9.

Table 9 – Draft Terms of Reference Circulation and Comments Received

Interested Party	Circulated	Comments Received
Ministry of Agriculture, Food and Rural Affairs	✓	
Ministry of the Environment		
Environmental Assessment Branch	✓	✓
Air Quality - Southwest Regional Office	✓	✓
Approvals Branch	✓	✓
Hydrogeology - Southwest Regional Office	✓	✓
Noise – Approvals Branch	✓	✓
Planning – Southwest Regional Office	✓	✓
Source Protection Programs Branch	✓	✓
Surface Water - Southwest Regional Office	✓	✓
	✓	✓
Ministry of Natural Resources	✓	✓
Ministry of Tourism Culture and Sport	✓	✓
Ministry of Transportation	✓	✓
Transport Canada	✓	✓
Upper Thames Conservation Authority	✓	✓
Joint Municipal Coordination Committee		
County of Oxford	✓	
Town of Ingersoll	✓	✓
Township of South West Oxford	✓	✓
Township of Zorra	✓	
Peer Review Team	✓	✓
Community Liaison Committee		
Public Members of the CLC	✓	✓
Sifton Properties Ltd	✓	✓
OPAL Alliance	✓	✓
Ontario Federation of Agriculture	✓	✓
Oxford Federation of Agriculture	✓	✓
Canadian Environmental Law Association		✓
Canadian Autoworkers Local 88		✓
Interested Public (56)		✓
Aboriginal Communities		
Aamjiwnaang	✓	
Caldwell	✓	
Chippewas of the Thames	✓	
Chippewas of Kettle and Stoney Point	✓	
Delaware Nation, Moravian on the Thames	✓	
Mississauga of the New Credit	✓	
Munsee Delaware	✓	
Oneida of the Thames	✓	
Six Nations of the Grand	✓	✓
Walpole Island	✓	

Copies of the detailed comments received and WEG's responses are provided in the Record of Consultation. Table 10 provides a summary of the changes made to the Terms of Reference in response to the comments received.

Table 10 – Summary of Changes to the Draft Terms of Reference

Section	Major Amendments
1 – Introduction	Included Glossary of Terms in the Terms of Reference.
2 – Identification of the Proponent	Removed details on WEG that were not directly related to the Southwestern Landfill Proposal.
3 – How the Environmental Assessment will be Prepared	Clarified the approach to the EA process as a 'focused' undertaking based on 2 elements: • The 'Need' for additional disposal capacity in Ontario. • Screening of 'Alternatives To' aside from the 'do nothing' option that will be used to establish the rationale for the undertaking.
4 – Purpose of the Undertaking	Provided additional detail on why the Carmeuse Beachville Operation was identified as a candidate site for a disposal site.
5 – Rationale for/Description of the Proposed Undertaking	Clarified that the rationale for this undertaking will be developed during the EA process. Provided additional detail on the description of the undertaking.
6 – Environment Potentially Affected	Provided additional detail on the description of the environment that could be affected. Provided description of potential environmental effects.
7 – Consideration of Alternatives	Clarified the identification and screening process for the 'Alternatives To'.
8 – Assessment and Evaluation Methodology	Added detail on the comparative evaluation process. Added details on the evaluation of the preferred alternative.
9 – Commitments & Monitoring Framework	Provided additional details on the future monitoring programs. Clarified the commitments made during the preparation of the draft Terms of Reference.
10 – Consultation and Engagement	Provided additional details on the public and Aboriginal consultation processes used during preparing the draft Terms of Reference. Clarified how the consultation affected the final Terms of Reference submission.
11 – Flexibility for New Circumstances	Clarified the circumstances that would require flexibility and how it would be implemented.
12 – Other Approvals Required	No significant changes.

10.2 Proposed Consultation Plan for the Environmental Assessment

The MOE's *Code of Practice: Preparing and Reviewing Terms of Reference for Environmental Assessments in Ontario* (2009) and Section 5.1 of the *Environmental Assessment Act* states that "*consultation with interested persons during the preparation of the environmental assessment is mandatory*", as well as, "*the terms of reference shall include a plan that outlines the consultation activities that, at a minimum, will take place during the preparation of the environmental assessment*". In order to fulfill these requirements, WEG has prepared a Consultation Plan. Past consultation activities are recorded in the Record of Consultation.

WEG is committed to effective consultation with government agencies, Aboriginal Communities, and the interested public (including local businesses/organizations, community groups, local residents and other stakeholders) at key milestones of the EA process to confirm the approach taken and results of each study component

During the Environmental Assessment phase, WEG will implement a consultation program that provides interested parties with opportunities to provide input. The consultation program will:

- Continue to build new contacts, maintain and deepen existing relationships, and foster open lines of communication
- Expand understanding of the community's concerns, priorities and values
- Provide opportunities for interested parties to receive information and provide feedback
- Notify and consult appropriate government agencies and ministries at key decision points
- Identify concerns that might arise from the proposed Southwestern Landfill proposal
- Focus on addressing, and where possible, resolving public concerns
- Provide appropriate information that will enable the MOE to provide a fair and balanced decision

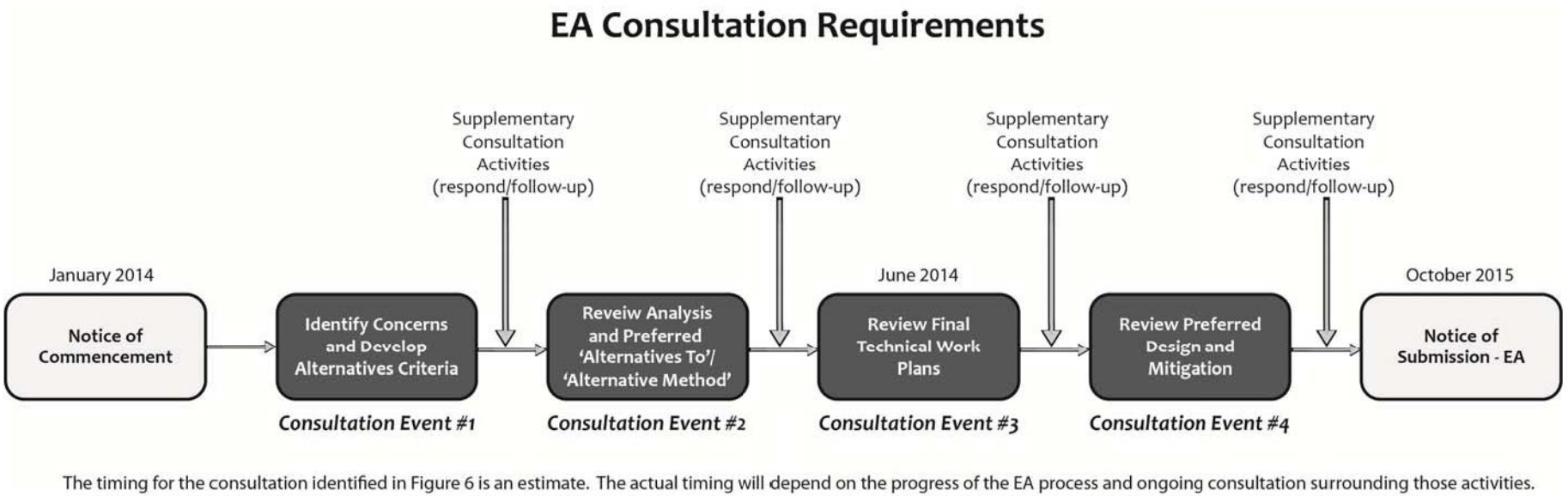
The consultation program will create two-way communication between WEG and interested parties including government agencies, Aboriginal groups and members of the public. This communication will allow us to get feedback on the selection and evaluation of alternatives, the selection of the preferred alternative and the analysis of potential environmental effects, among other key milestone steps.

The consultation program will be centered on key events during the EA process including:

- Notice of Commencement of the EA
- Identification and Evaluation of Alternatives
- Identification of the Preferred Alternative
- Development and Review of the Final Technical Work Plans
- Review of the Preferred Design and Mitigation Plans
- Notice of Submission of the EA

The consultation program includes both 'mandatory' and 'supplemental' elements. Mandatory elements are activities that WEG can commit to at this time. Supplemental elements are activities that may be implemented at WEG's discretion and in consideration of the circumstances encountered during the EA process. The consultation program is presented graphically in Figure 6. The dates shown are estimates, the actual dates associated with the consultation program will be determined by the progress of the EA process.

Figure 6 – EA Consultation Requirements



The timing for the consultation identified in Figure 6 is an estimate. The actual timing will depend on the progress of the EA process and ongoing consultation surrounding those activities.

WEG will continue to use the many of the components of the consultation program developed during the draft ToR process, supplemented by additional consultation activities described below. These components continue into the Environmental Assessment:

- The Community Liaison Committee (CLC)
- The project website (www.walkerea.com)
- The dedicated toll-free phone line 1-855-392-5537
- The local Site office located at 160 Carnegie Street, Ingersoll ON
- The Project email address, info@walkerea.com
- The electronic and conventional mailing lists.

It should be noted that these elements may be adjusted from time to time to adapt to the circumstances encountered during the EA process.

Notice of Commencement of the EA

The first step in the consultation program will be to publish the Notice of Commencement of the Environmental Assessment (EA). This notice will announce to interested parties that the EA process has formally begun. The timing of Notice of Commencement of the EA shown in Figure 6 is an estimate. The actual timing of the event will depend upon when the Minister issues a decision on the ToR submission.

An official Notice of Commencement will be prepared and distributed in accordance with the MOE standards. This notice of the EA will be published in newspapers with local distribution such as the Ingersoll Times and the Oxford Review. It will also be posted on our Project website, mailed to local municipalities and interested Aboriginal Communities and distributed to interested parties that have requested updates through the mailing list created during the draft Terms of Reference process.

In addition to distributing the Notice of Commencement, WEG will hold a meeting with the CLC. The meeting will be used to advise the committee of the Minister's decision on the ToR and outline the plan for the EA process.

Identification and Evaluation of Alternatives

WEG will consult with interested parties on the identification and evaluation of alternatives. The purpose of the consultation is to receive input on the alternatives to be evaluated and the process that will be used to evaluate them. Interested parties can use this consultation opportunity to propose alternatives and comment on the application of the proposed screening or evaluation criteria. WEG may use input to expand/contract the list of alternatives to be evaluated or to adjust the process used to evaluate the alternatives.

The timing for the consultation identified in Figure 6 is an estimate. The actual timing will depend on the progress of the EA process and ongoing consultation surrounding those activities.

The mandatory consultation activities planned for the Identification and Evaluation of Alternatives will include:

- An Open House or a Drop-in Exhibit
  - This will be an open session where interested parties can talk to WEG representatives about the alternatives identified and evaluation process
  - The session will be advertised in advance through newspapers with local distribution such as The Ingersoll Times and The Oxford Review
  - Invitations will be distributed to local governments and Aboriginal Communities
  - Event details and any reference materials will be posted on our Project website (www.walkerea.com)
  - Comment cards will be available for interested parties/attendees
  - Attendees will be able to speak with Project Team members about any questions/concerns
- A CLC Meeting to discuss these topics
  - The meeting agenda will focus on the identification of alternatives and a discussion of the evaluation process
  - Reference materials will be circulated to CLC members at least 10 days prior to the meeting
  - The meeting will be transcribed and the transcript posted on the Project website
  - Any meeting materials will be posted on the Project website following the meeting
- A Community Exchange and/or a Newsletter document
  - This will be a written summary of the identification and evaluation of the alternatives with instructions on how interested parties can provide input
  - It will be distributed to our electronic and conventional mailing lists including local municipalities and Aboriginal Communities
  - It will be posted on the Project website
  - An outline will be placed in newspapers with local distribution such as the Ingersoll Times and the Oxford Review

WEG may also undertake supplementary consultation activities with any interested parties that request more information or want to discuss the Proposal further. These supplemental activities may include:

- Workshop sessions with interested parties
- Media releases and/or interviews
- Meetings with interested individuals or organizations
- Briefing meetings with government agencies
- Kitchen table meetings with interested residents at their homes

Identification of the Preferred Alternative

WEG will consult with interested parties after the alternatives have been evaluated and advise that a preferred alternative has been selected. The purpose of the consultation is to announce the preferred alternative and receive input in advance of the finalization of the technical work plans. Interested parties can use this consultation opportunity to present any concern about the preferred alternative that may influence the design of the final technical work plans.

