Durham/York Residual Waste Study

Application of Short-List Evaluation Criteria

Legal Considerations:

Annex I -

Complexity of Required Approvals and Complexity of Agreements

September, 2007

GENIVAR

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1. Introduction

1.1 Overview of the Durham/York Residual Waste EA Study

Durham and York Regions (the Regions) have partnered to undertake a joint Residual Waste Planning Study. Both municipalities are in need of a solution to manage the solid waste that remains for disposal after diversion (residual or post-diversion waste). The Regions are working together to address the social, economic, and environmental concerns of residents through an Environmental Assessment (EA) Study process to examine potential long-term residual waste management alternatives.

Shared Issues

Even with the expanded diversion efforts, Durham and York continue to face the challenge of managing residual waste that cannot be currently diverted. Both Regions face a shortage of available landfill capacity over the long term. In response to the closing of existing landfill sites in the Greater Toronto Area (GTA) and the inability to develop new landfill capacity, Durham and York, along with other GTA municipalities, were forced to enter into contracts for the "export" of their residential waste to disposal facilities located primarily in the State of Michigan. On August 31, 2006 Michigan Senators announced they had reached an agreement with the Province of Ontario to end shipments of Municipal Solid Waste (MSW) to Michigan by 2010. Following 2010, Ontario Municipalities including Durham and York will no longer have the option of disposal of MSW in Michigan landfills.

Shared Opportunities

Facing common waste disposal issues, the Regions are acting to implement, as quickly as possible, a Durham/York based solution that: is socially and politically acceptable to both communities; maximizes environmental protection; and, fosters the wise management of potential resources which are currently lost by way of landfill in Michigan. In addition to solving long-term, residual waste management issues, Durham and York, recognize the growing need for additional sources of energy generation in Ontario. Both Regions recognize that there is an opportunity associated with the utilization of the waste stream as a fuel source to produce energy and have identified this opportunity as a key benefit associated with the subject waste disposal EA Study.

1.2 The Environmental Assessment Act

An EA Study provides a planning approach where environmental constraints or opportunities are considered in the context of the broadly defined environment (i.e. the natural environment as well as the social, economic and heritage and other "environments" relevant to the undertaking) and potential effects are understood and addressed before development occurs. Since the enactment of the Environmental Assessment Act (EAA) in the 1970s, the environmental assessment (EA) process has evolved into the completion of a decision-making process that is carried out in consultation with the public and other interested parties. The EA process evaluates: alternatives considering potential effects on the environment; the availability of mitigative measures that address, in whole or in part, the potential effects; and, the comparison of the advantages and disadvantages of the remaining or "net" effects. The result of this process

provides the planning rationale and support for a preferred approach and method to implement the undertaking.

This process can be considered as consisting of three parts:

PART A – The EA Terms of Reference

PART B – The Evaluation of "Alternatives To" the Undertaking

PART C – The Evaluation of "Alternative Methods" of Implementing the Undertaking

1.2.1 The EA Terms of Reference

Under the EA Act, an Environmental Assessment (EA) Terms of Reference must be prepared and submitted to the Minister of the Environment for approval before an EA Study can be undertaken. The purpose of the EA Terms of Reference is to describe in a clear and concise manner the purpose of the proposed undertaking and how the proponent intends to carry out an environmental assessment. This description includes the proposed evaluation methodology and criteria for the evaluation of alternatives, including, in this case, the process to be applied in the identification of a preferred site. The EA Terms of Reference, once finalized and approved by the Minister of the Environment, becomes the guiding document for the completion of the environmental assessment study and the EA documentation. On March 31, 2006, the Durham/York Residual Waste EA Terms of Reference[1] was approved by the Minister of the Environment.

The purpose of the undertaking (i.e. what the outcome of this EA Study is intended to do) as described in the approved EA Terms of Reference is:

> *"To process - physically, biologically and/or thermally - the waste that remains after the application of both Regions' at-source waste diversion programs in order to recover resources - both material and energy - and to minimize the amount of material requiring landfill disposal.*
>
> *In proceeding with this undertaking only those approaches that will meet or exceed all regulatory requirements will be considered."*

The following report has been prepared as part of a series of supporting documentation, to document the process followed and analysis undertaken in support of the identification of a preferred "Alternative Method". A copy of the approved EA Terms of Reference document may be obtained from the study website, www.durhamyorkwaste.ca.

1.2.2 The Evaluation of "Alternatives To" (i.e. Technologies)

The evaluation of "Alternatives To" the undertaking serves as the first step in the completion of the Durham/York Residual Waste EA. "Alternatives To" are defined as fundamentally different ways of managing waste and achieving the purpose of the undertaking. To fully address the purpose of the undertaking, different waste management approaches capable of processing and recovering resources from post-diversion waste were combined into alternative residuals

[1] Durham/York Residual Waste Study - Approved Environmental Assessment Terms of Reference, March 31, 2006.

processing systems. The Study EA Terms of Reference established that alternative systems comprised of the following approaches and technologies would be formulated and evaluated:

- Mechanical Treatment;
- Biological Treatment; and
- Thermal Treatment.

The following four alternative systems were formulated using the alternative processing approaches from the approved EA Terms of Reference:

- System 1 - Mechanical and Biological Treatment with Biogas Recovery.

  This system includes mechanical processing of the post-diversion waste to recover any remaining recyclable materials and to separate out the organic fraction for biogas generation via anaerobic digestion. The biogas would be combusted to produce electricity and heat. The stabilized residue from this system would be disposed in a landfill.

- System 2(a) – Thermal Treatment of Mixed Waste with Recovery of Materials from the Ash / Char.

  This system involves the thermal treatment (by combustion, gasification or pyrolysis) of the post diversion waste to produce electricity and heat. The resulting ash would be processed to recover metals for recycling, with the remaining ash disposed in a landfill.

- System 2(b) – Thermal Treatment of Solid Recovered Fuel

  This system includes mechanical and possibly biological processing (composting) of the post diversion waste to recover recyclable materials and produce a solid recovered fuel (SRF). The SRF is then thermally treated (by combustion, gasification or pyrolysis) to produce electricity and heat. The residues from the processing of the residual waste and ash/char from the thermal treatment process would be disposed in a landfill.

- System 2(c) – Thermal Treatment of Solid Recovered Fuel with Biogas Recovery

  This system includes mechanical processing of the post diversion waste to recover recyclable materials, to separate out the organic fraction for biogas generation via anaerobic digestion and to produce a solid recovered fuel (SRF). Electricity and heat are produced through combustion of the biogas and thermal treatment of the SRF. The residues from the processing of the residual waste, stabilized anaerobic digestion residue and ash/char from the thermal treatment process would be disposed in a landfill.

On May 30, 2006 the report entitled the "Evaluation of "Alternatives To" and Identification of the Preferred Residuals Processing System" was released, documenting the results of the evaluation of the alternative systems. Based on the consideration of relative advantages and disadvantages and the environmental priorities established through public and agency consultation, the preferred long-term residuals processing system was identified as *System 2(a) – Thermal Treatment of MSW and Recovery of Energy followed by Recovery of Materials from the Ash/Char*.

System 2(b) also exhibited an acceptable range of advantages and disadvantages. For some of the criteria where System 2(b) did not rank equivalent to 2(a), (technical risks, costs and legal/contractual risks for example), the determination of the relative advantages and disadvantages was based upon the information that was readily available on both the mechanical and biological processes that are being used to recover solid fuel in other jurisdictions and on the thermal technologies that can process this fuel. Many of the technologies that could be used to thermally treat the solid recovered fuel (e.g., gasification) in System 2(b) are regarded as 'new technologies', with active research and development, but are less proven than the technologies that are currently available to combust residual waste in System 2(a).

In June 2006, Durham and York Regional Councils approved System 2(a) as the preferred residuals processing system and determined that the competitive process should allow for the submission of proposals to implement either System 2(a) or System 2(b), and that the final decision on the technologies be based on the results of this competitive process.