The timing for the consultation identified in Figure 6 is an estimate. The actual timing will depend on the progress of the EA process and ongoing consultation surrounding those activities.

The mandatory consultation activities planned for the Identification of the Preferred Alternative will include:

- An Open House or a Drop-in Exhibit
  - This will be an open session where interested parties can talk to WEG representatives about the preferred alternative and how it could affect the technical studies
  - The session will be advertised in advance through newspapers with local distribution such as The Ingersoll Times and The Oxford Review
  - Invitations to will be distributed to local governments and Aboriginal Communities
  - Event details and any reference materials will be posted on the Project website (www.walkerea.com)
  - Comment cards will be available for interested parties/attendees
  - Attendees will be able to speak with Project Team members about any questions/concerns
- A Community Exchange and/or a Newsletter document
  - This will be a written summary of the preferred alternative with instructions on how interested parties can provide input
  - It will be distributed to our electronic and conventional mailing lists including local municipalities and Aboriginal Communities
  - It will be posted on the Project website
  - An outline will be placed in newspapers with local distribution such as the Ingersoll Times and the Oxford Review

WEG may also undertake supplementary consultation activities with any interested parties that request more information or want to discuss the proposal further. These supplemental activities may include:

- A CLC meeting
- Workshop sessions with interested parties
- Media releases and/or interviews
- Meetings with interested individuals or organizations
- Briefing meetings with government agencies
- Kitchen table meetings with interested residents at their homes

Review of the Final Technical Work Plans

WEG will consult with interested parties on the review of the final technical work plans. The purpose of the consultation is to receive input on the final technical work plans. Interested parties can use this consultation opportunity to discuss the final work plans and provide input on items they consider important. WEG may use input to revise the final work plans to respond to comments.

The timing for the consultation identified in Figure 6 is an estimate. The actual timing will depend on the progress of the EA process and ongoing consultation surrounding those activities.

The mandatory consultation activities planned for the Review of the Final Technical Work Plans will include:

- An Open House or a Drop-in Exhibit
  - This will be an open session where interested parties can talk to WEG representatives about the work plans

  - The session will be advertised in advance through newspapers with local distribution such as The Ingersoll Times and The Oxford Review
  - Invitations will be distributed to local governments and Aboriginal Communities
  - Event details and any reference materials will be posted on our Project website (www.walkerea.com)
  - Comment cards will be available for interested parties/attendees
  - Attendees will be able to speak with Project Team members about any questions/concerns
- Input from the Joint Municipal Coordination Committee Peer Review Team
  - The final technical work plans will be circulated to the JMCC Peer Review Team for comment
  - Input from the Peer Review Team and WEG's response will be posted to the project website and made available at the project office for review
- A CLC Meeting to discuss these topics
  - The meeting agenda will focus on the technical work plans
  - Reference materials will be circulated to CLC members at least 10 days prior to the meeting
  - The meeting will be transcribed and the transcript posted on the project website
  - Any meeting materials will be posted on the Project website following the meeting
- A Community Exchange and/or a Newsletter document
  - This will be a written summary of the technical work plans with instructions on how interested parties can provide input
  - It will be distributed to our electronic and conventional mailing lists including local municipalities and Aboriginal Communities
  - It will be posted on the Project website
  - An outline will be placed in newspapers with local distribution such as the Ingersoll Times and, the Oxford Review

WEG may also undertake supplementary consultation activities with any interested parties that request more information or want to discuss the proposal further. These supplemental activities may include:

- Additional CLC meeting(s)
- Workshop sessions with interested parties
- Media releases and/or interviews
- Meetings with interested individuals or organizations
- Briefing meetings with government agencies
- Kitchen table meetings with interested residents at their homes

Review of the Preferred Design and Mitigation Programs

WEG will consult with interested parties on the review of the preferred design and mitigation programs. The purpose of the consultation is to receive input on the final design and mitigation programs. Interested parties can use this consultation opportunity to provide input on the preferred design and mitigation programs before the completion of the final EA document. WEG may use input to amend the preferred design or mitigation program(s) in response to any issues raised.

The timing for the consultation identified in Figure 6 is an estimate. The actual timing will depend on the progress of the EA process and ongoing consultation surrounding those activities.

The mandatory consultation activities planned for the Review of the Preferred Design and Mitigation Programs will include:

- An Open House or a Drop-in Exhibit
  - This will be an open session where interested parties can talk to WEG representatives about the preferred design and mitigation programs
  - The session will be advertised in advance through newspapers with local distribution such as The Ingersoll Times and The Oxford Review
  - Invitations will be distributed to local governments and Aboriginal Communities
  - Event details and any reference materials will be posted on the Project website (www.walkerea.com)
  - Comment cards will be available for interested parties/attendees
  - Attendees will be able to speak with Project Team members about any questions/concerns
- Input from the Joint Municipal Coordination Committee Peer Review Team
  - The preferred design and mitigation programs will be circulated to the JMCC Peer Review Team for comment
  - Input from the Peer Review Team and WEG's response will be posted to the project website and made available at the project office for review
- A CLC Meeting to discuss these topics
  - The meeting agenda will focus on the preferred design and mitigation programs
  - Reference materials will be circulated to CLC members at least 10 days prior to the meeting
  - The meeting will be transcribed and the transcript posted on the project website
  - Any meeting materials will be posted on the Project website following the meeting
- A Community Exchange and/or a Newsletter document
  - This will be a written summary of the preferred design and mitigation programs with instructions on how interested parties can provide input
  - It will be distributed to our electronic and conventional mailing lists including local municipalities and Aboriginal Communities
  - It will be posted on the Project website
  - An outline will be placed in newspapers with local distribution such as the Ingersoll Times and the Oxford Review

WEG may also undertake supplementary consultation activities with any interested parties that request more information or want to discuss the proposal further. These supplemental activities may include:

- Additional CLC meeting(s)
- Workshop sessions with interested parties
- Media releases and/or interviews
- Meetings with interested individuals or organizations
- Briefing meetings with government agencies
- Kitchen table meetings with interested residents at their homes

Notice of EA Submission

The final step in the EA consultation program will be the publishing of the Notice of Submission of the Environmental Assessment (EA). This notice will announce to interested parties that the EA process has been prepared and is under review by the Minister. The timing of Notice of Submission shown in Figure 6 is an estimate. The actual timing of the event will depend upon the progress of the EA process.

An official Notice of Submission will be prepared and distributed in accordance with the MOE standards. This notice of the EA will be published in the Ingersoll Times and the Oxford Review. It will also be posted on the Project website (www.walkerea.com), mailed to local municipalities and interested Aboriginal Communities and distributed to interested parties that have requested updates through the mailing list created during the draft Terms of Reference process.

10.3 Proposed Engagement Plan for Aboriginal Communities During Environmental Assessment

Aboriginal Communities may have constitutionally protected rights and can offer a unique understanding of the environment based on their special relationship with the land. The duty to consult with Aboriginal Communities, where engaged, lies with the Crown, and although procedural aspects of the consultation process can be delegated to the project proponent, the ultimate responsibility for meeting any duty to consult rests with the Crown. Certain aspects of the Crown's duty to consult are delegated to WEG because WEG has more detailed knowledge about the Proposal and is in the best position to consult with Aboriginal Communities on specific project details.

It is WEG's objective to create opportunities to provide information, to receive input from, and to be responsive to concerns of Aboriginal Communities in a way that will support meaningful participation. Equally, it is an objective to identify potential impacts to Aboriginal or treaty rights and how to prevent and/or mitigate these impacts.

During the Environmental Assessment phase, WEG will build upon the relationships developed with the Aboriginal Communities during the draft ToR process. The consultation program will be consistent to the program outlined in section 10.2 with the exception of the references to securing input from the Peer Review Team retained by the JMCC. In the case of the Aboriginal Community consultation, WEG will seek input from the Peer Review Team jointly retained by the Aboriginal Communities that have already expressed an interest in the proposal.

In addition to the program outlined in section 10.2, WEG has also committed to participating in the engagement processes developed by the individual Aboriginal Communities that have expressed an interest in this proposal. Where an engagement process does not exist, WEG has committed to meeting with designated representatives of the interested communities (e.g. Chief and Council) to provide regular updates and receive input.

11. Flexibility for New Circumstances

These Terms of Reference constitute the minimum requirements for the preparation of the EA. Certain aspects may be refined and expanded during the preparation of the EA, in consultation with

government agencies, Aboriginal Communities and interested members of the public. Any potential adjustments would be minor in nature and intended to enhance the process, but would not ultimately alter the scope or purpose of the EA.

The environmental assessment is proposed to materially follow these Terms of Reference as closely as possible. However, there are some aspects of these Terms of Reference where certain assumptions have necessarily been made, and WEG may elect to adjust the scope of work during the preparation of the environmental assessment to accommodate new circumstances or information, within the overall framework of these Terms of Reference. Examples may include, but are not necessarily limited to:

- The description of the environment potentially affected, based on further research and data collection as proposed in these Terms of Reference;
- Criteria, and associated study areas, as baseline data collection refines the understanding of the environment potentially affected by the proposed undertaking;
- The description of the undertaking, based on the evaluation of the alternative methods, the effects assessment, and mitigation requirements; and
- The specific methods and timing of consultation.

WEG will communicate through appropriate consultation activities any aspect of flexibility introduced during the preparation of the environmental assessment, along with the corresponding rationale, and document the same in the environmental assessment.

12. Other Approvals Required

Based on the preliminary description of the undertaking described herein, other approvals are expected to be required in order to fully implement the proposed Southwestern Landfill, along with any related external public works that may be required. These include, but may not necessarily be limited to:

- Municipal official plan and zoning amendments under the *Planning Act*.
- Approvals to construct and operate a landfill site, and to discharge to the air, under the *Environmental Protection Act*.
- Approvals to take or discharge water under the *Ontario Water Resources Act*.

The environmental assessment will outline any other approvals that may be required.

Appendix A
Glossary of Terms

Adverse Effect	Refers to one or more of the following: (a) impairment of the quality of the natural environment for any use that can be made of it, (b) injury or damage to property or to plant or animal life, (c) harm or material discomfort to any person, (d) an adverse effect on the health of any person, (e) impairment of the safety of any person, (f) rendering any property or plant or animal life unfit for human use, (g) loss of enjoyment of normal use of property, and (h) interference with the normal conduct of business.
Aerobic	A biological process taking place in the presence of oxygen. In composting, exposing the organic waste to air by turning or forcing air through the material.
Ambient Air	Open air not enclosed in a building, structure, machine, chimney, stack or flue.
Anaerobic	A biological process taking place without the presence of oxygen. In composting, the material is sealed from the atmosphere and produces methane gas.
Aquifer	A layer of permeable rock, sand, or gravel through which ground water flows, containing enough water to supply wells and springs.
Asbestos Waste	Solid or liquid waste that results from the removal of asbestos-containing construction or insulation materials or the manufacture of asbestos-containing products.
Attenuate	To weaken, to lessen, to make smaller (e.g., to lower the concentration of a contaminant in water).
Background Level	The concentration or amount of a substance in the soil, water, or air that would be considered representative or typical of conditions in a given area or locality.
Bedrock	The contiguous layers of rock lying below the ground surface (i.e., not including individual stones or boulders entrained in soils).
Berm	In a landfilling site/facility, a narrow elevated earthen mound or ridge (e.g., a screening berm surrounding the waste deposit area).
Biosolids	Waste that is predominantly organic in composition and has been treated by aerobic or anaerobic digestion, or other means of stabilization, and includes sewage residue from sewage works that are subject to the provisions of the *Ontario Water Resources Act*;
Borehole	A hole drilled or pounded into the earth that is used to determine soil, rock, and/or groundwater characteristics. A borehole can be used as a potable drinking water well, or as a groundwater observation/monitoring well.