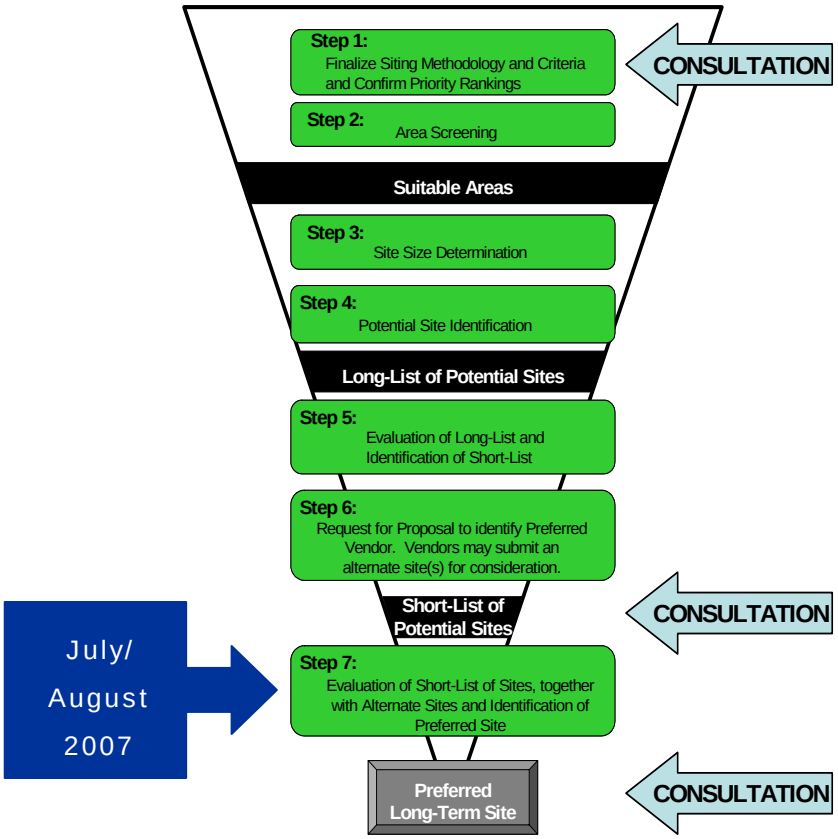
1.3 The Evaluation of "Alternative Methods" (i.e. Facility Siting)

Following the identification of a preferred technology, a seven-step facility site selection process, outlined in Figure 1-1 below was initiated to identify a preferred site for development of the preferred Durham/York residual waste processing system (i.e. a new thermal treatment facility). The step-by-step methodology for siting a residual waste processing facility was originally presented in approved EA Terms of Reference and Background Document 2-3[2] (prepared as supporting documentation to the approved EA Terms of Reference).

The proposed methodology and criteria were confirmed with agencies, stakeholders and the public through a series of information sessions, workshops, and polling activities in September 2006. Generally, the site selection methodology and criteria, outlined in the approved EA Terms of Reference, were confirmed by the consultation participants.

[2] Durham/York Residual Waste Study - Background Document 2-3 "Consideration of Alternative Methods of Implementing the Undertaking", December 16, 2005.

Figure 1-1 Overview of the Facility Siting Process



Completion of Steps 1 thru 5 of the above siting process resulted in the identification of six (6) Short-List sites to undergo a further detailed evaluation process. For a more detailed account of the steps taken to identify a Short-List of sites, please refer to the report entitled "Draft Report - Thermal Facility Site Selection Process Results of Steps 1-5 Identification of the Short-List of Alternative Sites, March 2007"[3] available at www.durhamyorkwaste.ca.

Following issuance of the draft report identifying the Short-List of sites, two of the six sites were removed from consideration. Site Clarington 02 was removed from the Short-List as the land use designation for the property changed in late March 2007 such that the site no longer met Step 2 evaluation criteria. Site Clarington 03 was removed from the Short-List as the site was withdrawn from consideration by the private owner of the property, such that this site could no longer be considered a 'willing seller' property.

1.4 The Short-List of Alternative Sites

The following provides a more detailed description of each of the remaining four (4) alternative sites on the Short-List.

[3] Draft Report - Thermal Facility Site Selection Process Results of Steps 1-5 Identification of the Short-List of Alternative Sites, March 2007

1.4.1 Short-List Site: Clarington 01

Site Clarington 01 is undeveloped land owned by the Region of Durham, south of Hwy 401 in the Municipality of Clarington. The site is located on the west side of Osbourne Road north of a CN Rail corridor. There are commercial properties north of the site. The lands east and west of the site are undeveloped and are currently used for agricultural purposes. The Courtice Water Pollution Control Plant, which is scheduled to be completed in 2007, is being built just south of the site. The Darlington Nuclear Generating Station is located approximately 0.5 km to the east. The nearest major intersection is Hwy 401 and Courtice Road, which is approximately 1.7 km from the site. The site is approximately 12.4 hectares in area and is located in the Clarington Energy Park.

1.4.2 Short-List Site: Clarington 04

Site Clarington 04 is privately owned undeveloped land, south of Hwy 401 between Bennett road and South Service Road, in the Municipality of Clarington. The lands east and west of the site are undeveloped and are currently used for agricultural purposes. A CN Rail corridor is located south of the site. There are commercial properties located on east and west, non-adjacent sides of the property. A number of residences and farms are located north of the property on the north side of Hwy 401. The nearest major intersection is Hwy 401 and Bennett Road, which is approximately 1.1 km from the site. The site size is approximately 14.8 hectares.

1.4.3 Short-List Site: Clarington 05

Site Clarington 05 is privately owned undeveloped land, south of Hwy 401 between Courtice Road and Osbourne Road, in the Municipality of Clarington. Commercial properties are located north of the site, north of Hwy 401. A CN Rail corridor is located south of the site. The lands east and west of the site are undeveloped and are currently used for agricultural purposes. The nearest major intersection is Hwy 401 and Courtice Road, which is approximately 0.2 km from the site. The site size is approximately 27.2 hectares. This site is located in the Clarington Energy Park.

1.4.4 Short-List Site: East Gwillimbury 01

Site East Gwillimbury 01 is owned by York Region and is located in the Town of East Gwillimbury, 2.6 km from the nearest major intersection – Hwy 404 and Davis Drive. The site is undeveloped land surrounded by commercial/ industrial properties to the West, East, and South. The York Region Waste Management Centre, which consists of a new Materials Recycling Facility and Waste Transfer Station, is located immediately West of the site. York Region also owns the lands immediately east of the site. The Household Hazardous Waste and Recycling Depot are situated south of the site. The land north of the site is undeveloped and is currently used for agricultural purposes. The site is approximately 11.5 hectares in size.

1.5 Step 7: Evaluation of the Short-List Sites

Following consultation on the Short-List of potential sites, a detailed comparative evaluation of the sites was initiated. This assessment considers the sites as well as the haul routes, transfer requirements and requirements for additional infrastructure to develop the sites.

Step 7 entails a comparative evaluation of the identified sites utilizing criteria and indicators to measure potential effects within the above categories. There are different methods (qualitative, quantitative or a combination of both) that can be used to evaluate the sites. There is no requirement to apply any specific methodology except that the process must be rational, traceable and replicable and must consider advantages and disadvantages based on a net effects analysis of alternatives. This methodology is commonly applied to address the approval requirements of the EAA and promotes the selection of siting preferences considering relative advantages and disadvantages based on net effects after the application of reasonably available mitigative measures.

The evaluation criteria applied at this Step have been assembled under 5 categories:

1. Public Health and Safety and Natural Environment (High Priority);
2. Social and Cultural (Medium Priority);
3. Economic / Financial (Medium Priority);
4. Technical Suitability (Medium Priority); and
5. Legal (Low Priority).

The priorities for each category of criteria were determined based on the results of consultation in Step 1 of the facility siting process.

This net effects analysis consists of the following steps:

1. Undertake data collection and apply the comparative evaluation criteria to each of the Short-List sites. Potential effects to the environment would be identified based on the application of the comparative evaluation criteria. The net effects analysis will initially be carried out based on secondary data sources (i.e., Official Plans, aerial photographs, existing base maps and limited field reconnaissance).
2. Consider measures that may be reasonably applied to mitigate potential effects identified in the previous step for each site. The result of this step will be the identification of net or post-mitigation effects for each of the sites.
3. Compare the net effects associated with each site and establish the relative advantages and disadvantages of each site. Under each criterion, sites would receive a ranking based on the comparative analysis against the other sites, ranging as follows:
   - Major Advantage
   - Advantage
   - Neutral
   - Disadvantage
   - Major Disadvantage.

   The site that best meets the objective of the criterion would be identified as having a major advantage and the site that least meets the objective of the criterion a major disadvantage. It is not intended that specific ranges would be predetermined for the

ranking; instead they will be developed based on a comparison between the Short-Lists. For this study, a qualitative evaluation methodology will be applied which considers tradeoffs between sites using professional judgment in the context of priorities set by the community.

4. The rankings will be recorded in a summary table and overall rankings for each of the five categories of criteria will be established based on the advantages and disadvantages of the sites. The preferred site will be the one with the preferred balance of advantages and disadvantages relative to the established category priorities and rankings. This decision will be based on the priorities and professional judgment exercised by both Regions and in consideration of the technical database, advice from technical experts and input received from stakeholders (i.e., public, neighbours, agencies, etc.).

Ultimately the selection of the preferred site will be subject to approval by both Regional Councils.

1.6 Overview of Preferred Site Supporting Documentation

A series of documents are being prepared to provide the necessary background and rationale in support of the identification of the Preferred Site. Each of these documents address one or more of the Short-List Evaluation Criteria as set out in Table 1-1.

Table 1.1 Comparative Evaluation Criteria to be used in the Evaluation of the Short-List of Alternative Sites and Applicable Reports

Environmental Considerations	Evaluation Criteria	Applicable Report
Public Health & Safety and Natural Environment Considerations	Potential Air Quality Impacts	1. Report on Potential Air Quality Impacts
	Potential Water Quality Impacts (Surface Water and Groundwater)	2. Report on Potential Water Quality Impacts (Surface Water and Groundwater)
	Potential Environmentally Sensitive Areas and Species Impacts Potential Aquatic and Terrestrial Ecology Impacts	3. Potential Environmentally Sensitive Areas and Species Impacts and Potential Aquatic and Terrestrial Ecology Impacts
Social and Cultural Considerations	Compatibility with Existing and/or Proposed Land Uses Potential Impact on Residential Areas Potential Impact on Parks and Recreational Areas Potential Impact on Institutional Facilities or Areas	4. Report on Compatibility with Existing and/or Proposed Land Uses
	Potential Impact on Archaeological and Cultural Resources	5. Report on Archaeological and Cultural Resources
	Potential Traffic Impacts	6. Report on Potential Traffic Impacts
Economic / Financial Considerations	Operation and Maintenance Costs for Facility(ies) Capital Costs to develop Facility(ies)	7. Report on Capital Costs, Operation and Maintenance Costs
Technical Considerations	Compatibility with Existing Infrastructure Design/operational flexibility provided by site	8. Report on Compatibility with Existing Infrastructure and Design/Operational Flexibility
Legal Considerations	Complexity of Required Approvals Complexity of Required Agreements	9. Report on Complexity of Required Approvals and Agreements

Indicators have been identified for each of the above criteria and have been used to determine the advantages and disadvantages for each of the sites. Applicable indicators for the criteria addressed in this report are noted in Section 1.7.

1.7 Purpose of this Report

This draft report entitled *Application of Short-List Evaluation Criteria - Legal Considerations – Complexity of Required Approvals and Complexity of Required Agreements* has been prepared to identify the different types of approvals and agreements that will be required, and provide a relative comparison of the approvals and agreement requirements and implications associated with each of the Short-List sites.

This report will form part of the supporting documentation and materials for stakeholder consultation in the evaluation of "Alternative Methods" and identification of the preferred facility location for the Durham/York Residual Waste Study. Public and agency input received on this draft report will be considered when moving forward in the process and when preparing the EAA approval documentation.

Specifically, this document addresses the "Legal Considerations" requirements as identified in the approved EA Terms of Reference[4], Appendix F, Table F-3 under the category of "Environmental Considerations – Legal Considerations" and the "Preliminary Evaluation Criteria – Complexity of Required Approvals" and the "Preliminary Evaluation Criteria – Complexity of Required Agreements" as indicated below.

Table 1.2 Comparative Evaluation Criteria, Indicators, Rationale

Legal Considerations		
Criteria	**Indicator**	**Rationale**
Complexity of Required Approvals	Nature of approvals required.	The need for complex approvals and possibly a public hearing present a legal risk to the successful implementation on a particular site. These risks should be considered in the selection of a preferred site.
Complexity of Required Agreements	Nature of property acquisition (related to the need for expropriation, Region owned or willing seller site).	Sites that have fewer property acquisition issues associated with them would be less costly from the perspective of time and money. The order of preference based on property acquisition timing would be Region owned sites, willing seller sites and sites requiring expropriation.

[4] Durham/York Residual Waste Study - Approved Environmental Assessment Terms of Reference, March 31, 2006.

2. Study Methodology

2.1 Investigations and Research

This report addresses approvals and agreement requirements that could potentially apply to the implementation of a Durham/York thermal treatment facility. It reflects the knowledge base within the study team of the approvals and regulatory environment at a Federal, Provincial and local level that has been developed through years of work undertaking similar projects in Ontario.

As noted in Table 1-1, a series of reports have been developed to address the application of the comparative evaluation criteria to the Short-List of sites. These reports in many cases are supported by a set of technical appendices. In all cases, one of the functions of these reports and supporting documents has been to identify the applicable approvals requirements that relate to that particular area of study. Where it was applicable, necessary agreements are also addressed in these reports and/or supporting technical appendices. Commentary on legal considerations with respect to land-use have been included in this report in Section 3.2.7. This is intended as a summary only and reference should be made to the *Report on Compatibility with Existing and/or Proposed Land Uses* for a full discussion of these issues.

2.2 Evaluation Process

As previously described, a preferred site will be identified from the Short-List of four sites through a detailed evaluation of each site in question. Associated haul routes, transfer requirements and requirements for additional infrastructure for developing the site must be considered in the assessment. Sites will be compared based on the broad range of proposed criteria and indicators.

Advantages and disadvantages will be considered, based on a net effects analysis of alternatives after the application of reasonably available mitigative measures. The following are the steps in this process as it pertains to the *Legal Considerations – Complexity of Required Approvals and Complexity of Required Agreements*:

- Potential approvals and agreement requirements were reviewed. Those with no potential to be applicable to the approval of a Durham/York thermal treatment facility and associated haul or infrastructure requirements were discounted and are not discussed in this report. Those with potential to be applicable were summarized and the potential for site-specific differences was assessed.
- Potential net effects to the environment were identified. Mitigative measures were not applicable to the application of these criteria, as the required approvals and agreements represent 'post-mitigative' requirements. Additional mitigative measures that may be required as part of the Certificates of Approval (Air and Waste) were not considered, as they would be determined through detailed site-specific Environmental Protection Act studies following selection of the preferred site.
- The net effects associated with each site were compared. Where the potential net effects for any approval or agreement requirement were equivalent for all sites, these approvals or agreement requirements were removed from consideration, as there were no site-specific

differences. A disadvantage was identified for any site with some additional complexity of approvals or agreements. Major disadvantages were identified for any sites with significant additional complexity of approvals or agreements in comparison with the other sites.

- The rankings for the sites in regards to *Legal Considerations – Complexity of Required Approvals and Complexity of Required Agreements* were developed based on the summary of the comparison between the Short-Lists.

3. Potential Approval Requirements

The following sections provide an outline of potential approvals that may be required at one or more of the Short-Lists in order to establish the proposed thermal treatment facility and supporting infrastructure requirements.

3.1 Federal Legislation

3.1.1 The Canadian Environmental Assessment Act (CEAA)

Under the *Canadian Environmental Assessment Act*, an Environmental Assessment must be completed where federal departments and agencies:

1. carry out the project;
2. provide financial assistance to enable a project to be carried out;
3. sell, lease, or otherwise transfer control or administration of land to enable a project to be undertaken; and/or
4. issue an authorization to enable a project to go forward.

Depending on the nature of the project, and the significance of possible environmental effects, the type of assessment required would vary between a Screening and a Comprehensive Study.

Screening – A Screening involves the systematic review of potential environmental effects associated with a project and the identification of required mitigation or modifications to the project to address the potential for these effects. Assuming that there is no potential for remaining significant environmental effects, the process is complete.

Comprehensive Study – A Comprehensive Study is required for projects that are defined under the Comprehensive Study Regulations under the EAA. These studies tend to apply to large and complex projects that may have the potential to generate significant adverse environmental effects and public concerns. A Comprehensive Study involves, in addition to the requirements of a screening, a review of alternatives to determine a preference for pursuing the project or one of its alternatives, which may include not proceeding with the project. In addition, a Comprehensive Study must consider the purpose and need for the project as well as mandatory public consultation and follow-up.

Applicability to the Short-List of Sites

The most likely scenario under which the Durham/York thermal facility would require approval under the *CEAA* would be if the site required the issuance of a federal approval (e.g. approval under the *Fisheries Act* related to an alteration of a watercourse for construction of the facility). There is a possibility that *Fisheries Act* approval would be required for some of the Short-List sites (see Section 3.1.2 below), which may trigger approval under CEAA.

3.1.2 The Fisheries Act (FA)

Section 35 of the *Fisheries Act* states that *no person shall carry on any work or undertaking that results in the harmful alteration, disruption or destruction of fish habitat*. For project approval, specific information is required under the *Fisheries Act*, including:

- waterbody name and location;
- detailed description of the work site;
- creek habitat inventory by qualified fisheries biologists; and
- measures incorporated into the design of a prospective development that would result in no net loss of fisheries habitat (this is often accomplished by way of improvements to down stream habitats).

With regard to the screening of projects for the need for approval under the *FA*, arrangements exist between the local Conservation Authorities and the Department of Fisheries and Oceans (DFO). In accordance with these agreements, all projects involving potential impacts on a watercourse or that require a development permit from the Conservation Authority are also screened for the need for approval under the *FA*. If Federal approval were required, then the Conservation Authority would work with the proponents to the extent they can (depending on their level of agreement with DFO) prior to the project being referred to DFO for consideration.

An approval under section 35 of the *FA* would invoke the requirement of the *Canadian Environmental Assessment Act* as described in Section 3.1.2.

Applicability to the Short-List of Sites

The need for approvals under the *FA* for a Durham/York thermal facility will depend on the location of the preferred site together with the proposed on-site activities. If proposed on-site activities would result in a harmful alteration, disruption or destruction of fish habitat, then the requirements for approvals under the *FA* would be triggered. The preliminary assessment of infrastructure and design requirements for all of the Short-List sites, indicates that it is unlikely that any harmful change to fish habitat would be required and therefore it is concluded for all of the Short-List sites that there would be limited potential that approval under the *FA* would be required. Once a preferred site has been identified however, it is recommended that the requirements for any change to fish habitat be confirmed.