Bottom Ash	Relatively coarse, noncombustible incineration residue that accumulates on the grate of a furnace.
Brownfield Site	A parcel of previously developed land; often refers to former industrial, commercial, institutional or urban lands.
Buffer Area	The part of a landfilling site that is not a waste fill area, usually around the perimeter of the waste fill area.
Cell	A sub-area within a landfill site where wastes are deposited for a period of time, and then finished and closed on an interim or final basis.
Certificate of Approval (C of A)	Written permission issued by the Ministry of the Environment for the establishment and operation of a waste management site/facility, water discharge or air emission. (Now replaced with *Environmental Compliance Approval*.)
Class Environmental Assessment (Class EA)	An environmental assessment process for a specific group of projects which are routine, similar in nature, limited in scale, or possess predictable environmental effects.
Combustible Gas	In a landfill, gases produced by the decomposition of waste that will burn if ignited; methane gas is generally the major combustible constituent in landfill gas.
Combustibles	Burnable materials in the waste stream, including paper, plastics, wood, and food and garden wastes.
Compactor	A heavy, specially designed machine with a large drum or wheels used for compressing waste deposited at a landfill; may also have a blade for moving waste into place.
Composite Liner	A landfill liner consisting of both an engineered soil layer(s) and a synthetic membrane(s).
Commercial Waste	Waste originating from commercial businesses.
Compost	A mixture of decomposed plants and other organic matter used for enriching soil.
Concentration	The amount of one substance dissolved or contained in another; for example the relative amount of a substance in water, soil or air expressed in units such as parts *per* million or milligrams *per* litre.
Construction & Demolition (C&D) Waste	Solid waste produced in the course of residential, commercial, industrial, or institutional building construction, demolition or renovation (e.g., lumber, concrete, brick, plaster, glass, stone, drywall, wire, paint, etc.).
Contaminant	Any solid, liquid, gas, odour, heat, sound, vibration, radiation or combination of any of these, resulting directly or indirectly from human activities that may cause an adverse effect.
Contaminating Life Span	The period of time during which a landfill will produce contaminants at concentrations which would have an unacceptable impact if they were discharged from the site.
Cover	Soil or other approved materials placed on top of landfilled wastes, on either a daily, interim or final basis.
Cumulative Effects	Cumulative effects are changes to the environment that are caused by an action in combination with other past, present and future human actions.

Curbside	Refers to the street or road fronting residential properties where waste or recyclables are placed for pick-up.
Decommissioning	The activities associated with closing all or part of a waste management facility (e.g. the removal of process equipment, buildings and accessory structures, and the remediation of the site).
Design and Operation (D&O) Report	A document (plan/report), required for obtaining an *Environmental Compliance Approval* which describes in detail the function, elements or features of a waste management site/facility, and how it functions including its monitoring, and control/management systems.
Design Capacity	The total volume of waste that has been calculated as having the potential to be disposed of at a landfill site for a particular engineering design, typically measured in cubic metres.
Disposal	The placement of a waste in its final resting location (e.g., typically in a landfill) after no further use can be made of the material through re-use or recycling.
Diversion	The re-direction of waste materials away from disposal through re-use or recycling.
Dump	A waste disposal site where waste is deposited without an engineering design or operating plan; often refers to an older waste disposal site pre-dating modern landfilling practice.
Effluent	A liquid discharged into a municipal sewer, surface water body or onto the surface of the land.
Energy-From-Waste (EFW)	The process of using wastes to generate energy, and can include capturing and utilizing landfill gas as an energy source.
Environment	As defined in the *Environmental Assessment Act* includes the natural environment, social, economic and cultural conditions and the interrelationships between them.
Environmental Assessment (EA)	A systematic process that is conducted in accordance with applicable laws or regulations aimed at assessing the effects of a proposal on the environment. Can include the evaluation of need, alternatives, impacts, and mitigative, remedial, monitoring and/or compensatory measures.
Environmental Assessment Act (EAA)	A statute of Ontario requiring and environmental assessment for certain types of undertakings.
Environmental Bill of Rights (EBR)	A statute of Ontario that provides a number of ways for the citizens of Ontario to participate in environmental decision-making.
Environmental Compliance Approval (ECA)	Written approval issued by the Ministry of the Environment for the establishment of waste management facilities, water discharges and air emissions. (Replaces a *Certificate of Approval*)
Environmental Protection Act (EPA)	A statute of Ontario that governs the conservation of the natural environment, including the requirements and approvals for waste management facilities.
Exceedance	A measurement in excess of a standard or limit.
Exposure	Contact between a contaminant and an individual or population. The exposure may occur through pathways such as ingestion, dermal absorption (through the skin), or inhalation.

Fill	Earth, sand, gravel, construction rubble, waste or any other material, originating on-site or off-site, moved and placed in a new location.
Fill Area	The area in a landfill site where wastes are deposited.
Financial Assurance	Sureties (e.g., cash or a letter of credit) put up by the owner or operator of a waste management facility for its future care should the property be abandoned.
Flaring	The burning of gas emitted from collection pipes at the surface of a landfill.
Fly Ash	The particulate matter captured from the flue gas of an incinerator; fly ash is typically a hazardous waste.
Footprint	The land area covered by a waste management facility; landfill footprint refers to the area where waste is placed, or the fill area.
Gas Collection System	Part(s) of the landfill site designed to capture and convey landfill gas; typically consists of drainage stone and/or pipes within, beneath or around the perimeter of the waste.
Gasification	A type of incineration that converts waste to gas and slag.
Greenfield Site	A parcel of land previously undeveloped for urban use; generally refers to green space or rural/agricultural lands.
Groundwater	Water occurring below the ground surface contained in the pore spaces or other openings in soil or rock.
Half Life	With respect to landfill leachate, the time required for the concentration of a contaminant to diminish to half its original value.
Haul Route	Public/private roadway(s) used by vehicles transporting waste to a landfill site.
Hazardous Waste	Waste defined in Ontario regulations as hazardous, including hazardous industrial waste, acute hazardous waste chemical, hazardous waste chemical, severely toxic waste, ignitable waste, corrosive waste, reactive waste, radioactive waste, pathological waste, leachate toxic waste or PCB waste.
Household Hazardous Waste	Substances labelled as corrosive, flammable, poisonous, or explosive originating from household use.
IC& I Waste	Waste originating from the industrial, commercial and institutional sectors.
Incineration	A waste disposal process whereby waste is burned in a specially designed furnace.
Infiltration	The seepage of precipitation or snowmelt into the ground surface.
Inorganic	A chemical category of material that is composed of minerals and not plant or animal matter; inorganic waste includes such things as sand, dust, metals and glass.
Landfill Gas	Gases arising from the anaerobic decomposition of organic wastes; principally methane, carbon dioxide, and hydrogen sulfide.
Landfill	An approved, engineered site/facility used for the long-term or permanent disposal of waste.

Leachate	The liquid produced when water passes through wastes and picks up contaminants.
Leachate Collection System	Part(s) of a landfill site designed to capture and convey leachate; typically consists of drainage stone and/or pipes beneath or around the perimeter of the waste.
Leaf & Yard Waste	Refers to leaves, grass, weeds, trimmings, brush, and woody materials (twigs, branches, etc.) typical of yard maintenance.
Lift	An individual layer of compacted waste in a landfill cell.
Liner	Part(s) of the landfill site designed to act as a barrier to contain leachate or landfill gas within the landfill or control the rate of its release; typically consists of low permeability materials such as fine-grained soils or synthetic membranes beneath the waste.
Materials Recovery Facility (MRF)	A facility where recyclable materials are processed through shredding, baling, pulverizing, separating, sorting, or otherwise treated or altered to facilitate further transfer, processing, utilization or disposal.
Mass-Burn	The incineration of mixed waste without prior sorting or processing.
Methane Gas	An odourless, colourless, highly-combustible gas often produced by the decomposition of waste in a landfill site. Methane is explosive in concentrations ranging from 5% to 15% by volume in air.
Micro-organism	Any living organism that can only be seen with the aid of a microscope.
MOE	Ontario Ministry of the Environment.
Monitoring	A scientifically designed system of continued or periodic measurements or observations of environmental or operating conditions.
Natural Environment	The air, land and water, or any combination or part thereof.
Non-Hazardous Solid Waste	Waste defined by the regulations of Ontario as non-hazardous solid including waste generated by municipalities, residences and commercial, institutional and industrial operations.
Non-Residential Waste	Waste not generated by households. Generally consisting of IC&I and C&D wastes.
Operator	The person in occupation or having the charge, management, or control of a waste management system or a waste disposal site.
Organic	A chemical category of material that is composed of material containing carbon of plant or animal origin.
Overburden	The surface soils which rest on bedrock.
Packer Truck	Vehicle used for waste collection which compacts waste towards the rear of the truck.
Permeability	A factor describing the rate at which water or other liquids pass through a porous medium such as soil or rock.
Permit to Take Water (PTTW)	An approval granted under the *Ontario Water Resources Act* to draw water from a groundwater or surface water source.

Proponent	A person who carries out or proposes to carry out an undertaking, or is the owner or person having charge, management or control of an undertaking.
Putrescible	Subject to decomposition or decay; usually used in reference to food wastes and other organic wastes that decay quickly.
Organic Waste	Waste of animal or plant origin; organic waste includes material that can generally be decomposed by micro-organisms such as paper, plastics, wood, food wastes, leaf and yard wastes, and other materials derived from plant or animal sources.
Receptor	A specific location where the effect(s) of a waste management operation may be received.
Recyclables	Waste that can be recycled; can include materials such as: glass, metal food and beverage cans, aluminum foil, rigid shell plastic containers, newspaper, cardboard, fine paper, boxboard.
Refuse Derived Fuel (RDF)	The extraction and conversion of combustible materials from the waste stream for use as a fuel to create energy; can be further processed to form briquettes, pellets, or cubes.
Remediation	Restoration of the land to a state appropriate for future use; may include: stabilization, contouring, conditioning, reconstruction and revegetation.
Residual Waste	Waste which cannot be reused or recycled, which must ultimately be disposed.
Roll-Off Container	A container used for the collection and transport of waste, usually IC&I waste, where the entire container can be unloaded from the back of a truck and left on-site to be filled.
Service Area	The geographic area within which waste can be collected, or from which a site can provide disposal, in accordance with its approval.
Service Life	The period of time during which a properly constructed and maintained engineered facility will function and perform as designed (e.g., landfill liners, leachate collection systems, gas collection systems).
Sewage Treatment Plant (STP)	Facility that treats wastewater (and sometimes runoff) from domestic and/or industrial sources by a combination of physical, chemical, and biological processes.
Source Separation	Segregation of specific recyclable materials at the point of generation for separate collection; often part of a curbside recycling program.
Surface Water	Water lying on, or flowing across, the land surface; includes lakes, rivers, ditches, wetlands.
Tipping Face	Unloading area for vehicles that are delivering waste to a landfill.
Tipping Fee	The charge for unloading waste at a landfill, transfer station, recycling center, or waste-to-energy facility, usually in dollars *per* tonne.
Tipping Floor	Unloading area for vehicles that are delivering waste to a transfer station or incinerator.
Thermal Treatment Processes	Various forms of waste incineration that can include pyrolysis, plasma gasification, and others.
"Three R's"	Reduce, re-use and recycle; the hierarchy of waste diversion.