3.1.3 The Canadian Environmental Protection Act (CEPA)

The federal *CEPA* aims to protect Canada's environment, human life and the health of humans. Key aspects of *CEPA* that may pertain to the project include:

Toxic Substance Control

Toxic substances, as defined by *CEPA*, are required to be controlled via instruments, which reduce or eliminate their release into the environment. Examples of these instruments include regulations, pollution prevention plans, environmental release guidelines, etc. A list of toxic substances is appended to *CEPA*. Required instruments for the control and management of toxic

substances are published by Environment Canada and Health Canada and available on the Internet.

There is no permit required under *CEPA* for the facility. However, all facility related emissions that are defined as Toxic Substances under *CEPA* must meet *CEPA* control requirements.

International Air and Water Pollution

International air and water pollution controls under *CEPA* are triggered if the Minister has reason to believe that a substance released in Canada into the air or water creates or may contribute to air or water pollution in another Country, or violates or is likely to violate an international agreement binding Canada in relation to the prevention, control or correction of pollution.

Transfer of Hazardous Waste

The import, export or transit of hazardous waste or hazardous recyclable material, or prescribed non-hazardous waste for final disposal requires the notification of the Minister, payment of a fee, permits and meeting prescribed conditions that include notification of receivers of hazardous waste.

These requirements would need to be fulfilled for the transport of fly ash from the thermal treatment facility to anywhere within or outside of Canada.

Environmental Emergency Plan

The Minister may require an environmental emergency plan be prepared and implemented to prevent, prepare for, respond to, or recover from an environmental emergency, with respect to a substance or group of substances recommended to be, ordered to be, or on *CEPA*'s list of toxic substances.

Applicability to the Short-List of Sites

Any applicable requirements under the *CEPA* and its regulations will be met for the Durham/York thermal treatment facility. There are no site-specific issues related to the Short-List of sites in regards to meeting *CEPA* requirements.

3.1.4 Transportation of Dangerous Goods Act (TDGA):

The federal *TDGA* provides standards and requirements for the handling and transporting, by all modes of transportation within Canada, of dangerous goods. A material is considered a dangerous good if it falls under one of the nine (9) classifications as outlined in the Transportation of Dangerous Goods Regulation. The act and regulation applies to the shipment of dangerous goods within Canada, between provinces, between Canada and the United States, and internationally.

Provincial regulations apply to road consignments within a province. The federal and provincial regulations also cover safety markings, documentation, packaging, safety and emergency reporting requirements, and training of personnel.

Applicability to the Short List of Sites

There are no site-specific issues related to the *TDGA*. Once a preferred technology vendor has

been chosen, it is recommended that an investigation into the applicability of this legislation, as it relates to the transportation of hazardous fly ash be undertaken.

3.1.5 Migratory Birds Convention Act (MBCA)

Under the *MBCA* and its regulations, Environment Canada has the responsibility to implement the Convention by protecting and conserving migratory birds (as populations and individual birds) and their nests. The *MBCA* is an international treaty between Canada and the United States that was signed in 1916.

Any applicable requirements under the *MBCA* and its regulations will be met. In particular, it is important to note that under the current migratory birds regulations, no permits can be issued for the incidental take (i.e. not purposely taken) of migratory birds (birds, eggs, nests) caused by development projects or other economic activities. Furthermore, it is prohibited to deposit substances harmful to migratory birds in waters or an area frequented by migratory birds or in a place from which the substance may enter such waters or such an area anywhere in Canada and in Canada's maritime exclusive economic zone.

Applicability to the Short-List of Sites

None of the Short-List sites include migratory routes on the sites themselves. However, once a preferred site has been identified, it is recommended that an investigation as to the potential for migratory bird habitat be undertaken to confirm that there are no triggers under the *MBCA*.

3.1.6 Canada-U.S. Air Quality Agreement

The *Canada-U.S. Air Quality Agreement* is a commitment from both the Canadian and American governments to address transboundary air pollution. The *Canada-U.S. Air Quality Agreement* provides a basic framework for the provision of comments on the nature of any air emissions and controls proposed for a project, particularly for two main substances: sulphur dioxides and nitrogen oxides. Under Article V of the *Canada-U.S. Air Quality Agreement*, Canada is obligated to notify the U.S. of any proposed actions, activities or projects which, if carried out, would be likely to cause significant transboundary air pollution in regards to the following substances: sulphur dioxide (SO_2), nitrogen oxides (NO_X), carbon monoxide (CO), total suspended particulates (TSP) and volatile organic compounds (VOC), plus other hazardous air pollutants.

Applicability to the Short-List of Sites

The proposed Durham/York thermal treatment facility would not be regarded as an activity or project that would be likely to cause significant transboundary air pollution for the listed substances under the Agreement. There are no site-specific issues related to the *Canada-U.S. Air Quality Agreement* .

3.2 Provincial Legislation

3.2.1 The Ontario Environmental Assessment Act (EAA)

The purpose of the *Environmental Assessment Act (EAA*), R.S.O. 1990, c.E. 18, as quoted in the Act is 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.

This has typically been translated into the completion of a study or decision-making process, in consultation with interested parties including the public that evaluates alternatives considering potential effects on the environment, the availability of mitigative measures that address, in whole or in part, these effects and the comparison of the advantages and disadvantages of the remaining or net effects. This process provides the planning rationale and support for approval under the *EAA* for a proposed undertaking. The *EAA* ensures that environmental problems or opportunities are considered in the context of the broadly defined environment (i.e., natural environment as well as the social, economic and heritage environments) and potential effects are understood and addressed before development occurs. The planning process required by the *EAA* also requires that a reasonable range of alternatives to the proposed undertaking and alternative methods of implementing the undertaking (e.g., Short-Lists for the establishment of residual waste management capacity) be evaluated by the proponent.

Most major provincial or municipal undertakings are subject to the *EAA* and must apply to the Minister for approval in accordance with Section 5(1) of the *EAA*. Projects may be subject to requirements for individual environmental assessments, environmental screening processes or class environmental assessments based on the *EAA* and regulations under the *EAA*.

Individual Environmental Assessments

Approval under the *EAA* for individual environmental assessments (EAs) is issued by Ontario's Minister of the Environment. There are two levels of approval required:

1. An EA Terms of Reference identifying how the EA is to be conducted (Approved by Ontario's Minister of the Environment); and
2. The EA Study completed in accordance with the approved EA Terms of Reference (Approved by the Minister of the Environment by way of an Order-in-Council from Provincial Cabinet).

As noted in Section 1.2, Durham/York have an approved EA Terms of Reference and are in the process of completing an EA Study.

Environmental Screening Processes

In March, 2007, the Ontario Ministry of Environment (MOE) adopted new environmental assessment requirements for waste management projects, which are set out in Ontario Regulation 101/07 (referred to as the Waste Management Projects Regulation). The regulation allows for the streamlining of the planning and approvals process for thermal treatment and other waste processing facilities. Under this regulation, proponents such as Durham and York could choose a thermal treatment technology and a site for the facility and then meet the requirements of the EAA by undertaking a comprehensive environmental screening of the proposed facility and site.

This environmental screening process has been used successfully in the energy sector for some time.

Durham and York made the decision to continue completing an individual EA rather than switching to the new environmental screening process.

Class Environmental Assessments

Class environmental assessments apply to projects that are carried out routinely and have predictable environmental effects that can be readily managed. Projects defined within a class environmental assessment require no further environmental approval under section 5 of the *EAA*, conditional on being planned according to the standardized planning process set out for that class of projects, and if they are not subject to a Part II Order that would result in an elevations of the project or bump-up to an individual environmental assessment.

Class environmental assessments are often required for municipal infrastructure projects, such as sewer, water or road projects depending on the scale and potential impacts associated with such projects. For example, if installation of sanitary sewer services requires crossing a watercourse, then at minimum a Schedule B, Class EA for the project must be undertaken.

Coordination of Approvals

The province recognizes that often an environmental assessment process is one of many approvals required by a proponent before its undertaking can be implemented. Proponents are directed to determine as early as possible in the planning process, whether approvals under other federal or provincial legislation are required. Often, the implementation of a municipal undertaking requires approval under other federal or provincial legislation and potentially the project could involve both individual EAs and Class EAs related to infrastructure needed to service the preferred undertaking.

Furthermore, the municipal Class EA process clearly indicates that if there are multiple interdependent components (activities) to a project, that they should be addressed as a single project and that the entire project should take on the status of the component requiring the most vigorous treatment.

If both an individual EA and Class EAs are required to implement a project, then there is an expectation (but not a requirement) that the Class EA requirements be addressed to the extent possible within the individual EA. For example, if a Class EA would be required for provision of sanitary sewer or water services to a preferred site, then the final EA documentation for the project could address the assessment of and selection of the preferred design and route for the provision of those services.