Threshold	The concentration, amount or level of an effect substance above which an adverse impact can be expected to occur.
Vectors	Disease-carrying flying organisms such as insects, birds.
Waste	Material that has no value to the generator; unusable or unwanted items, remains or byproducts; typically includes ashes, garbage, refuse, domestic waste, industrial waste, or municipal refuse and such other materials as are designated in regulations.
Waste Generation Rate	The amount of waste generated by a person(s) on a daily basis, typically measured in tonnes *per* person *per* year.
Waste Generator	The person, business, institutional facility or industry which creates a waste.
Waste Management System	Any facilities or equipment used in, and any operations carried out for, the management of waste including the collection, handling, transportation, storage, processing or disposal of waste, and may include one or more waste disposal sites.
Waste-To-Energy (WTE) Plant	A facility that uses waste materials to produce energy. Includes incinerators that produce steam for district heating or industrial use, or that generate electricity; and also facilities that convert landfill gas to electricity.
Waste Transfer Station/Facility	A facility where waste is transferred from small collection trucks into larger waste hauling vehicles for transportation to a waste diversion, processing or disposal site.
Wastewater	Spent or used water with dissolved or suspended solids, discharged from homes, commercial establishments, farms, and industries.
White Goods	In a recycling program, refers to household appliances such as refrigerators, stoves, freezers, washers, dryers, dishwashers, dehumidifiers, water tanks, air-conditioning units, heat pumps.

Appendix B
Environmental Assessment Criteria and Studies

1. Introduction

Section 6.1(2) of the *Environmental Assessment Act* (the "Act") describes the requirements for the preparation of an environmental assessment, which must include a description of the environmental effects that might be caused by the undertaking, and the actions necessary to prevent, change, mitigate or remedy any negative effects on the environment.

The *Act* contains a broad definition of the "*environment*":

1. *(1) In this Act,*

"environment" means,

(a) air, land or water,

(b) plant and animal life, including human life,

(c) the social, economic and cultural conditions that influence the life of humans or a community,

(d) any building, structure, machine or other device or thing made by humans,

(e) any solid, liquid, gas, odour, heat, sound, vibration or radiation resulting directly or indirectly from human activities, or

(f) any part or combination of the foregoing and the interrelationships between any two or more of them,

in or of Ontario.

This appendix details environmental assessment criteria and studies that will be carried out in order to satisfy the requirements of Section 6.1(2) of the *Act*.

2. Environmental Assessment Criteria

Table A1 lists the ***environmental assessment criteria*** that are proposed by Walker to meet the intent of Section 1.(1) of the *Act*. The criteria are sub-divided into four major groups, each one of which reflects similar types of environmental effects:

- Public Health and Safety;
- Social and Cultural;
- Economics; and
- Natural Environment & Resources.

Also included in Table A1 is a statement of the definition and rationale for each of the criteria, indicating what each criterion means, and why it is necessary to include it in the environmental assessment.

The criteria are grouped to address potential effects, rather than study disciplines (e.g., "groundwater", "traffic", etc.) because this permits a better accounting of cumulative (overlapping or additive) effects. For example, the criterion "*Disruption to use and enjoyment of residential properties*" can involve the combined effects of such things as noise, dust, odour, litter and traffic. Specialists in each of these fields will combine to address this criterion to ensure that the cumulative effects are considered.

3. Study Areas

The location of the effects is also important. In general terms, three major ***study areas*** are proposed:

On-Site and in the Site Vicinity	*On-site* includes the waste disposal facility plus the associated buffer zones. *Site vicinity* is the area immediately adjacent to the waste disposal facility property that is directly affected by the on-site activities. Its size is variable depending on the particular criterion being addressed.
Along the Haul Routes	The primary route along which waste disposal facility truck traffic moves between a major provincial highway and the waste disposal facility site entrance, plus the properties directly adjacent to these roads.
Wider Area	The broader community, generally beyond the immediate *site vicinity*. Depending on the particular criterion this may include neighbourhoods, local municipalities, the Oxford County, or the pProvince of Ontario.

Table A1 indicates the relevant study areas that will be examined for each of the criteria.

These study areas are not intended to be fixed. Flexibility is needed to expand or contract study areas, depending on the particular study and its findings. For example, the appropriate *site vicinity* for the groundwater and surface water study could encompass the watershed boundaries, while the *site vicinity* for the visual assessment could encompass the area from which the waste disposal facility will be visible. Furthermore, the area where the waste disposal facility will be visible may change as the design evolves, so the study area may also have to be progressively refined.

4. Duration

There is a need to examine the ***duration*** (or time frames) in which potential environmental effects can occur. There are two key periods that will be evaluated in this assessment:

Operational Period	The time during which the waste disposal facility is constructed, filled with waste, and capped. These activities are combined since they occur progressively (i.e., overlap) on a cell-by-cell basis, and they have a similar range of potential effects (e.g., there is heavy equipment active on the site).
Post-Closure Period	The time after the site is closed to waste receipt and final cover is applied. Activities are normally limited to operation of the leachate and gas control systems, routine property maintenance and monitoring, and thus have a more limited range of potential effects.

Table A1 identifies the study duration associated with each of the criteria.

5. Study Methods

This section provides a framework for each of the impact assessment studies that will be carried out during the environmental assessment in order to address Section 6.1(2)(c) of the *Act* with respect to the undertaking[13]. (Refer also to Table A1 for the criteria, study areas and durations to be addressed in each study.)

5.1 Agricultural Assessment

- Background data collection:
  - Soil Survey of Oxford County (Report No. 28, of the Ontario Soil Survey);
  - Canada Land inventory soil capability for agriculture mapping (OMAFRA AgMaps);
  - Provincial mapping of artificial (tile) land drainage;
  - Existing land use mapping as available from Oxford County (Interactive GIS Mapping);
  - Provincial Policy Statement Draft Policies and Local Official Plan designations and associated policies for the study areas, as they may relate to agriculture;
  - The most recent available aerial photography and satellite imagery;
  - Physiographic and topographic base mapping for the study area;
  - Assessment roll mapping of existing land ownership and fragmentation within the study areas;
  - Agricultural census data (Census of Agriculture) for the study areas;

[13] These study descriptions apply only to the assessment of the undertaking. The assessment of alternatives to the undertaking and alternative methods of carrying out the undertaking will employ the same criteria, but will be evaluated using a comparative evaluation methodology.

- Existing documentation from the Walker Environmental Group consultation program;
- Carmeuse Quarry Rehabilitation Site Plan;
- Other relevant background documentation that might be pertinent to the study areas and available at the local, regional, provincial level or from agricultural industry groups or agencies including OMAFRA, the local Federation of Agriculture, Christian Farmers Federation, the Farmers Union, agriculture commodity groups and the local Agricultural Society; and
- Proposed landfill facility features.

- Reconnaissance field mapping of agricultural operations, facilities and activities and any agriculture-related businesses within the site vicinity; farm surveys, questionnaires; and agriculture census data;
  - Within the Site Vicinity, reconnaissance mapping of agricultural and nonagricultural land use including crop production areas and cultivation patterns; agricultural facilities and structures; identification of livestock production and the location of agricultural laneways and field/road access points along proposed haul routes; and agribusiness establishments; and
  - Agricultural input to and data collection from any integrated land owner surveys/questionnaires to be completed as part of the socio-economic or consultation program. This information will assist in further characterizing surrounding agricultural production including identifying any local fresh market or certified organic production; documenting tile drainage and water usage for crop or livestock production; and identifying potential farm operational linkages between and among farm properties situated along the proposed haul routes.

- Analyses directed at characterizing the nature of the onsite, adjacent and surrounding agricultural resources and production will be based on the data collected, including the following components;
  - Carmeuse quarry rehabilitation site plan for onsite
  - Agricultural land classification of capability for common field crop production utilizing the Soil Series classifications set out in the Oxford County soil report and the Canada Land Inventory classification system guidelines for lands in the vicinity;
  - Field mapping of agricultural activity based on reconnaissance field surveys;
  - Landowner survey data compiled as part of the socio-economic study or consultation program components; and
  - Agricultural census data providing agricultural capital investment patterns and levels of crop and livestock production in the site vicinity and wider area.

- These combined impact analyses will address the potential for specific agricultural resource, facility or operational impacts including the following:
  - Water quality impacts affecting livestock or food quality;
  - Loss or reduction in water availability for agricultural operations, including that required for livestock or crop production;
  - Airborne contamination of crops or soils including air emissions or fine particulate (dust);
  - Market impacts on fresh produce sales or certified organic production;
  - Impact on surface or tile drainage or drainage outlets;
  - Flooding hazards affecting crop production or resulting in soil erosion impacts;

- Blowing litter nuisance including related livestock hazards and potential damage to farm machinery;
- Noise impacts on livestock;
- Disease transmission to farm produce or livestock associated with insects, vermin or birds;
- Hazards to aerial crop spraying operations associated with birds;
- Potential traffic hazards to the movement of farm machinery across or along the proposed haul routes;
- Farm business impacts associated with any of the above impacts or with property value impacts; and
- Displacement of prime agricultural land.

- Recommendations to mitigate and manage potential impacts.

5.2 Air Quality Assessment

- Background data collection:
  - Hourly meteorological data from local MOE approved site;
  - Existing ambient air quality monitoring (Carmeuse and MOE);
  - Existing Environmental Compliance Approval(s) (Air/Noise);
  - Receptor locations and sensitivity.
- Develop computer model of baseline air quality conditions.
- Estimate the future air emissions from other sources (e.g., new developments) and update the computer models to predict baseline dust, air quality and odour at critical receptor points in the site vicinity and along the haul routes.
- Estimate the level of dust and air emissions from proposed waste disposal facility operations.
- Estimate the amount and quality of gas emissions from the proposed waste disposal facility operations, taking into account the capture rate for the gas collection system.
- Run computer model to simulate the effects of the waste disposal facility compared to the baseline conditions, predicting dust, odour and air quality at critical receptor points in the site vicinity and along the haul routes.
- Compare modelling results to MOE air quality limits and guidelines.
- Recommend additional mitigation measures, if required.
- Recommended monitoring, contingency plans and triggering mechanisms.

5.3 Cultural/Heritage Assessment

- Background data collection - Research cultural heritage features through:
  - Beachville District Museum;
  - Ingersoll Cheese and Agricultural Museum;
  - County of Oxford
  - Oxford County Museum School
  - Oxford County Library
  - County of Oxford Archives
  - Township of Zorra
  - Township of South-West Oxford

  - Town of Ingersoll
  - Oxford Historical Society
  - Oxford County Branch of the Ontario Genealogical Society
  - Ontario Heritage Properties Database
- Field data collection - Compilation of written and photographic inventory of all cultural heritage landscapes and built heritage features.
- All built heritage features and cultural heritage landscapes will be evaluated according to those criteria contained in Ontario Regulation 9/06 pursuant to the *Ontario Heritage Act*. Use of the criteria is typically prescribed strictly for use in the designation of property under Part IV of the *Ontario Heritage Act*. They will be used in this assessment for identifying and distinguishing amongst various cultural heritage values.
- Analysis of potential impacts to built heritage features and cultural heritage landscapes.
- Recommendations on impact mitigation measures, including the establishment of conservation plans, monitoring and additional recording will be provided.

5.4 Archaeology Assessment

- Research archeological features through:
  - Land Registry Abstract Index
  - Municipal Tax Assessment Rolls
  - Canada Census Records
  - Historic Maps
- Field Surveys for archeological artifacts by site inspection, plough field reconnaissance, and test pits, for any new areas of ground disturbance, if required.
- Artifact recovery and identification, if required.
- Analysis of potential archeological impacts.
- Recommendations to mitigate and manage potential impacts and/or preservation or protection of significant features, in consultation with interested parties and agencies.

5.5 Ecology Assessment

- Collect background data including from the following sources:
  - Ministry of Natural Resources;
  - Upper Thames River Conservation Authority;
  - Fisheries and Oceans Canada SAR Mapping;
  - Oxford Natural Heritage Study;
  - Knowledgeable local naturalists;
  - Official Plan policies and mapping related to natural features
  - Transport Canada (airports).
- Characterize existing terrestrial ecosystems through field work conducted in the spring (birds, amphibians, vegetation) and in the summer (vegetation).
- Characterize existing aquatic ecosystems through fish surveys, water flow, water quality and benthic invertebrate sampling.
- Evaluate the potential effects of the waste disposal facility on terrestrial and aquatic ecosystems.