Applicability to the Short-List of Sites

The complexity of the approvals required under the EAA will vary depending on the Short-Lists that are under consideration. The Class EA approval requirements for the infrastructure required for the sites are documented in the *Report on Compatibility with Existing Infrastructure and Design/Operational Flexibility*.

Clarington 01

At a minimum a Schedule B, Class EA would be required for water and potentially for sanitary sewer servicing. It is recommended that these requirements be addressed within the current EA documentation if this site were to be selected as the preferred site. Note: sanitary sewer servicing may be required pending final design of the facility and air pollution control system.

Clarington 04

At a minimum a Schedule B, Class EA would be required for water and potentially for sanitary sewer servicing. It is recommended that these requirements be addressed within the current EA documentation if this site were to be selected as the preferred site. Note: sanitary sewer servicing may be required pending final design of the facility and air pollution control system.

Clarington 05

At a minimum a Schedule B, Class EA would be required for water and potentially for sanitary sewer servicing. It is recommended that these requirements be addressed within the current EA documentation if this site were to be selected as the preferred site. Note: sanitary sewer servicing may be required pending final design of the facility and air pollution control system.

East Gwillimbury 01

At a minimum a Schedule B, Class EA is potentially required for sanitary sewer servicing. It is recommended that this requirements be addressed within the current EA documentation if this site were to be selected as the preferred site. Note: sanitary sewer servicing may be required pending final design of the facility and air pollution control system.

3.2.2 The Ontario Environmental Protection Act (EPA)

Unlike the *EAA* which considers a very broadly defined environment and which requires a planning/decision-making process which takes into account potential impacts on all aspects of the environment, the *Environmental Protection Act (EPA)*, R.S.O. 1990, c. E.19 is more focused on the natural environment (i.e., air, land, water, flora and fauna) and the technical/scientific analysis of projects on a case by case basis with regards to environmental suitability.

There are two parts of the *EPA* with particular relevance to the establishment of a facility utilizing an alternative waste disposal technology currently being considered by Durham and York. These are:

- Part II, which regulates emissions to the natural environment and, in particular, the air.
- Part V, which regulates the establishment and operation of all waste management facilities in the Province.

To address the requirements of the *EPA* and to obtain the required approval instruments for the preferred site, supporting technical studies and design plans must be completed to a level of detail demonstrating mitigation of adverse effects on the natural environment and to show that the applicable environmental standards and criteria will be met.

Part II – Air & Noise Approvals

Section 9 of the *EPA* underlies the Province of Ontario's Air & Noise approvals program and requires that a Certificate of Approval (C of A - Air and Noise) be obtained for the establishment of any operation that may emit a contaminant into the natural environment. To obtain a C of A (Air and Noise) detailed supporting documentation is required (similar to waste C of As) to be completed and provided as part of the application for a Certificate of Approval. Air approvals will be particularly important in the subject Study as a thermal treatment facility has been identified as the preferred Alternative To the undertaking. There are two key requirements related to the receipt of a Certificate of Approval (Air and Noise) for a thermal waste processing facility:

- Compliance with limits based on dispersion modeling under Regulation 419/05 (General – Air Pollution); and
- Compliance with the requirements of MOE Guideline A-7 entitled, *Combustion and Air Pollution Control Requirements for New Municipal Waste Incinerators*, February 2004 as amended from time to time.

Regulation 419/05 (General – Air Pollution)

Regulation 419/05 sets standards for acceptable levels of airborne emissions (stack or fugitive), noise and odour. Reg. 419/05 sets limits on certain parameters at the point of impingement (i.e., normally the property line and any sensitive receptors) and that were developed solely to achieve the protection of the environment and human health (as opposed to MACT or LAER levels which in all cases are lower and more stringent).

In order to obtain a noise approval the facility must demonstrate compliance with the noise requirements, which are included in the MOE Noise Pollution Control (NPC) documents as follows:

- Publication NPC-205, Sound Level limits for Stationary Sources in Class 1 & 2 Areas (Urban), October, 1995, as amended;
- Publication NPC-232, Sound Level limits for Stationary Sources in Class 3 Areas (Rural), October, 1995, as amended.

Ontario Guideline A-7 – Combustion and Air Pollution Control Requirements for New Municipal Waste Incinerators

The requirements of Guideline A-7 are in addition to those of Reg. 419/05. Guideline A-7 (updated February 2004) addresses the concentration of pollutants in emissions from thermal processing facilities. In brief, MOE staff currently apply the requirements of Guideline A-7, as applicable, to any combustion device that burns gases, liquids or solids generated by any thermal process used for the management of solid municipal waste. As such, the thermal process would be classified as an incineration process with regard to Ministry policy.

Under Guideline A-7, limits are set on the concentrations of critical parameters in the source emissions (i.e., at the point of emission to the atmosphere or 'end of the stack') and are based on a combination of Maximum Achievable Control Technology (MACT) and Lowest Achievable Emission Rate (LAER) principles depending on the parameter.

Any new municipal residual waste thermal processing facility constructed and operated in Ontario must meet the A-7 requirements regarding minimum design and operating parameters, emission control systems, air emissions limits for particulate matter, acid gases, metals and dioxins/furans, and for the control, monitoring and performance testing of incineration systems. Once in operation, a residual waste thermal processing facility would be monitored for recyclable and hazardous waste quantities and continually assessed based on a 12 month-period running average. This monitoring would be part of the performance testing program to ensure compliance with applicable laws and provisions in the respective Certificate of Approval.

Part V – Waste Management Approvals

Section 27 under Part V of the *EPA* requires that a Provisional Certificate of Approval (Provisional C of A) (Waste) be issued for the use, operation, establishment, alternation, or enlargement or extension of a waste management system or waste disposal site. This requirement applies to all waste management projects no matter its size or type. There are, however, differences in the form of required supporting documentation and the need for a public hearing under the EPA depending on the complexity of the project.

The receipt of a Provisional C of A (Waste) and approval under the Environmental Protection Act requires the submission of an application for a Certificate of Approval (Waste) which may be required to be supported by studies, which in the case of an alternative residual waste management facility may include:

- a Noise Impact Assessment;
- an Air Quality Impact Assessment;
- a Natural Environment Impact Assessment;
- a Health Risk Assessment
- a Land Use Study; and
- a Visual Impact Assessment.

Most of the studies and assessments completed in Ontario to address the *EPA* Part V approval requirements relate to landfill sites, transfer facilities and processing sites, all of which have generally well established requirements regarding the level of detail and scope of work. However, there is currently limited precedent for the establishment of thermal processing facilities.

Supporting studies should address all of these information requirements and the results of these studies must be incorporated into the development of a design and operations report and maintenance plan that addresses potential adverse effects and provides monitoring programs, contingency plans, closure plans, etc.

If the above referenced application is approved by MOE, then a Provisional C of A (Waste) will be issued under the relevant sections of the *EPA*, and will contain conditions of approval that must be followed to operate the subject facility.

Applicability to the Short-List of Sites

The requirements of the *EPA* would have to be addressed for a Durham/York thermal treatment facility, and Certificates of Approval for Air, Noise and Waste would have to be obtained. While there may be minor variations in the nature and extent of the studies required to support the EPA approvals that would be site specific, the overall *EPA* requirements would be the same regardless of the choice of site.

3.2.3 The Ontario Water Resources Act (OWRA)

The *OWRA* provides for the protection of Ontario's water resources considering impacts on the supply and flow of the surface and groundwater, and impacts resulting in the impairment of the resource. Once a preferred site has been identified for implementation of the long-term waste disposal facility, a site-specific determination will be required to assess the need for obtaining *OWRA* approvals. If the facility is to discharge wastewater to a sewer, the quality and quantity of the discharge is controlled by applicable municipal sewer use by-laws, and the limitations/requirements of the receiving wastewater treatment facility.

Typically, approvals for waste management facilities are required under the *OWRA* if the project contemplates the diversion of natural flows and drainage over a subject property and the management of storm water and sewage generated on the facility site either as a result of precipitation or activities resulting in the generation of sewage (e.g., grey water, sanitary sewage, etc.).

With regards to the diversion of overland flows (i.e. water that runs across the land after rainfall), approval from the MOE is required under Section 52 of the *OWRA* and will require supporting studies and designs that demonstrate the protection of the water resource with regards to downstream users.

With regards to the management of storm water and sewage, approval from the MOE is required under Section 53 of the O*WRA* and will require supporting studies and designs that demonstrate no significant impairment to the receiving water resource.

Taking ground water in Ontario is governed by the *OWRA* and the Water Taking and Transfer Regulation. Section 34 of the *OWRA* requires anyone taking more than a total of 50,000 litres in a day, with some exceptions, to obtain a Permit to Take Water. Approvals for waste management facilities under the *OWRA* may also involve permits to take water, depending on the nature of the facility and requirements that would have to be met for installation of infrastructure required for the facility.