- Evaluate the effects on natural heritage corridors (e.g., Upper Thames River).
- Evaluate the potential for interference with aviation due to birds.
- Recommendations to mitigate and manage potential effects.
- Recommendations to monitor terrestrial and aquatic ecosystems, and contingency plans.
- Recommendations for a gull management program.
- Evaluate the potential for nuisance species to access the waste disposal facility.

5.6 Economic/Financial Assessment

- Background Data Collection
  - Information on project specifics derived through consultation with the client
  - Areas and matters of effect as defined by other disciplines
  - Information on economic multipliers derived from Statistics Canada
  - Information on economic health costs from Ontario Ministry of Health
  - Information on municipal finance for area municipalities derived through assembly and review of available documentation
  - Information derived from available data bases and records documenting listings, sales and assessed values
  - Consultation with Provincial Ministries especially the Ontario Ministry of Agriculture and Food and Rural Affairs, Ministry of Tourism Culture and Sport and Ministry of Health
  - Reviews of available maps to note areas of special interest and zones of activity and land use fabric.
  - Review of business directories to gain insight into the number, type, location and potential sensitivities of area businesses.
  - The identification and review of property value protection plans for similar developments elsewhere in Ontario and beyond.

- Field Work and Community Interaction
  - Business surveys and interviews with residents, area businesses, agriculture operators and affiliated associations (note that resident and agricultural surveys will be respectively conducted in conjunction with the social and agricultural disciplines)
  - Information derived from interviews with area realtors and developers
  - Information on municipal finance for area municipalities and the County derived from interviews with officials
  - Consultation with Provincial Ministries especially the Ontario Ministry of Agriculture and Food and Rural Affairs, Ministry of Tourism Culture and Sport and Ministry of Health

- Analysis of Economic Impact
  - Evaluate baseline property values and compare to assessed values.
  - Inventory existing businesses and analyze for potential project effects in terms of constraints and opportunities.
  - Analyze the general economic climate of the Region including income, employment (type, distribution and levels), and business opportunities.
  - Determine the economic implications of the proposed project on the area economy in terms of jobs, income and GDP.

- Review property value impacts and protection plans at other waste disposal facility sites.
- Analyze the effects on municipal fiscal finances (revenues and expenditures).
- Determine potential costs and benefits afforded to customers through project implementation
- Recommend measures to mitigate and manage potential impacts.

5.7 Groundwater/Surface Water Assessment

- Collect/update background data for the vicinity of the site including:
  - water well records
  - oil and gas well records
  - geologic mapping
  - topographic & drainage mapping
  - hydrogeologic and hydrologic reports and studies
  - historic site data
- Update local water well location and use data.
- Characterize existing surface water resources and geomorphology by collecting seasonal flow measurements, collecting surface water samples, and analyzing surface water quality.
- Drill boreholes into bedrock for geotechnical and geophysical testing and determine requirements for additional groundwater monitoring wells.
- Obtain water level measurements in new and existing groundwater monitoring wells, as well as private wells.
- Conduct slug testing and/or packer testing to estimate hydraulic properties of overburden and bedrock zones.
- Collect groundwater samples from target wells and conduct chemical analysis.
- Develop conceptual hydrogeological (groundwater flow/contaminant transport) model to simulate hydraulic effects and determine potential impacts of waste disposal facility on nearby groundwater receptors.
- Determine leachate characteristics and contaminants lifespan.
- Evaluate the effectiveness and service life of leachate control system(s) relative to leachate contaminant lifespan.
- Calculate slope stability and settlement relative to waste placement depth and expansion(s) excavation.
- Determine the potential effects of ongoing quarry blasting on the integrity of the existing and any proposed landfill liner systems.
- Determine possible effects of waste disposal facility on localized and downstream water resources, in terms of flood potential, baseflow attenuation and water quality.
- Recommendations to prevent, mitigate and manage potential impacts.
- Recommendations to monitor groundwater and surface water, and contingency plans.

5.8 Human Health Risk Assessment

- Obtain necessary air and groundwater/surface water quality information from Air Quality and Groundwater/Surface Water disciplines.

- Obtain contextual information from other relevant EA disciplines (e.g., agricultural, social, land use planning, etc.).
- Meet with CSC, Medical Officer of Health and other key stakeholders to obtain information on relevant issues to guide Problem Formulation step of the HHRA.
- Develop assessment of baseline air quality and water quality conditions.
- Screen baseline and predicted facility emission chemical information versus relevant Provincial environmental standards to establish a list of media-specific chemicals of potential concern (COPC).
- In conjunction with the Air Quality discipline, select a series of sensitive receptor locations in the surrounding communities.
- Run computer models to simulate environmental fate of relevant COPCs to estimate multimedia exposure concentrations.
- Run computer models to predict short-term (acute) and long-term (chronic) human health risks related to facility emissions at selected sensitive receptor locations, including both inhalation and multimedia (e.g., soil, home-grown produce, agricultural produce, etc.) exposures.
- Evaluate health risks related to both facility-only and cumulative (i.e., background + facility) effects scenarios to determine the incremental impacts of the proposed project.
- Document uncertainties within the assessment.
- With other relevant disciplines, recommend additional mitigation measures, if required.
- With other relevant disciplines, recommend monitoring, contingency plans and triggering mechanisms, if required.
- Communicate outcome of study and answer questions and concerns of regulatory and community stakeholders.

5.9 Land Use Planning Forecast Assessment

- Review Municipal and County Official Plans, Zoning By-laws and Policies.
- Identify/define and map existing land uses.
- Meet with Municipal and County officials to determine forecasts of area land uses in the future with and without (i.e. baseline conditions) the waste disposal facility.
- Recommendations for mitigation and land use related components to an impact management plan as required.

5.10 Noise/Vibration Assessment

- Identify noise sensitive receptors of concern within the vicinity of the proposed waste disposal facility and existing quarry and landfill operations.
- Measure ambient noise levels at representative receptors surrounding the site.
- Measure noise levels from existing operations (e.g., quarry activities) at the source, if possible, at representative receptors and at the property boundary.

- Measure noise emission levels of existing quarry and estimate noise levels from proposed landfill equipment, including any trucks, heavy machinery, pest control devices and landfill gas utilization or flaring systems).
- All measurements will be conducted in compliance with NPC-102 and NPC-103 guidelines, as amended/replaced.
- All analysis and reporting will be in compliance with NPC-205, NPC-232 and NPC-233 guidelines.
- Model noise levels of waste disposal facility (during construction, during operation and after closure) using the ISO 9613 Environmental Sound Propagation Model.
- Prepare noise level contours for the waste disposal facility, the site vicinity, and along the haul routes.
- Compare predicted noise levels to MOE limits as set out in "Noise Guidelines for Landfill Sites", or equivalent guidelines, as applicable.
- Where necessary, identify where further mitigation can occur to reduce noise/vibration levels.
- Recommend procedures for responding to noise/vibration complaints.
- Recommend monitoring, contingency plans and triggering mechanisms.

5.11 Social Assessment

- Background data collection:
  - Field mapping of residences and community facilities/service areas;
  - Statistics Canada data;
  - Municipal data, including planning data;
  - Information available from public facilities and institutions, community groups and organizations;
  - Conservation Authority information;
  - Provincial Assessment information.
- Field work and Community Interaction
  - Field survey(s) (e.g., recreational users).
  - Resident conducted tour(s).
  - Public attitude research (i.e. telephone survey).
  - Interviews, including contact with community facility representatives.
  - Kitchen table meetings / roundtables with neighboring residents
  - Local resident/property owner survey / questionnaire(s).
  - Ad hoc meetings with community leaders, municipal officials, Aboriginal Communities, ratepayer's groups, Community Liaison Committee, and EA Committee (as required).
  - Coordination of field work and community interaction with other technical disciplines, particularly the economic/financial discipline;
- Analysis of Social Impact
  - Coordination of analyses with respect to key assumptions, scenarios and analysis receptor points;
  - Coordination of analyses and review of findings from other technical studies (e.g., noise, air quality, traffic, visual, agriculture, etc.)
  - Review and integration of consultation results.
  - Analysis of existing social context

- Identification and analysis of potential social impacts.
- Recommendations to mitigate or otherwise manage potential impacts, including recommendations by other disciplines that relate to social impacts.

5.12 Traffic Assessment

- Background data collection:
  - Traffic levels;
  - Road conditions, driveways, and traffic controls;
  - Accident statistics;
  - Traffic planning studies;
  - Train crossings and frequencies;
  - Trail crossings and use;
  - Traffic counts/surveys
  - School bus routes.
- Assessment of existing baseline conditions for all road users – level of service, traffic operations, and safety
- Projections of future traffic levels.
- Assessment of future baseline conditions for all road users – level of service, traffic operations, and safety
- Identification of alternative methods (e.g. haul routes)
- Evaluation of alternative methods (e.g. haul routes) – level of service, traffic operations, and safety
- Recommendations for additional mitigation measures, if required (e.g., traffic controls, road improvements).
- Recommended monitoring, contingency plans and triggering mechanisms.

5.13 Visual/Landscape Assessment

- Present baseline view conditions as a written and photographic account.
- Define the areas where the waste disposal facility will be able to be seen (i.e. the "viewshed") at varying distances and key vantage points.
- Calculate receptor-based visual impact values for each stage of operation that considers spatial separation between the waste disposal facility and each viewpoint, angle measurement of each viewpoint, and area calculations of visible portion of the waste disposal facility from each viewpoint and potential numbers/types of viewers.
- Visual impacts along haul routes and potential numbers/types of viewers.
- Simulations to illustrate potential impacts, mitigation strategies, and phases.
- Evaluate impacts against provincial and municipal landscape objectives
- Recommendations to mitigate and manage potential impacts (e.g.: screening, buffering, end use planning & phasing).

Table A-1 – EA Criteria Table

	Criteria	Definition/ Rationale	Studies Addressing the Criteria													Study Areas			Duration	
			Agriculture	Air Quality	Archaeology	Cultural Heritage	Ecology	Economic/ Financial	Groundwater/ Surface Water	Human Health	Land Use	Noise/Vibration	Social	Traffic	Visual/ Landscape	On-Site & Site Vicinity	Along the Haul Routes	Wider Area	Operational Period	Post-Closure Period
	Public Health & Safety																			
1	Explosive hazard due to combustible gas accumulation in confined spaces.	Gas produced within a waste disposal facility (e.g., methane) can move through the ground and accumulate in confined spaces (e.g., manholes, basements, etc.) on or immediately adjacent to the waste disposal facility. There is potential for the gas to combust, creating an explosion and fire hazard.							☑							✓			✓	✓
2	Effects due to exposure to air emissions.	Waste disposal facilities can produce gases containing contaminants that degrade air quality if they are emitted to the atmosphere. Other operations, such as leachate collection facilities, can also produce emissions that could degrade air quality in the vicinity of the site. Air quality in the vicinity of the site should meet regulated air quality standards in order to protect public health.		☑						☑						✓			✓	✓
3	Effects due to fine particulate exposure.	Construction, operation, and truck haulage activities at a waste disposal facility can lead to increased levels of particulate (dust) in the air. Airbourne fine particulate is a health concern in certain size ranges exposure durations.		☑						☑						✓	✓		✓	
4	Effects due to contact with contaminated groundwater or surface water.	Contaminants associated with a waste disposal site have the potential to seep into the groundwater or surface water. This could pose a public health concern if it enters local drinking water supplies, or if it mixes with surface water.							☑	☑						✓			✓	✓
5	Flood hazard.	The construction of a waste disposal facility can disrupt natural surface water drainage patterns, causing a potential for increased flooding.							☑							✓			✓	✓
6	Disease transmission *via* insects or vermin.	Insects and vermin drawn to a waste disposal facility may have the potential to transmit diseases.					☑									✓			✓	✓
	Public Health & Safety (continued)																			
7	Potential for traffic collisions.	The risk of traffic collisions may increase along the haul routes to the waste disposal facility. This includes the risk to pedestrian, bicycle and farm machinery.												☑			✓		✓	