Applicability to the Short-List of Sites

Municipal servicing for sanitary sewer, water and surface water management for all of the sites will require approval under the *OWRA* and the issuance or amendment of relevant Certificates of Approval from the Ministry of the Environment. Dewatering requirements for all of the sites is unknown. Specific dewatering requirements for the preferred site will be identified following a detailed geotechnical and hydrogeological investigation that will identify the need for a Permit to Take Water. The approval requirements for sanitary sewer, water and surface water management are documented in the *Report on Potential Water Quality Impacts (Surface Water and Groundwater)* and the *Report on Compatibility with Existing Infrastructure and*

Design/Operational Flexibility. Note: sanitary sewer servicing may be required pending final design of the facility and air pollution control system.

3.2.4 The Ontario Energy Board Act (OEBA)

The Ontario Energy Board regulates and issues licenses to generators of electricity. Certain generators (those that have an agreement with the Ontario Power Authority under the standard offer program) are exempt from the licensing requirements. The standard offer program allows small generators to sell electricity under contract with the OPA at a guaranteed price per kilowatt hour.

The power generated by the proposed Durham/York thermal treatment facility would not likely be eligible for one of the existing standard offer programs both in terms of the source of electricity generated and the amount generated as the project would generate more than 10MW of electricity. Therefore, regardless of the preferred location for the thermal treatment facility, it is likely that a generator license would be required.

Applicability to the Short-List of Sites

There are no site-specific issues related to the need for the issuance of a generators license by the Ontario Energy Board.

3.2.5 Endangered Species Act (ESA)

The *Endangered Species Act,* which is administered by the Ministry of Natural Resources, provides for conservation, protection, restoration or propagation of species of flora and fauna that are threatened with extinction in Ontario. On May 16, 2007, amendments to the *Endangered Species Act* were passed. The revised Act conforms to the federal *Species at Risk Act* for example, by adding additional species to the Province's list of species at risk. Any applicable requirements under *ESA* will be met.

Applicability to the Short-List of Sites

None of the Short-List sites were found to have Species at Risk on the sites themselves, but some such species have been documented by the Ministry of Natural Resources Natural Heritage Information Centre (NHIC) as occurring in the area (see the *Report on Potentially Environmentally Sensitive Areas and Species Impacts and Potential Aquatic and Terrestrial Ecology Impacts*). Once a preferred site has been identified, it is recommended that an investigation as to the potential for Species at Risk is completed to confirm there are no triggers under *ESA*

3.2.6 Ontario Heritage Act (OHA)

Applicable requirements under the *OHA,* which provides certain authority to preserve the heritage of Ontario, such as the protection of heritage buildings and archaeological sites, will be satisfied in accordance with the requirements of the *OHA*.

Applicability to the Short-List of Sites

The results of Stage 1 archaeological assessments undertaken for each of the Short-List sites indicates the potential presence of archaeological resources, which varies from site to site and considers the likelihood of resources existing within the vicinity of each site. As a result, a Stage 2 Archaeological Assessment will be undertaken on the preferred site to determine whether there are archaeological resources located within the project development area or site.

3.2.7 The Planning Act

The *Planning Act* establishes the regulatory basis upon which land use planning in Ontario is undertaken. The Ontario Planning Act governs land use and development throughout the province and requires that municipalities establish planning instruments such as official plans, zoning by-laws, etc. to manage land use within their jurisdictions.

To control land use province-wide, a set of Provincial Policy Statements have been established and must be addressed when developing a municipal official plan or any amendment thereof. The Minister of Municipal Affairs and Housing may declare provincial interest and request an amendment to an official plan despite the delegation of authority to municipalities.

Each municipal jurisdiction has an approved official plan that has been established to conform to provincial policy. In two-tier municipalities, there will be an applicable 'upper-tier' Official Plan and 'lower-tier' Official Plan. Municipalities are also directly responsible for the development, maintenance and application of Secondary Planning designations and policies, Zoning By-laws (zones and zoning provisions), Site Plan and Development planning approvals and construction permitting. The policies, provisions and development standards contained in each of these planning instruments will have to be taken into consideration, when determining sites that could be used for developing thermal waste processing facilities.

The Region of Durham's Official Plan contains policy 5.3.25, which generally permits municipal facilities and/or electric power facilities to be located within any designation. The Municipality of Clarington's Official Plan contains policy 21.2.2, which generally permits new utility facilities in any land use designation. The Municipality of Clarington's zoning by-law policy 3.18 exempts any use of land by the Regional Municipality of Durham for the provision of a public service.

The siting of any municipal thermal treatment facility within the Municipality of Clarington, therefore, generally will be permissible notwithstanding the land use designation and zoning of the proposed site.

The Regional Municipality of York Official Plan (September, 2007) does not include any provisions for public infrastructure and therefore, relies solely on designations within relevant Official plans and local municipal zoning by-laws.

The York Region Official Plan contains a policy regarding Waste Management (policies 6.8.2 and 6.8.3) which state that it is the policy of York Region Council to require an amendment to York Region's Official Plan for any new solid waste disposal facility and that any new solid waste disposal facility be designed and operated to meet the waste disposal needs of the Region of York only.

The Town of East Gwillimbury Official Plan Section 3.5 (ii) permits the development of electric power facilities in all land use designations, except for the Oak Ridges Moraine Plan Area.

Set out below is an analysis of the planning approval requirements, which would be applicable for each site absent the aforementioned municipal facility exemptions. These analyses do not consider the general municipal facility exemption from Official Plan and zoning by-law compliance in Durham and Region discussed above. This analysis has been undertaken to assess the general compatibility of a thermal treatment facility with the existing or proposed land uses of the surrounding lands as assessed by examining the official plan designation and zoning.

Applicability to the Short-List of Sites

Clarington 01

The following is a summary of planning approvals related issues for Clarington 01;

- Would not require an amendment to Durham Region's Official Plan;
- Would not require an amendment to the Clarington (Municipal) Official Plan;
- Zoning By-law amendment would not be required; and
- Will require Site Plan Approval prior to issuance of a building permit.

Clarington 04

The following is a summary of planning approvals related issues for Clarington 04;

- Would not require an amendment to Durham Region's Official Plan;
- Would not require an amendment to the Clarington (Municipal) Official Plan;
- Zoning By-law amendment would not be required; and
- Will require Site Plan Approval prior to issuance of a building permit.

Clarington 05

The following is a summary of planning approvals related issues for Clarington 05;

- Would not require an amendment to Durham Region's Official Plan;
- Would not require an amendment to the Clarington (Municipal) Official Plan;
- Zoning By-law amendment would not be required; and,
- Will require Site Plan Approval prior to issuance of a building permit.

East Gwillimbury 01

The following is a summary of planning approvals related issues for East Gwillimbury 01;

- May require an amendment to York Region's Official Plan;
- Would not require an amendment to the East Gwillimbury (Municipal) Official Plan;
- Zoning By-law amendment would not be required; and

- Will require Site Plan Approval prior to issuance of a building permit.

3.2.8 Conservation Authorities Act (CAA)

The *Conservation Authorities Act*, 1990 establishes the regulatory basis for the administration of Conservation Authorities within the province of Ontario. In accordance with Section 21 (1) of the Act, for the purposes of accomplishing its objectives, an authority has the power to study and investigate the watershed and to determine a program whereby the natural resources of the watershed may be conserved, restored, developed and managed.

In addition, in accordance with Section 28(I) of the *Conservation Authorities Act*, subject to the approval of the Minister of Natural Resources, a Conservation Authority may make regulations applicable in the area under its jurisdiction. The regulations can restrict and regulate the use of water in or from rivers, streams, inland lakes, ponds, wetlands and natural or artificially constructed depressions in rivers or streams, prohibiting, regulating or requiring the permission of the Authority for straightening, changing, diverting, or interfering in any way with the existing channel of a river, creek, stream, or watercourse, or for changing or interfering with a wetland. The regulations can also prohibit, regulate or require the permission of the Authority for development if, in the opinion of the Authority, the control of flooding, erosion, dynamic beaches or pollution of the conservation of land may be affected by the development. To this end, conservation authorities have been given the ability to regulate development by way of Fill, Construction & Alteration to Waterways Regulations under the Conservation Authorities Act.

Applicability to the Short-List of Sites

All of the sites require stormwater management facilities, and approvals under Regulation 179/06 of the *Conservation Authorities Act*. Once a preferred site is selected, detailed design of the required stormwater facility will be prepared and an application for a development, interference with wetlands and alterations to shorelines and watercourses permit will be filed with the appropriate Conservation Authority. All discharges of treated stormwater into a surface water body containing a known fish habitat will be done so in accordance with Conservation Authority guidelines and requirements and therefore will likely not trigger requirements under the Fisheries Act.

The local conservation authorities also require approval for any work within or causing alterations to regulated areas. There are multiple watercourse crossings along the potential sanitary service route for the East Gwillimbury 01 site, which would require approval from the Lake Simcoe Region Conservation Authority. There is also one watercourse crossing east of Lake Rd. required for the potential sanitary service route to the Clarington 04 site that would require approval from the Central Lake Conservation Authority. Note: sanitary sewer servicing may be required pending final design of the facility and air pollution control system.

3.2.9 Public Transportation and Highway Improvement Act (PTHIA)

All crossings under 400 series highways are subject to approval from the Ministry of Transportation (MTO). Crossings as part of this project will require concrete supporting columns larger than 500 mm diameter, which are considered high complexity by the MTO and requires that the design be signed and sealed by a consultant certified under the MTO's Registry, Appraisal and Qualification System (RAQS). To address the requirements of the *PTHIA* and to

obtain the required approvals and permits from MTO, supporting Traffic Impact Study(s), Stormwater Management Report(s), design plans, and other supporting documentation will be completed in consultation with MTO. Application for any such approvals would be submitted after the completion of the EA, which will address the requirements of the Class Environmental Assessment for Provincial Transportation Facilities.

Applicability to the Short-List of Sites

Any applicable requirements under the *PTHIA*, which is administered by the Ministry of Transportation, will be met. The potential sanitary sewer crossing of Highway 404 for the East Gwillimbury 01 site and the Highway 401 watermain crossing for the Clarington 04 site will be subject to MTO approval. Note: sanitary sewer servicing for East Gwillimbury 01 may be required pending final design of the thermal treatment facility and air pollution control system.

3.2.10 Building Code Act, 1992

The *Building Code Act, 1992* requires a building permit to be issued by a chief building official prior to construction of any buildings. Inspections will be required during construction as required in the Act. The Building Code is administered through the local municipalities but is legislated by the Province.

Applicability to the Short-List of Sites

The Building Code is applicable to any thermal treatment facility that would be built for the project, regardless of which site it is built upon.

3.3 Other Applicable Legislation

3.3.1 Sewer Use Bylaw

The Region of York maintains a Sewer Use By-Law (No.S-0064-2005-009) that sets limits on the strength and composition of sewage entering the municipal system. The Sewer Use By-Law was passed and enacted by York Regional Council in January 2005.

The Region of Durham maintains a Sewer System By-law (#90-2003) that imposes limits and conditions upon the usage of the Regional sewer system. The Sewer System By-law came into force on January 1, 2004.

Applicability to the Short-List of Sites

Discharges to the sanitary sewer system from a Durham/York thermal treatment facility would have to meet the requirements of the applicable sewer use bylaw based on the selection of the preferred site.

3.3.2 Electrical Grid Connection

All of the Short list of sites will require approval from the local hydro authority (Hydro One for the Clarington sites and PowerStream for East Gwillimbury) for the connection to the electrical grid. For all of the sites, a high level assessment of the connection to the 44 kV circuit at that site

will be required. This is called a Hydro One Initial Feasibility Assessment and is based on a "Form A" application. This assessment provides a list of any major obstacles and upgrades that may be required. Upon completion and feedback of the Form A, a Connection Impact Assessment (CIA) (based on Form B application) will be submitted. This provides more details on system upgrades that are required and a budgetary cost estimate. An Independent Electricity System Operator (IESO) System Impact Assessment (SIA) is also necessary, since the connection is over 10MW. This SIA allows the grid operators to review the application. This will likely be submitted by the local utility, but paid for by the project. Each of these approvals typically can take several months for review.

3.3.3 Natural Gas Connection

Enbridge would be responsible for the permitting, approval and construction of the necessary natural gas pipelines to the preferred site.

A Leave to Construct application (i.e. obtain approval for construction) from the Ontario Energy Board for the natural gas pipeline will most likely be required given that there may be multiple potential routes for provision of gas services to these sites. Once the preferred site is identified, Enbridge would assess the need for a Leave to Construct application.

An Environmental Assessment for the natural gas pipeline to serve the proposed Durham/York thermal treatment facility can be triggered by any of the following:

- Pipe size 12" diameter or larger,
- Cost of $2,000,000 or up,
- Pressure of 2000 kPa or higher,
- Pipeline distance of 20 km or greater.

Applicability to the Short-List of Sites

Enbridge would apply for all necessary permits, including those necessary from the Conservation Authority to address the watercourse crossings associated with constructing the gas pipeline to serve any of the Clarington sites.

In the case of the four Short-Lists the preliminary assessment of the pipeline requirements as documented in the *Report on Compatibility with Existing Infrastructure and Design/Operational Flexibility* indicates that it is unlikely that the pipeline required to service to any of the sites would trigger an environmental assessment.

4. Potential Required Agreements

4.1 Durham/York Agreement

The Regional Municipalities of Durham and York entered into a Residual Waste Management EA Study Agreement on June 30, 2005. This agreement addresses the undertaking of the EA Study and terminates upon completion of the Study.

Section 12 of the current agreement notes that:

> *Upon completion of the Study, the parties may enter into a new agreement governing (a) the preparation of a request for proposals designed to select a technology provider to implement the preferred technologies/systems and (b) the processing of all necessary legislative approvals.*

It is anticipated that prior to proceeding with submission of the EA Study to the Minister of the Environment for approval, that Durham and York will enter into a new agreement that addresses both the selection of a technology provider and proceeding with all necessary legislative approvals as identified in Section 3 of this report.

In addition, implementation of a Durham/York thermal treatment facility will require the development of an agreement that reflects the preferred business model selected by both municipalities. This may take the form of a new municipal utility and would require an agreement that sets out the allocation of assets and liabilities associated with the development and operation of the new facility.

Applicability to the Short-List of Sites

The Durham/York agreement would address the future relationships between the two municipalities including that of host community. However, there are no potential components of any future agreement that are known at this time that would vary pending the selection of the preferred site.

4.2 Waste Supply Agreements

Section 3.3 of the Approved EA Terms of Reference notes that:

> *…over the course of the Study, it may become evident that opportunities exist to provide capacity beyond that required by Durham and York. This excess capacity could be used to benefit the proponents and the broader environment. Dewatered biosolids, along with residual MSW from neighbouring non-GTA municipalities that may provide disposal capacity for processing residues outside the study area, or additional residual IC&I wastes from Durham or York are examples of potential waste streams that could be managed by surplus capacity identified during the EA process.*

A number of neighbouring non-GTA municipalities have expressed interest in the potential for supplying residual MSW to a Durham/York facility. It is the intent of Durham and York to develop memorandums of understanding (MOUs) with those municipalities that exhibit a serious interest in supplying residual municipal solid waste (MSW) that may be able to provide disposal capacity, such that these municipalities can be formally identified as Durham/York proceed with

the necessary approvals for the facility. Such MOUs would be replaced upon commissioning of a new Durham/York thermal treatment facility with formal waste supply agreements.

It is also possible, that Industrial, Commercial and Institutional (IC&I) generators of waste may also have an interest in supplying waste. If capacity were available at the facility, such arrangements would be formalized as they arise through agreements.

Applicability to the Short-List of Sites

No site-specific issues relative to waste supply agreements have been identified.

4.3 Disposal of Bottom Ash

Durham and York Regions lack landfill disposal capacity, and thus the bottom ash that is anticipated to be generated by a Durham/York thermal treatment facility would require landfill disposal at municipal or private sector landfill sites located outside of the Regions. It is anticipated that for a thermal treatment facility processing 250,000 tonnes per year of residual waste, approximately 56,000 tonnes of residue/bottom ash will require disposal.

There are two potential options that could be considered for the disposal of bottom ash:

- A reciprocal agreement(s) with one or more municipalities with which Durham and York Regions may enter into waste supply agreements, for acceptance of the bottom ash for disposal in their municipally owned landfill(s); or
- Use of private sector landfill capacity. For example the bottom ash could be disposed through York Region's existing contract for waste disposal that ends in 2022.

Applicability to the Short-List of Sites

No site-specific issues relative to bottom ash disposal have been identified.

4.4 Disposal of Fly Ash

A thermal treatment facility processing 250,000 tonnes per year of residual MSW is anticipated to generate just under 10,000 tonnes of fly ash annually. This material contains all of the pollutants captured by the air pollution control (or flue gas cleaning) system and requires management as a hazardous material.

There are two potential options that could be considered for the disposal of fly ash:

- Durham/York could enter into an agreement to utilize a proprietary technology available on the market that is capable of stabilizing the materials within the fly ash, such that the material would no longer be classified as hazardous; or
- An agreement for disposal of this material at an appropriate landfill facility, such as the Clean Harbours landfill near Sarnia or other licensed facility, would be required.

Applicability to the Short-List of Sites

No site-specific issues relative to fly ash disposal have been identified.

4.5 Land Acquisition

Land acquisition is undertaken through negotiation and agreements, culminating in the purchase of the property and transfer of title. Land acquisition is entirely site specific.

Acquisition of Lands for the Facility

Both East Gwillimbury 01 and Clarington 01 are currently municipally owned, by York Region and Durham Region respectively. Clarington sites 04 and 05 are privately owned properties, and as such if either site is selected as preferred, land acquisition would be required.

Easements

Easements may also be required for the development of the required infrastructure necessary to serve the new Durham/York thermal treatment facility. It is assumed that all linear infrastructure will be developed within existing right-of-ways.

4.6 Host Community Agreements

In April 2007, Durham and York Councils approved of a series of sixteen general Principles for the Host Community Agreement that address their commitments with respect to the permitting, siting and operations of a facility and also upon a series of general principles that York and Durham would request the lower tier municipality that has been chosen to host the thermal treatment facility to adopt.