	Criteria	Definition/ Rationale	Studies Addressing the Criteria													Study Areas			Duration	
			Agriculture	Air Quality	Archaeology	Cultural Heritage	Ecology	Economic/ Financial	Groundwater/ Surface Water	Human Health	Land Use	Noise/Vibration	Social	Traffic	Visual/ Landscape	On-Site & Site Vicinity	Along the Haul Routes	Wider Area	Operational Period	Post-Closure Period
8	Aviation impacts due to bird interference.	Birds may be attracted to waste disposal facilities. This can pose a risk of bird strikes on aircraft in the vicinity of the site, especially during take-off and landing altitudes.					☑									✓			✓	
Social and Cultural																				
9	Displacement of residents from houses.	Any residents living on a future waste disposal site will have to relocate, which can cause inconvenience and stress to the residents.											☑			✓			✓	✓
10	Disruption to use and enjoyment of residential properties.	Potential nuisance effects associated with the waste disposal facility operation, or traffic moving to and from the waste disposal facility along the haul route, may disturb the daily activities and uses of residential properties. Disturbances could result from noise, dust, litter, odour, visibility,											☑			✓	✓		✓	✓
11	Disruption to use and enjoyment of public facilities and institutions.	Potential nuisance effects associated with waste disposal facility operations, or traffic moving to and from the waste disposal facility, may disturb the daily activities at community facilities. Disturbances could result from noise, dust, litter, odour, visibility, birds and traffic congestion.											☑			✓	✓		✓	
12	Disruption to local traffic networks.	Increased traffic volume resulting from a waste disposal facility could disturb the overall traffic flow along the haul routes, and effectively reduce the available road capacity.												☑			✓		✓	
13	Visual impact of the waste disposal facility.	Development and operation of a waste disposal facility can affect the visual appeal of a landscape.													☑	✓			✓	✓
14	Nuisance associated with vermin.	Waste disposal facilities can attract vermin and birds, which can be a nuisance and lead to a decrease in property enjoyment by area residents. Vermin and birds can also be a nuisance to											☑			✓			✓	

☑ Study that will be primarily responsible for addressing criterion.

Note: Many of the studies will provide key input to criteria that will be address through other impact assessment studies.

	Criteria	Definition/ Rationale	Studies Addressing the Criteria													Study Areas			Duration	
			Agriculture	Air Quality	Archaeology	Cultural Heritage	Ecology	Economic/ Financial	Groundwater/ Surface Water	Human Health	Land Use	Noise/Vibration	Social	Traffic	Visual/ Landscape	On-Site & Site Vicinity	Along the Haul Routes	Wider Area	Operational Period	Post-Closure Period
Social and Cultural (continued)																				
15	Displacement/disturbance of cultural/heritage resources.	Cultural resources (including heritage buildings, cemeteries and cultural landscapes) are an important component of human heritage. These non-renewable cultural resources may be displaced by the construction of a waste disposal facility. The use and enjoyment of cultural resources may also be disturbed by the ongoing operation and traffic. Disturbances could result from noise, dust, odour, visibility, birds, litter and traffic congestion.				☑										✓	✓		✓	✓
16	Effects on land resources, traditional activities or other interests of Aboriginal Communities.	Major new developments of any type may have positive or negative effects on the interests of Aboriginal Communities (i.e., businesses opportunities, joint ventures)											☑					✓	✓	✓
17	Displacement/destruction of archaeological resources.	Archaeological resources are non-renewable cultural resources that can be destroyed by the construction and operation of a waste disposal facility.			☑											✓			✓	
18	Level of public service provided by the waste disposal facility.	The presence of a waste disposal operation within a municipality can provide an increased level of public service (e.g., convenient access to waste disposal services) to local residents and businesses, as well as those in the broader community (i.e.,						☑										✓	✓	✓
19	Effects on other public services.	The presence of a waste disposal facility may have positive or negative spin-off effects on other public services in the community (e.g., leachate trucking, waste water treatment capacity, if there is discharge to the sewer system).						☑									✓	✓	✓	✓

☑ Study that will be primarily responsible for addressing criterion.

Note: Many of the studies will provide key input to criteria that will be address through other impact assessment studies.

	Criteria	Definition/ Rationale	Studies Addressing the Criteria													Study Areas			Duration	
			Agriculture	Air Quality	Archaeology	Cultural Heritage	Ecology	Economic/ Financial	Groundwater/ Surface Water	Human Health	Land Use	Noise/Vibration	Social	Traffic	Visual/ Landscape	On-Site & Site Vicinity	Along the Haul Routes	Wider Area	Operational Period	Post-Closure Period
Social and Cultural (continued)																				
20	Changes to community character/cohesion.	Community character and cohesion refer to physical characteristics, social stability, attractiveness as a place to live and patterns of social interaction. A waste disposal facility may actually or perceptually interfere with these important community attributes.											☑			✓	✓	✓	✓	✓
21	Compatibility with municipal land use designations and official plans.	A waste disposal facility has the potential to affect the viability of present and future land uses, which may have an effect on planning decisions made in the surrounding community.									☑					✓		✓	✓	✓
Economics																				
22	Displacement/disruption of businesses or farms.	Any on-site businesses or farms would be displaced by a waste disposal facility, and there could be financial losses as a result of relocation. Some types of businesses located in the site vicinity or along the haul routes may suffer financial losses due to the potential nuisance effects or perceived effects associated with the operation of a waste disposal facility such as noise, litter, dust, odour, visibility, birds, vermin and traffic congestion.						☑								✓	✓		✓	
23	Property value impacts.	The establishment and operation of a waste disposal facility may adversely affect property values in the site vicinity or along the haul routes.						☑								✓	✓		✓	✓
24	Direct employment in waste disposal facility construction and operation.	A waste disposal facility may create new employment opportunities both in the construction and day-to-day operation.						☑										✓	✓	
25	Indirect employment in related industries and services.	A waste disposal facility has the potential to have impacts on employment opportunities in local firms supplying products or services directly, or as secondary suppliers.						☑										✓	✓	

☑ Study that will be primarily responsible for addressing criterion.

Note: Many of the studies will provide key input to criteria that will be address through other impact assessment studies.

	Criteria	Definition/ Rationale	Studies Addressing the Criteria													Study Areas			Duration	
			Agriculture	Air Quality	Archaeology	Cultural Heritage	Ecology	Economic/ Financial	Groundwater/ Surface Water	Human Health	Land Use	Noise/Vibration	Social	Traffic	Visual/ Landscape	On-Site & Site Vicinity	Along the Haul Routes	Wider Area	Operational Period	Post-Closure Period
Economics (continued)																				
26	New business opportunities related directly to waste disposal facility construction and operation.	A large capital project, such as the construction and operation of a waste disposal facility, can create new opportunities for local businesses supplying products or services.						☑										✓	✓	
27	New business opportunities in related industries and services.	New opportunities may be created for local businesses, or as secondary suppliers to industries working for the waste disposal facility (e.g., restaurants, gas stations, machine shops, repair shops, welding shops, equipment rentals, etc.).						☑										✓	✓	
28	Public costs for indirect liabilities.	Some public services may have to be upgraded to accommodate the establishment and operation of a waste disposal facility (e.g., snow removal, sewer and water connections, etc.).						☑										✓	✓	✓
29	Effects on the municipal tax base.	A waste disposal facility has the potential to affect municipal tax revenues from the site it occupies.						☑										✓	✓	✓
30	Effect on the cost of service to customers.	The costs of constructing a waste disposal facility will effect the price of tipping fees to the site. This affects the cost of service to customers in Oxford cCounty and the province.						☑										✓	✓	
31	Effects on the provincial/ federal tax base.	A waste disposal facility has the potential to affect provincial/federal tax revenues.						☑										✓	✓	✓
Natural Environment & Resources																				
32	Loss/displacement of surface water resources.	Construction of a waste disposal facility may cause the removal of all or part of a natural stream or pond.							☑							✓			✓	
33	Impact on the availability of groundwater supply to wells.	A waste disposal facility can impact the availability of groundwater supply if groundwater is pumped from aquifers or if recharge to aquifers is reduced.							☑							✓			✓	✓
34	Effects on stream baseflow quantity/quality.	The presence of a waste disposal facility has the potential to affect the quality or quantity of baseflow to surface water.							☑							✓			✓	✓

☑ Study that will be primarily responsible for addressing criterion.

Note: Many of the studies will provide key input to criteria that will be address through other impact assessment studies.

	Criteria	Definition/ Rationale	Studies Addressing the Criteria													Study Areas			Duration	
			Agriculture	Air Quality	Archaeology	Cultural Heritage	Ecology	Economic/ Financial	Groundwater/ Surface Water	Human Health	Land Use	Noise/Vibration	Social	Traffic	Visual/ Landscape	On-Site & Site Vicinity	Along the Haul Routes	Wider Area	Operational Period	Post-Closure Period
Natural Environment & Resources (Continued)																				
35	Loss/disturbance of terrestrial ecosystems.	Terrestrial ecosystems refer to the land-based habitats connected through the vegetation cover; their protection and integration maintains and regulates ecological health. Waste disposal facility operations and/or traffic may remove or disturb the functioning of these systems.					☑									✓	✓		✓	
36	Loss/disturbance of aquatic ecosystems.	Aquatic ecosystems refer to the water-based habitats connected through the surface water; their protection and integration maintains and regulates ecological health. Waste disposal facility operations may remove or disturb the functioning of these systems.					☑									✓			✓	
37	Displacement of agricultural land.	The establishment of a waste disposal facility has the potential to displace existing or potential agricultural resources, including the loss of prime agricultural land.	☑													✓			✓	✓
38	Disruption of farm operations.	The establishment and operation of the waste disposal facility may affect agricultural crop or livestock production and related agriculture activities	☑													✓	✓		✓	✓
39	Sterilization of industrial mineral resources.	The establishment of a waste disposal facility may limit the opportunity to extract industrial mineral resources located beneath the site.									☑					✓			✓	✓
40	Displacement of forestry resources.	The establishment of a waste disposal facility may limit the opportunity to utilize forestry resources on or near the site.									☑					✓			✓	✓
41	Loss/disruption of recreational resources.	Waste disposal facility operations and traffic may displace/disrupt existing recreational resources in the area, which could adversely affect the community at large. Disturbances could result from noise, dust, odour, visibility, birds and traffic congestion. Recreational resources include naturalist and interpretive opportunities.											☑			✓	✓		✓	✓

☑ Study that will be primarily responsible for addressing criterion.

Note: Many of the studies will provide key input to criteria that will be address through other impact assessment studies.

Table A-2 – EA Technical Studies Interconnectivity Matrix

Because effectively evaluating the EA criteria provided in Table A-1 may require input from experts in many disciplines, WEG adopted a methodology that facilitates a cross-functional approach among the experts. Each EA criterion has been assigned a 'lead' expert for reporting purposes (see Table A-1). The lead expert is responsible for coordinating efforts with any other expert they determine necessary to effectively report on that criterion as well as providing information to other experts who need input from them to report on any other criteria. Table A-2 provides possible relationships required between experts to effectively report on their respective EA criteria. The actual relationships will be developed during the EA process in consultation with interested parties.