Applicability to the Short-List of Sites

These principles would be applied consistently to the negotiation of the Host Community Agreements for the municipality containing any of the Short-List of sites under consideration.

4.7 Power Purchase Agreement - Electricity

The power generated by the proposed Durham/York thermal treatment facility would not be eligible for the existing standard offer program through the Ontario Power Authority. The terms of sale of the electricity generated by the facility would have to be set out either in an agreement with the Ontario Power Authority; potentially via the applicable local electrical utility distributor (this may be a flow-through); or by a direct sale agreement with an end user with large electricity requirements located in close proximity to the facility, such as the Regional Municipality of Durham's Courtice Water Pollution Control Plant (WPCP) or the Port Darlington WPCP.

Applicability to the Short-List of Sites

No site-specific issues relative to the Power Purchase agreement have been identified.

4.8 Heat Purchase Agreement – Hot Water or Steam

A Durham/York thermal treatment facility processing 250,000 tonnes per year of residual MSW is anticipated to generate low-grade heat in the order of 4,400 MJ/hour for each tonne of waste processed. The *Report on Compatibility with Existing Infrastructure and Design/Operational*

Flexibility has identified potential markets for this heat. A Heat Purchase Agreement would be required to address the sale of this hot water or steam.

Applicability to the Short-List of Sites

There are site-specific options related to the potential sale of heat.

- The Clarington 01 and 05 sites are in locations compatible for sale of hot water or steam to the Courtice WPCP facility that is owned by Durham Region. A Heat Purchase Agreement would be required addressing the sale of heat to the nearby Courtice WPCP.
- The Clarington 04 site is in a location compatible for sale of hot water or steam to the existing Port Darlington WPCP that is owned by Durham Region. A Heat Purchase Agreement would be required addressing the sale of heat to the nearby Port Darlington WPCP.
- The Clarington 01 and 05 sites are also compatible with the distribution and sale of hot water or steam to other occupants of the industrial park in which these sites are located. The Durham/York public utility for the thermal treatment facility could own potentially own and operate a district heating system within the industrial park, and would be responsible for direct sale of thermal energy to industrial clients. Heat Purchase Agreements would be required addressing the sale of heat to industrial clients within the industrial park.

5. Identification of Preliminary Site Advantages and Disadvantages

In order to evaluate the four Short-List sites and determine which site is best suited for the proposed undertaking, the net effects associated with each site were compared through the application of indicators reflecting the criterion of complexity of required approvals and complexity of required agreements. This evaluation is used to establish the relative advantages and disadvantages of each site. These advantages and disadvantages are based on the professional judgement of GENIVAR and Jacques Whitford and are presented in Table 5.1 below.

It is understood that the basic approvals required for a new Durham/York thermal treatment facility are the individual EA, and EPA approvals. Where site-specific issues indicate additional complexity of required approvals based on current knowledge, a disadvantage was identified. If there were no site-specific issues for an Act/Regulation or its related approvals requirements, then it was assumed that it would have no effect on the comparative assessment of the Short-List of sites and no reference to that approvals requirement is noted on the Table 5.1.

In regards to complexity of required agreements, the applicable indicator for this criterion pertains to the nature of property acquisition. While some added complexity related to the agreements related to the potential sale of heat were noted in Section 4.8 above, this was not relevant to the application of the criterion.

Table 5.1 Summary of Site Characteristics and Proposed Advantages and Disadvantages

Criteria	Indicator	Clarington 01	Clarington 04	Clarington 05	East Gwillimbury 01
Complexity of Required Approvals	Nature of approvals required.	DISADVANTAGE • *EAA*: Schedule 'B" Class EA requirements extension of sewer and water services • *CAA:* Watercourse crossing for gas service. Approval for stormwater management. • *PTHIA:* Extension of Natural Gas infrastructure under Hwy 401.	DISADVANTAGE • *EAA:* Schedule 'B" Class EA requirements extension of sewer and water services • *CAA:* Approval required for watercourse crossing for sanitary sewer service. Watercourse crossing for gas service. Approval for stormwater management. • *PTHIA*: Extension of Watermain infrastructure under Hwy 401. Extension of Natural Gas infrastructure under Hwy 401.	DISADVANTAGE • *EAA*: Schedule 'B" Class EA requirements extension of sewer and water services • *CAA:* Watercourse crossing for gas service. Approval for stormwater management. • *PTHIA:* Extension of Natural Gas infrastructure under Hwy 401.	DISADVANTAGE • *EAA:* Schedule 'B" Class EA requirements extension of sewer services • *CAA:* Potential Approval for multiple watercourse crossings for sanitary sewer service. Approval for stormwater management. • *PTHIA:* Potential Extension of Sewer infrastructure under Hwy 404. • Regional Official Plan amendment maybe required due to Waste Management Policies 6.8.2 and 6.8.3
	OVERALL	DISADVANTAGE	DISADVANTAGE	DISADVANTAGE	DISADVANTAGE
Complexity of Required Agreements	Nature of property acquisition (related to the need for expropriation, Region owned or willing seller site).	ADVANTAGE • Assume all linear infrastructure developed within existing right-of-way	DISADVANTAGE • Site is Privately owned, land acquisition required • Assume all linear infrastructure developed within existing right-of-way	DISADVANTAGE • Site is Privately owned, land acquisition required • Assume all linear infrastructure developed within existing right-of-way	ADVANTAGE • Assume all linear infrastructure developed within existing right-of-way
	OVERALL	ADVANTAGE	DISADVANTAGE	DISADVANTAGE	ADVANTAGE

6. Summary and Conclusion

In summary, the sites are listed below with associated advantages and disadvantages based on the evaluation of their suitability for the proposed project.

In regards to the overall complexity of required approvals, all of the sites are relatively equivalent, each having a disadvantage in that they all have some additional complexity of approvals beyond the minimum required approvals for a Durham/York facility (individual EAA, EPA approvals for Air, Noise and Waste). It is presumed below that all Durham sites are equal with respect to planning approvals given the general municipal facility exemption from compliance with the Regional and Municipal Official Plans and the Municipal zoning by-law.

Clarington 01: This site has the added complexity of approvals related to Schedule 'B" Class EA requirements for extension of sewer and water services, Conservation Authority approvals for the watercourse crossing for gas service and Ministry of Transportation (MTO) Approvals/Permitting for extension of Natural Gas infrastructure under Hwy 401. This site is advantaged in that there is no added complexity of agreements in that the site is already municipally owned.

Clarington 04: This site has the added complexity of approvals related to Schedule B Class EA requirements for the extension of sewer and water services, Conservation Authority approval for the watercourse crossing for sanitary sewer service, and Ministry of Transportation (MTO) Approvals/Permitting for extension of Natural Gas infrastructure under Hwy 401. Approvals/Permitting from the MTO will also be required for the extension of the necessary watermain infrastructure under Highway 401. This site is disadvantaged, given the added complexity of agreements to purchase the site, which is privately owned.

Clarington 05: This site has the added complexity of approvals related to Schedule 'B" Class EA requirements for extension of sewer and water services, Conservation Authority approvals for the watercourse crossing for gas service and Ministry of Transportation (MTO) Approvals/Permitting for extension of Natural Gas infrastructure under Hwy 401. This site is disadvantaged, given the added complexity of agreements to purchase the site, which is privately owned.

East Gwillimbury 01: This site has the added complexity of approvals related to Schedule 'B" Class EA requirements for extension of sanitary sewer services, Conservation Authority approvals for the watercourse crossing for sanitary sewer service and Ministry of Transportation (MTO) Approvals/Permitting for extension of the necessary sanitary sewer infrastructure under Highway 404. Note: sanitary sewer servicing may be required pending final design of the facility and air pollution control system. An amendment to the Regional Municipality of York Official Plan may be required to address Policies 6.8.2 and 6.8.3. This site is advantaged in that there is no added complexity of agreements in that the site is already municipally owned.

Overall, Clarington 01 and East Gwillimbury 01 exhibit the least disadvantages when considering both the complexity of required approvals and agreements in comparison with the other sites.

For the purpose of considering the net effects associated with each site in regards to "Legal Considerations - Complexity of Required Approvals and Complexity of Required Agreements", based on the results of the assessment described above, it is proposed that the relative advantages and disadvantages of the Short-List sites be as outlined in Table 6.1 below.

Table 6.1 Summary Table – Legal Considerations, Complexity of Required Approvals and Complexity of Required Agreements – Relative Advantages and Disadvantages

Criteria	Clarington 01	Clarington 04	Clarington 05	East Gwillimbury 01
Complexity of Required Approvals	DISADVANTAGE	DISADVANTAGE	DISADVANTAGE	DISADVANTAGE
Complexity of Required Agreements	ADVANTAGE	DISADVANTAGE	DISADVANTAGE	ADVANTAGE
OVERALL	NEUTRAL	DISADVANTAGE	DISADVANTAGE	NEUTRAL