		Reference Studies												
		Agriculture	Air Quality	Archaeology	Cultural Heritage	Ecology	Economic / Financial	Groundwater / Surface Water	Human Health	Land Use	Noise / Vibration	Social	Traffic	Visual/ Landscape
Technical Studies	Agriculture		✓							✓	✓		✓	
	Air Quality												✓	
	Archaeology													
	Cultural Heritage									✓		✓		✓
	Ecology		✓					✓			✓		✓	
	Economic / Financial	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓
	Groundwater / Surface Water	✓										✓		
	Human Health		✓					✓			✓			
	Land Use													
	Noise / Vibration													
	Social	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓
	Traffic	✓								✓		✓		
	Visual Landscape											✓		

Walker Environmental Group Inc.

Southwestern Landfill Proposal

Addendum to the Approved Amended Terms of Reference

May 10, 2016

This Addendum consists of:

a. Terms of Reference - Notice of Approval, Environmental Assessment Act Subsection 6(4), Approval of Terms of Reference for the Preparation of an Environmental Assessment; March 17, 2016.
b. Walker Environmental Group Inc. Southwestern Landfill Proposal – Addenda to the Approved Terms of Reference, Additional Commitments & Errata; May 10, 2016.

TERMS OF REFERENCE - NOTICE OF APPROVAL

ENVIRONMENTAL ASSESSMENT ACT

SUBSECTION 6(4)

APPROVAL OF TERMS OF REFERENCE

FOR

THE PREPARATION OF AN ENVIRONMENTAL ASSESSMENT

RE: Proponent: Walker Environmental Group ('Walker")

Undertaking: Southwestern Landfill

EA File No.: EA 03-08-02

The proposed Terms of Reference submitted to the Ministry of the Environment and Climate Change on August 30, 2013 ("the proposed Terms of Reference" or "the Terms of Reference"), with the amendments which I consider necessary, all of which are set out in this notice, is hereby approved ("the approved Terms of Reference").

The approved Terms of Reference provides information other than that required by subsection 6.1(2) of the *Environmental Assessment Act*, R.S.O. 1990, c.E.18 ("the Act") and will govern the preparation of the environmental assessment for the above-noted undertaking. Pursuant to subsection 6.1(1) of the Act, any environmental assessment for the above-noted undertaking submitted to the Ministry of the Environment and Climate Change pursuant to subsection 6.2(1) of the Act must be prepared in accordance with the approved Terms of Reference.

Reasons:

I am satisfied that an environmental assessment prepared in accordance with the Terms of Reference, as amended, will be consistent with the purpose of the Act and the public interest for the following reasons:

1. The amended Terms of Reference provide a framework that should ensure that the environmental assessment will be completed using a comprehensive public, Aboriginal, and government consultation process that is open and transparent.

2. The amended Terms of Reference provide sufficient direction to ensure that the environmental assessment will provide an adequate level of detail to accurately assess the environmental effects, advantages and disadvantages of the undertaking.

3. The amended Terms of Reference set out a planning process that will ensure that the environmental assessment will be consistent with the purpose of the Environmental Assessment Act and the public interest.

4. The requirement to consult at the initial stages of the environmental assessment on the proposed work plans will also provide government reviewers an early opportunity to provide input into the design of the environmental assessment studies.

5. The requirements to add greater certainty on the methods to be followed in conducting the hydrogeological and air quality assessments will help ensure that the level of study conducted by Walker will be appropriate to clearly understand the site.

6. The requirement to add clarity to the consultation between Walker and the Joint Municipal Coordinating Committee on the proposed health assessment work plans will help ensure that the committee is provided ample opportunity to provide input to the studies, and that human health is adequately characterized and protected.

7. There are no outstanding issues that have not been adequately addressed in the amended Terms of Reference or that cannot be addressed during the preparation of the environmental assessment.

Amendments

The following amendments, as well as commitments Walker made following the submission of the Terms of Reference on August 30, 2013, will be incorporated into the Terms of Reference as an Addendum. The Amended Terms of Reference, including Addendum will be published and made available on the Proponent's web site, and by hard copy where feasible on request.

The approved Terms of Reference sets out in detail the requirements for the preparation of the environmental assessment and the following amendments change the detailed requirements set out in the proposed Terms of Reference or provide further detailed requirements.

To the extent that there is any conflict between the requirements outlined in the proposed Terms of Reference and the amendments below, it is the amendments below that will take precedence.

Along with the consultation, evaluation and decision-making framework outlined in the Terms of Reference for the preparation of the environmental assessment, Walker will also carry out the following tasks as part of the environmental assessment process:

1. Arrange meetings/workshops between Walker's technical experts and the respective technical experts of the Technical Review Team, Ministry of Natural Resources and Forestry, Conservation Authority, Community Liaison Committee and the Committee Peer Review Team to review the revised draft work plans and see resolution of any outstanding technical issues; the surface water and ecology meetings shall be held in advance of spring sampling.

2. Consult with the Ministry of the Environment and Climate Change, including the Source Programs Protection Branch prior to the finalization of all water resource-related work plans to ensure that the proposed methods for the collection and analysis of environmental monitoring data are consistent at a minimum with any monitoring requirements which may be required by the Ministry of the Environment and Climate

Change in subsequent approvals under the Ontario Water Resources Act or the Environmental Protection Act.

3. Associated approvals may be required under the Aggregate Resources Act that may include a partial or complete licence surrender, or a site plan amendment; Walker shall work with the licensee and identify these associated approvals in its environmental assessment.

4. Undertake water chemistry monitoring that will use analytical methods of sufficient sensitivity to quantify water concentrations at the levels of the Provincial Water Quality Objectives. Where an objective does not exist for a water quality variable, an objective will be determined in consultation with the Ministry of the Environment and Climate Change.

5. Undertake benthic community monitoring that will use quantitative (fixed-area) and qualitative sampling and species-level taxonomic resolution. The data so collected shall be analyzed using a suite of multi-metric indices or multivariate statistical analysis of sufficient sensitivity and precision to reach conclusions about impacts or potential impacts to water quality.

6. Consult with the Ministry of the Environment and Climate Change prior to the finalization of air quality work plans to ensure that the proposed studies will adequately characterize the existing environment, given the potential for cumulative impacts, as well as allow for accurate prediction of impacts during the entire life cycle of the proposed landfill. This consultation shall include, but not necessarily be limited to the list of species to be monitored, the number and location of monitors, the type of monitors to be used and quality assurance and quality control procedures. This consultation and subsequent work plans will build upon the other studies undertaken in the area by the Ministry of the Environment and Climate Change, the municipalities, and Public Health Ontario. Walker will provide the Ministry of the Environment and Climate Change with full access to all monitors and will ensure that all sampling locations are designed and operated to permit co-located sampling.

7. Walker shall characterize the potential net effects of the proposed landfill on groundwater, surface water and related ecology. Where necessary and appropriate, the study areas will be extended to include the broader ecosystem including the Thames River basin.

8. As part of this process, Walker shall consult with the Ministry of the Environment and Climate Change on the comparative evaluation methods for the selection of the preferred alternative, as well as the detailed technical studies to be used. Walker shall consult with the Ministry of the Environment and Climate Change, other appropriate government reviewers, members of the public and Aboriginal communities early in the environmental assessment process, before the preferred alternative method has been selected, regarding the nature and scope of the proposed environmental assessment studies, specifically including early consultation on the development of the air quality, human health, surface water and groundwater studies. This early consultation will provide an opportunity for Walker to receive input from regulators and interested parties on how potential impacts may be identified, and this input will be reflected in the measures developed to mitigate potential environmental impacts.

The technical studies will use methods for the collection and analysis of data that are scientifically sound and defensible, so that the proposed site, potential contaminant pathways in the subsurface environment, and all potential environmental impacts of the proposed undertaking are clearly understood. Walker will undertake environmental assessment studies to adequately describe baseline conditions and demonstrate that it can clearly understand the proposed site and potential environmental impacts of the proposed undertaking. This will include that Walker will evaluate the 'do nothing' alternative using a full range of natural, social, economic, cultural and technical criteria. The specific set of environmental criteria and evaluation methods will be confirmed in consultation with the public, Aboriginal communities and government reviewers.

9. As part of the environmental assessment, Walker shall consider and evaluate alternative methods for the separation, at source, at the landfill or by other method, of Industrial, Commercial and Institutional waste such as, but not limited to, recyclables and organics that may have other end uses outside of final landfill disposal.

10. The Groundwater/Surface Water Assessment set out in Appendix B, Section 5.7 of the Terms of Reference shall specifically include: mapping of geological exposures in the existing quarry, along with investigations and testing, to determine the presence and significance of fractures and karst features within the bedrock, in consultation with an expert in karst geology.

11. The evaluation of the proposed undertaking set out in Section 8.2, pages 31-34 of the Terms of Reference shall include a separate characterization of the noise emissions from major potential sources (i.e., landfill, Carmeuse quarry/lime manufacturing, and stationary sources from both), which will highlight their individual contributions, in further consultation with the Ministry of the Environment and Climate Change. The stationary source sound level of the quarry/lime plant operation should be added to the stationary source sound level component of the landfill and compared to the appropriate limit. The landfilling activity sound level should be compared to the appropriate limit. The only background sound acceptable for the purpose of modifying stationary or landfilling limits shall be the sound of road traffic vehicles not related to Carmeuse or Walker operations, taking the 1-hour predictable worst case (lowest sound level) applicable to day or night limits. The stationary source sound total shall be added to the landfilling sound level, and presented as "cumulative effect"; this is for environmental assessment purposes only and does not have an established limit for future Environmental Compliance Approval assessment. The sound level of Carmeuse-related off-site truck traffic at the Points of Reception should be presented as "Existing Haul Route Traffic", the predicted sound level of Walker-related off-site truck traffic shall be presented as "New Haul Route Traffic", and the sum of the two shall be presented as "Total Haul Route Traffic".

12. Walker shall also prepare a cumulative effects assessment work plan and implement the following activities:

    a. Prior to finalizing the cumulative effects assessment work plan, Walker shall be required to consult with the Ministry of the Environment and Climate Change in the development of a draft cumulative effects assessment work plan on the method and how the assessment of cumulative effects should be presented in the environmental assessment. Walker shall also consider the guidance document *Addressing Cumulative Environmental Effects under the Canadian Environmental Assessment Act (CEAA, 2007)* when drafting its cumulative

effects assessment work plan. In addition, Walker shall use cumulative effects assessment guidance documents issued by the Ministry of the Environment and Climate Change in the environmental assessment, if and when available.

b. Walker shall be required to post the draft cumulative effects assessment work plan on the project website, communicate the availability of the draft cumulative effects assessment work plan for review and comment by government agencies, Aboriginal Communities and interested members of the public in conjunction with the proposed public Open Houses or a Drop-In Exhibit (Terms of Reference, Section 10.2, pages 68), circulate copies of the work plan ministry's Technical Review Team, the Ministry of Natural Resources and Forestry, the Conservation Authority, Aboriginal communities and the Committee Peer Review Team for review and comment.
c. Arrange meetings/workshops, where requested to discuss the draft cumulative effects assessment work plan.
d. Consult with the Ministry of the Environment and Climate change on the finalization of the cumulative effects assessment work plan.
e. Post the final cumulative effects assessment work plan on the project website.

13. In addition to the proposed health risk assessment, Walker's health expert shall carry out a screening-level review of the socio-economic assessment results to determine the potential for related health effects. Early in the environmental assessment process, prior to finalizing any work plans associated with the determination of health effects, Walker shall consult with the Joint Municipal Coordinating Committee and local medical officer of health to get input on the criteria and methods of assessment. As part of this consultation, Walker will discuss with the Joint Municipal Coordinating Committee and local medical officer of health, at a minimum, the determinants of health that will be assessed, and the different stages of assessment that will be undertaken including screening, scoping, assessment, mitigation, reporting and monitoring.

    Walker shall provide detailed documentation of the issues and concerns raised in the finalization of the health studies work plans and the results. The documentation will include how those issues were considered, the steps that were undertaken to address comments received, where possible, and the rationale for why some comments may not have been addressed. If any significant negative effects are identified as part of the health studies, Walker's health expert will work closely with the social, economic and environmental experts, including the Joint Municipal Coordinating Committee and local medical officer of health, to determine what, if any, further studies are necessary and adapt or augment their mitigation recommendations to minimize or eliminate these potential effects, and characterize any residual net effects for the purposes of this environmental assessment. This decision-making will also be documented.

14. In its environmental assessment, Walker shall include an assessment on how the preferred project may contribute to greenhouse gas emissions. In addition, Walker will assess the potential effects of climate change on the preferred alternative, and related potential risks to the environment resulting from these effects. For example, the assessment of potential effects may include, but not limited to, effects related to severe weather events on stormwater management. The environmental assessment shall include a consideration of climate change adaptation measures to reduce and manage such potential effects during all periods (Operational Period, which includes construction, and Post Closure Period) of the preferred alternative. Walker shall use climate change

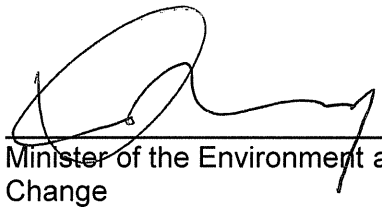
assessment guidance documents issued by the Ministry of the Environment and Climate Change in the environmental assessment, if and when available.

15. In completing its Terms of Reference, Walker shall:

    a. Demonstrate that the proposed undertaking is capable of meeting the requirements under Ontario Regulation 232/98.
    b. Demonstrate whether the undertaking will be consistent with the purpose of the Environmental Assessment Act, in particular the protection, conservation and wise management of the environment. This will include a full description of impacts to the environment and human health from all phases of the project, construction, operation, closure and post-closure.

Pursuant to subsection 6.1(1) of the Environmental Assessment Act, any environmental assessment for the above-noted undertaking, submitted to the Ministry of the Environment and Climate Change pursuant to subsection 6.2(1) of the Environmental Assessment Act, must be prepared in accordance with the amended Terms of Reference as hereby approved.

Dated the 17th day of March, 2016 at TORONTO.



Minister of the Environment and Climate Change
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M7A 2T5

Walker Environmental Group Inc.
Southwestern Landfill Proposal

Addenda to the Approved Amended Terms of Reference
Additional Commitments and Errata

May 10, 2016

On May 26, 2014 Walker Environmental Group Inc. (WEG) submitted proposed Amendments to the *Terms of Reference, Southwestern Landfill Proposal, dated August 29, 2013*. The Minister of Environment and Climate Change approved the *Terms of Reference* on March 17, 2016, along with a series of fifteen Amendments that incorporated and superseded a number of those proposed by WEG on May 26, 2014. The Minister's approval also requires that any additional commitments represented in the May 26, 2014 submission be incorporated into an Addendum to the approved Terms of Reference. These follow below, along with the previously noted Errata to the ToR.

Additional Commitments to the Approved Amended Terms of Reference

1. Section 8.2, p. 34, Section 10.1, p. 50 and Section 10.2, p. 67-68 of the ToR commits WEG to having its technical experts consider input provided during the review of the ToR when the technical work plans are finalized at the appropriate stage in the EA process, in further consultation with government agencies, Aboriginal Communities and interested members of the public. Following the identification of the Preferred Alternative(s), WEG further commits to :

    a) Prepare revised drafts of the work plans that reflect the Preferred Alternative(s) as well as comments received from government agencies, Aboriginal Communities and interested members of the public during the review of the ToR.

    b) Post copies of the revised drafts of the work plans to the WEG EA website.

    c) Communicate the availability of the revised drafts of the work plans for review and comment by government agencies, Aboriginal Communities and interested members of the public in conjunction with the proposed public Open House or a Drop-in Exhibit (ToR, Section 10.2, p. 68).

    d) Circulate copies of the revised draft work plans to the respective technical experts of the Ministry's Technical Review Team (TRT), the Ministry of Natural Resources (MNR), the Upper Thames River Conservation Authority (UTRCA), and the Joint Municipal Coordinating Committee (JMCC) Peer Review Team (PRT) for review and comment.

    e) Circulate copies of the revised draft work plans to Aboriginal Community representatives for review and comment.

    f) Arrange meetings between WEG technical experts and Aboriginal Community representatives to review the revised draft work plans and seek resolution of any outstanding technical issues.

    g) Finalize the work plans considering the input received from all parties.

h) Post copies of the final work plans, for information, to the WEG EA website, and circulate copies to the respective technical experts of the TRT, MNR, UTRCA, and the JMCC PRT, and to Aboriginal Community representatives.

i) Notify the respective technical experts of the TRT, MNR, UTRCA, and the JMCC PRT, and Aboriginal Community representatives, of the field work schedule so they may arrange with WEG to observe, if it is reasonable, permissible and safe to do so.

2. WEG will arrange a technical meeting with the JMCC PRT's EA planning expert in advance of completing the alternative methods evaluation to review the methodology and the degree of technical input/review that may be required.

3. WEG will make available any data it collects related to the Thames River to regulatory agencies that request the data to support their ongoing programs.

4. The forecast of future baseline conditions for the proposed undertaking, set out in Section 8.2, p. 32, Item 2 of the ToR, will include specific consideration of the ongoing dewatering and rehabilitation of the quarries currently operated by Carmeuse Lime (Canada) Ltd.

5. The evaluation of the proposed undertaking set out in Section 8.2, p. 31-34 of the ToR, will specifically identify, recognize and determine any potential effects upon the Wellhead Protection Areas (WHPA) associated with the municipal drinking water wells, Highly Vulnerable Aquifers (HVA) and Significant Groundwater Recharge Areas (SGRA) identified in the source water protection studies.

6. WEG will consult further with the County of Oxford during the EA to identify any pre-existing plans for municipal well field expansion, and incorporate those into the evaluation of the proposed undertaking set out in Section 8.2, p. 31-34 of the ToR.

7. WEG acknowledges that the *Endangered Species Act, 2007 (*ESA) provides both species protection (Section 9) and habitat protection (Section 10) to individuals listed as Endangered or Threatened on the Species at Risk in Ontario List. In the EA, WEG will undertake field work to identify endangered species and threatened species and undertake an assessment of their habitat. WEG, through the EA, will also identify and, where possible, avoid impacts to endangered species and threatened species and their habitats. This will be completed in consultation with the Ministry of Natural Resources. WEG will engage MNR to determine whether the activities as proposed would likely result in a contravention of the ESA. WEG is committed to obtaining any necessary authorizations to ensure compliance with the ESA.

8. Following the establishment of the preferred haul route(s) as regulated under the *Highway Traffic Act*, and the collection of baseline data during the preparation of the EA, WEG will consult with the Ministry of Transportation Ontario (MTO) regarding Highway 401 interchanges and work cooperatively with the MTO on any further assessment that they wish to carry out.

9. In the ToR, Appendix B, Section 5.8 Human Health Risk Assessment, add the following item to the scope of work: "*Review, document and support the non-carcinogenic and carcinogenic toxicological reference values to be used in the risk assessment*".

Errata

The following corrections are also noted to the *Terms of Reference* dated August 29, 2013.

1. Table 1 (p.1) has been revised as shown below:

Company:	Walker Environmental Group Inc.
Contact:	Darren Fry, A. SC.T Director, Strategic Growth
Mailing Address:	160 Carnegie Street Ingersoll, ON N5C 4A8
Phone:	1-855-392-5537
Fax:	1-519-485-6981
Email:	info@walkerind.com

2. Section 4.2, p. 8, item a). For clarity, this should read "*limestone quarry*" rather than "*lime quarry*".

3. Section 5.1, p.9, first paragraph. For additional reference, in the first sentence in the words in the first parenthesis should read "(Supporting Document # 2)".

4. Figure 2, p. 10 and Figure 3, p.11 have been revised and attached here to show the correct boundaries of the Carmeuse Lime (Canada) Ltd. landholdings

5. Section 6.1, p. 18, second paragraph. For clarity, the last sentence should read "*As a result, the quarry floor, which is estimated to be 40-45 m below the ground surface, is mainly dry despite being below the original, natural groundwater table level*.".

Figure 2: Location of Carmeuse Lime (Canada) Ltd. Landholdings in Oxford County

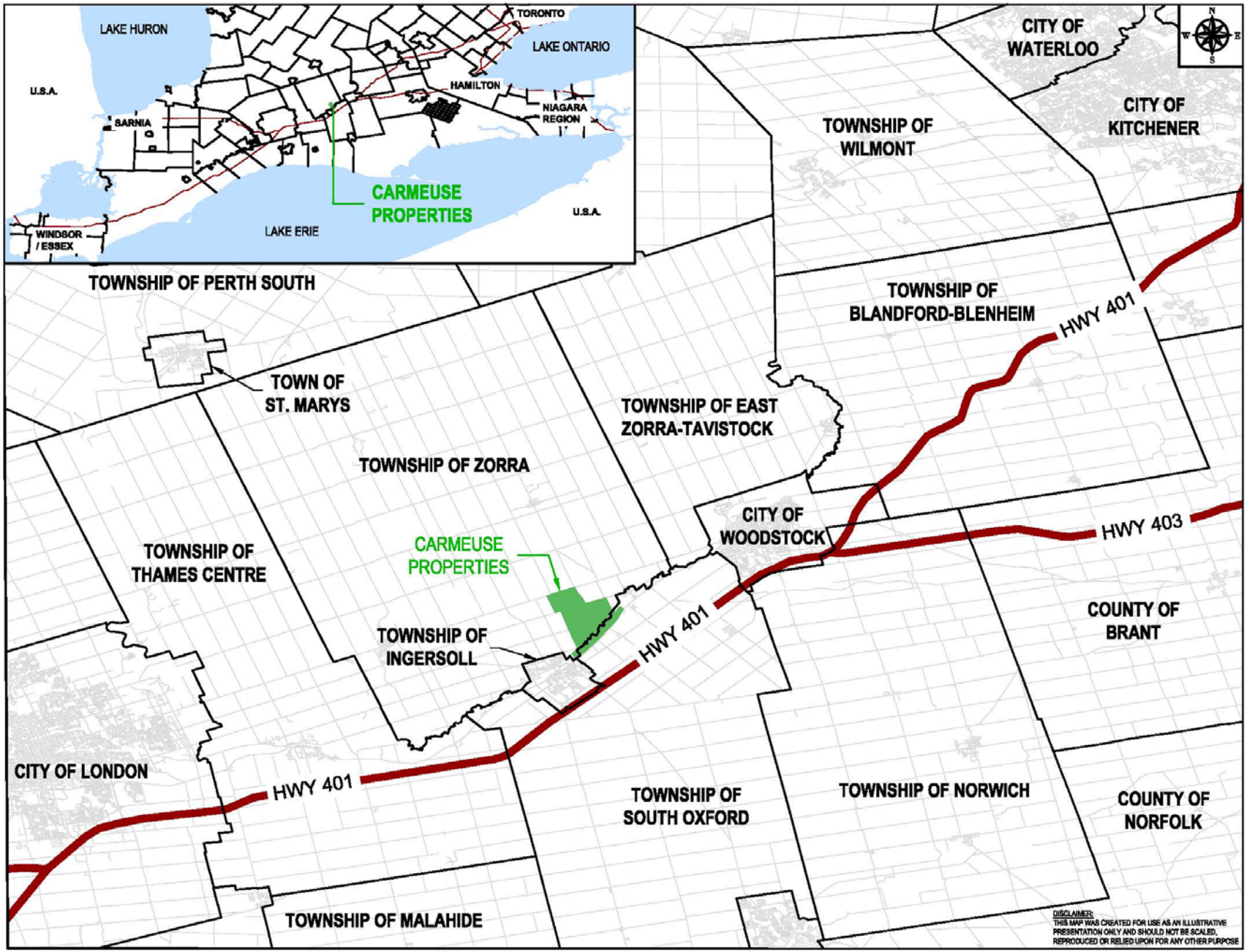

Figure 3: Carmeuse Lime (Canada) Ltd. Landholdings in Oxford County